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Welcome to the Winter issue of New Jersey Pediatrics

I hope that everyone is ready for a winter season of family, holiday fun and hopefully, a very mild Influenza season.

I want to highlight a day I had a few weeks ago.

It started with a new family to my practice. Mom, Dad and their two-month daughter had transferred into our practice shortly after leaving the hospital. During the visit, they asked “how many shots their little princess would be getting”. I responded saying she would be receiving three vaccines by injections and one oral vaccine. Almost in unison the parents remarked: “no she won’t, that is too many needles.”

This was followed a little later by a one-year old boy who toddled into the room, holding his pacifier in one hand and a little truck in the other. The father immediately asked, “what shot is the kid getting today?” I informed him that all of our patients at the one-year visit receive vaccines for chicken pox and measles, mumps and rubella.” The father then shouted back: “That’s the autistic shot, right?”

Well, you can see how my day was going.

Later that day, a young male was in for his 5th grade well care appointment along with his sister. After completing his physical and anticipatory guidance, I told his mom a nurse would be in shortly to administer his tetanus and pertussis booster, a meningitis shot and a vaccine for Human Papilloma Virus. Mom quickly responded: “you mean that sex shot?” So, as you can see, the day was filled with uncertainty, misinformation and vaccine hesitancy.

Until late August, dismissing families who did not want to follow the outlined schedule of childhood immunizations was not recommended or otherwise supported by the American Academy of Pediatrics.

Most parents who are hesitant about vaccines are not opposed to immunizing their children, but rather, are unsure or have questions and the best source for answers to their questions and concerns is their pediatrician.

So what are the concerns:

A. Vaccine safety: too many vaccines, development of autism, certain vaccine additives-(Thimerosol, aluminum), overloading the immune system, serious adverse reactions, potential for long-term events, inadequate research performed before licensure, vaccines may cause pain to the child or make the child sick.

B. Necessity of vaccines: the disease is more “natural” than vaccine, parents do not believe diseases being prevented are serious, vaccine-preventable diseases have disappeared, not all vaccines are needed or vaccines simply do not work.

C. Freedom of choice: Parents have the right to choose whether to immunize their child, parents know what’s best for their child, believe that the risks outweigh the benefits of the vaccine, do not trust government health authorities or pharmaceutical companies or simply wish to forgo vaccination for ethical, moral or religious reasons.

As providers, we are a consequence of our own success, and there is a tipping point between the concerns of disease risk and vaccine safety. This factors into the low perceived risk of Vaccine Preventable Diseases, under appreciation of disease severity, the slow adoption of new vaccines or new recommendations, as well as easy access to misinformation, which fosters a belief in persistent vaccine safety concerns.

In September, the American Academy of Pediatrics issued its clinical report on Countering Vaccine Hesitancy http://pediatrics.aappublications.org/content/138/3/e20162146

The AAP states, if parents continue to refuse vaccinations despite exhaustive efforts to change their minds, it would be “acceptable” for doctors to exclude them from their practices. Even as this clinical report gave physicians its blessing to dismiss vaccine refusers from their practices, the decision to show patients the door is often difficult.

We need to continue conveying that vaccines are safe and effective and that unvaccinated children and families are at greater risk to serious disease. Vaccine-hesitant individuals are a heterogeneous group and their individual concerns should be respected and addressed. Continue counselling families that:

• Vaccines are tested thoroughly before licensure
• Vaccine safety assessment networks exist to monitor vaccine safety after licensure.
• Nonmedical vaccine exemptions increase numbers of unvaccinated children and vaccinated children put unvaccinated children and medically exempt children at greater risk.

Pediatricians and other health care providers play a major role in educating parents about the safety and effectiveness of vaccines. Strong provider commitment to vaccination can influence hesitant or resistant parents or caregivers. The majority of parents accept the provider’s vaccine recommendations when they are presented as required immunizations that maintain optimal disease prevention. The current vaccine schedule is the only one recommended by the CDC and the AAP and Alternative schedules have not been evaluated.

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Executive Director’s Column

Fran Gallagher, MEd
Executive Director, NJAAP

Here’s wishing all of you and your families a happy, healthy holiday season, and a joyous and prosperous 2017! I’m looking forward to rolling up our sleeves and in partnership, making 2017 our best Chapter year ever. Exceptional members, leaders, partnerships, staff and a new home office to house our many programs set the stage for a productive year. We will be located off exit 8 of the Turnpike at 50 Millstone Drive in East Windsor.

In spite of the many unknowns ahead, the NJAAP Chapter Agenda for Children, 2016–2017 (www.NJ AAP.org) priority areas remain relevant to addressing the known challenges facing children, families and pediatric healthcare today and in the future. Our Agenda is focused on Pediatric Medical Homes, Access to Pediatric Care, Supporting a Culture of Health, Food Insecurity/ Healthy Weight & Activity, Immunization, Mental Health, Preventative Oral Health, and Facing Poverty. In each area we develop educational outreach for pediatricians/pediatric health teams and families, advocate for payment for pediatricians to support sustaining high quality pediatric care, and we serve as a resource for providing practices with technical assistance and linkages to solutions to issues faced. Our CME, MOC Part 2 & Part 4 programs are grant supported, enabling us to continue offering them at no cost. Visit NJAAP.org to learn more about these and other opportunities open to you. While you are there, take time to read the 2016 AAP Annual Report. Below are a few highlights.

- **Membership Benefits—Cost Savings for Practices:** see back cover of the Winter issue for details on our newest Purchase Alliance option for quality malpractice insurance at extreme savings.
- **Medical Home:** The multi-year pediatric medical home pilot with Horizon has supported care coordination in pediatric medical homes. Effective 2017, all Horizon providers will be paid for written care coordination plans for children with chronic health care conditions and paid to review them periodically.
- **Mental Health Access Improved:** 265 pediatricians from 11 counties participate in regional hubs to identify children with mental health needs, gain technical assistance from a Child and Adolescent Psychiatrist, Psychologist and Social Worker - in real time — and link children and families to services (Jersey Shore University Medical Center, Cooper and St. Peter’s Hospitals) as part of the Pediatric Psychiatric Collaborative; 77 pediatricians from 20 practices participated in a Mental Health MOC Part 4 program. Results? Over 21,000 children have been screened for mental and behavioral health issues with approximately 1400+ referrals made to the hub for further evaluation and/or to assist in the coordination of care for children with mental and/or behavioral health care needs.
- **Culture of Safety/ Child Abuse & Neglect Prevention & Intervention:** In addition to providing training for over 600 pediatricians and nurses in reference to Child Abuse and Neglect Prevention and Intervention, we partnered with Cooper University and St. Joseph’s Hospital to provide regional trainings. At Cooper, 16 pediatricians from 6 practices participated in the inaugural training and 26 pediatricians from 10 practices attended the St. Joseph’s program. In addition, several pediatricians discovered a way to become involved … they became new MD trainers for the program moving forward.
- **Culture of Safety/ Human Trafficking:** NJAAP has partnered with 50 organizations nationally to submit a competitive application to the MacArthur Foundation competition to win a $100 million award to fund a single proposal for solving a critical problem of our time. Our focus is human trafficking. NJAAP is one of 5 organizations serving as the governing body. Dreaming big? As you read this issue, we remain in the running after the initial number of registrants (7,800) was reduced to the 1,800 who submitted a formal application. In December, NJAAP learned we were 1 of the 800 applications to be considered for selection of 1 of the 10 semifinalists. If chosen as a semifinalist, a ‘coach’ will be provided to help us prepare for the final presentation to multiple funders in Washington D.C. A final decision will be reached in January–stay tuned!

continued on page 14
Medical Director’s Column

Steven Kairys, MD, MPH, FAAP
Chairman, Department of Pediatrics
Jersey Shore University Medical Center
Medical Director, K. Hovnanian Children’s Hospital
Medical Director, NJAAP

It is alarming to note that a ubiquitous concern impacting the health and welfare of nearly 25 percent of the children living in New Jersey, is rarely perceived as a healthcare priority. In this column, I would like to speak to you about that emergent concern: the health and welfare of immigrant and refugee children and their families.

Immigrant children are identified as children who are either foreign or US-born, and are living with at least one foreign-born parent. Eighty-nine percent of these children are born in the United States; they represent the fastest growing segment of the US population. 25% of NJ’s children are immigrants, placing our state in the top six states in the country.

Immigrant and refugee children have issues similar to the many children living in poverty, substandard or overcrowded housing, or with inadequate or no health insurance. These challenges can become considerably more complex when cultural issues unique to their country of origin, their health beliefs, and language barriers are taken into account. Furthermore, many have never received health screenings, their health records are incomplete or missing; many are under-immunized and many are at risk for Tuberculosis, parasites, environmental toxins and undernourishment.

Large numbers of these children are victims of trauma from catastrophic family disruption, and fear of hostile discrimination. Others, confronting the fear or reality of deportation of parents, experience a lack of safety and security, mounting anxiety, depression, trauma and the toxic burden of greater poverty and instability.

Pediatricians can play a vital and reassuring role for these children, especially through our uncertain times ahead. In order to provide the care and support they require, we must first increase our competence in addressing the health and social concerns impacting them, and acquaint ourselves with the resources and supports that currently exist in our counties and communities.

AAP has developed a very useful toolkit on immigrant health and the Chapter is committed to disseminating this and other educational programs and materials to members as they become available. Addressing the health and welfare of these children and their families is congruent with our Agenda for Children, specifically, the priority, Supporting a Culture of Safety. I invite you to share your thoughts, ideas, time and recommendations with Chapter leadership so together, we can raise the bar on providing the pediatric care that meets the health and welfare needs of these children and their families.

In closing, I want to make sure that our entire membership is aware our Chapter Headquarters will be moving from its present location in Trenton to its new home in East Windsor just eight miles away. This new facility will afford the ability to house all of our programs and hold many of our meetings under one roof.

Enjoy your Holidays and stay committed to the Academy.
Background

Fetal Alcohol Syndrome is the leading preventable cause of Intellectual Disability. It is a specific syndrome due to the effects of alcohol exposure in utero. There are four diagnostic criteria including:

- Known exposure to alcohol
- Poor growth
- Facial features: flattened philtrum, thinned upper lip, small eyes, and
- Developmental dysfunction on a continuum with the most severe being Intellectual Disability.

Fetal Alcohol Spectrum Disorder (FAS) describes the complete range of effects that occur when a mother drinks alcohol during pregnancy. It includes Alcohol Related Birth Defects (ARBD), Alcohol Related Neurodevelopmental Disorders (ARND), Partial FAS and Fetal Alcohol Effects.

FASDs are 100% preventable - if a woman does not use alcohol while she is pregnant. Alcohol freely crosses the placenta and acts as a teratogen, rendering the drinking of any amount of alcohol unsafe at any time during pregnancy. However, it is important to know that much of the neurologic damage from alcohol occurs before women may even be aware that they are pregnant. Rates of metabolism vary and other factors contribute to greater risk. Even low levels of alcohol consumption during pregnancy such as one drink per day to one drink per week have been associated with measurable long term effects on the growth and behavior of children. Among pregnant women aged 15–44 years and estimated 8.5% reported current alcohol use. The full Fetal Alcohol Syndrome represents a very small percentage of children affected by prenatal alcohol exposure. However, even children without the full syndrome experience life-long debilitating learning and behavior problems.

Identifying children at greater risk for FASD

Children may not always present with clear features of FAS and while all should be screened, there are some populations that may be at greater risk of prenatal exposure to alcohol including:

- children with other known prenatal exposures,
- children in foster care,
- children exposed to trauma or neglect
- children of women with a history of significant mental illness.

Diagnosis of Fetal Alcohol Syndrome

In New Jersey, there are five NJ Department of Health-funded diagnostic centers to which children can be referred for a comprehensive assessment of the effects of prenatal exposure to alcohol by examining deficits in growth, facial abnormalities, brain function, and confirmation of prenatal exposure to alcohol. A multidisciplinary team approach to diagnosing Fetal Alcohol Spectrum Disorders is recommended. If the child has known exposure to alcohol prenatally, earlier diagnosis can contribute to improved outcomes. The team may consist of Developmental Pediatrician or Neurologist, psychologist, social worker, nurse coordinator, speech/language therapist, learning consultant, and physical/occupational therapists. The team uses the diagnostic criteria to investigate the possibility of FASD and clarifies the child's full learning profile to identify co-morbid conditions that are interfering with functioning. The information is fully explained to the family and they are encouraged to share with school personnel for implementation of appropriate supports if not already in place. There is care coordination with the child's medical home. It is state mandated that children diagnosed with FAS be registered with the NJ Birth Defects Registry. The registry then connects families with special child health services through the Department of Health.

Effects of Prenatal Exposure to Alcohol

Growth restriction—babies are born smaller than expected for gestational age and remain so throughout life. The growth deficiency is due to teratogenic insult not postnatal environmental factors. FASD should be considered in children with unexplained poor growth of less than the 5–10% for both height and weight, who have ADHD and learning difficulties.

Facial features—small eyes (short palpebral fissures), thin vermilion border of the upper lip and smooth philtrum (ranks of 4–5 on racially normed lip/philtrum guide, if available).

Central Nervous System abnormalities—microcephaly, all brain regions can be affected particularly thinning of corpus callosum. Functional neurologic impairment can include cognitive, executive functioning, language, motor, social skills, learning and memory, processing, attention/hyperactivity, sensory and mental health.

continued on next page
Effects of prenatal exposure to other substances

Nicotine exposure:

Nicotine concentrations are higher in the placental, amniotic fluid and fetal blood compared to maternal blood. It is associated with low birth weight and intrauterine growth restriction. The baby does not experience withdrawal symptoms. There are higher rates of impulsivity, attention problems, hyperactivity, negative and externalizing behaviors. There are higher rates of delinquency, criminal behavior and substance abuse in adolescence into adulthood.

Marijuana Exposure:

Although the main chemical component THC crosses the placenta, its major metabolite does not. The placenta limits fetal exposure to marijuana. It does not affect fetal growth and there are no withdrawal symptoms. There is 5x the amount of carbon monoxide than cigarette smoking. It is associated with increased startle and tremors in the newborn. Also found to be associated with inattention and hyperactivity at 10 years old.

Cocaine Exposure:

Cocaine easily crosses the placenta and blood brain barrier affecting areas of the brain that regulate attention and executive function. Arousal, attention and memory may be adversely affected by prenatal exposure to cocaine. Exposure during the development of the nervous system may lead to permanent changes in the brain structure and function causing altered responsiveness to environmental or pharmacologic challenges later in life. There is no predicted overall changes in development, IQ or school readiness.

Opiate Exposure:

Opiates rapidly cross the placenta and exposure results in significant withdrawal symptoms Neonatal Abstinence Syndrome: sweating, irritability, increased muscle tone and activity, feeding problems, diarrhea and seizures often requiring medical management. Methadone can cause more severe withdrawal than heroin. Hyperactivity and short attention have been noted in toddlers. Memory and perceptual problems can be an issue. There are no consistent findings regarding IQ and learning.

Of all the substances of abuse (including cocaine, heroin and marijuana), alcohol produces, by far, the most serious neurobehavioral effects in the fetus

FASD Presentation at Different Ages

Infants

Infants can have significant sleep problems marked by difficulties with onset of sleep and frequent waking after only short sleep cycles. They are easily over-stimulated which can impact feeding. They may benefit by reduction of stimulation. Darken the room, swaddle before feeding and reduce noise. Developmental delays may present early; therefore, children should be referred to the New Jersey Department of Health, Division of Family Health Service, Early Intervention Program, which implements the New Jersey statewide system of services for infants and toddlers, birth to 3 years of age. The evaluation process is free of charge and fees for services fees are determined on a cost share basis. The program is family-centered and therapy services are provided in the home.

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Table 1: New Jersey Regional Fetal Alcohol Spectrum Disorder Diagnostic Centers

<table>
<thead>
<tr>
<th>Jersey Shore University Medical Center</th>
<th>Children’s Seashore House of the Children’s Hospital of Philadelphia</th>
<th>Children’s Specialized Hospital</th>
<th>Children’s Specialized Hospital</th>
<th>Rutgers/New Jersey Medical School</th>
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<tr>
<td>FAS Diagnostic Center Child Evaluation Center</td>
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<td>FAS Diagnostic Center Child Evaluation Center, Behavioral Health Science Bldg., F Level</td>
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<tr>
<td>81 Davis Ave, Suite 4 Neptune, NJ 07753</td>
<td>4009 Black Horse Pike Mays Landing, NJ 08330</td>
<td>150 New Providence Rd. Mountainside, NJ 07092</td>
<td>6106 Black Horse Pike Egg Harbor Twp, NJ 08234</td>
<td>183 South Orange Avenue Newark, NJ 07103</td>
</tr>
<tr>
<td>Phone: (732) 776-4178 ext. 2</td>
<td>Phone: (609) 677-7895</td>
<td>Phone: (908) 301-5511</td>
<td>Phone: (888) 244-5373 or (908) 233-3720</td>
<td>Phone: (973) 972-8930</td>
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</tbody>
</table>
School aged Children

Learning difficulties can range from mild learning problems to Intellectual Disability. It is important to note that often time IQ is not an accurate representation of the child's true functional abilities. IQ scores may be within the average to low average range but the child's functioning is quite impaired. These children can have much more difficulty with social judgment, understanding cause and effect and performing basic self-help skills. Measures of adaptive functioning such as the Vineland Adaptive Behavior Scales and the BRIEF measuring executive functioning may be more representative of the child's capabilities. This age group continues to experience sleep and feeding difficulties. They commonly have difficulty separating fact from fantasy and have boundary issues. ADHD with a high degree of reactivity and emotionality may respond to consistency, high degree of structure, clear expectations and positive behavior management strategies. Medications to supplement these other interventions can be useful. Below are three behavioral and educational therapies that have been shown to be effective for some children with FASDs.3

1. Good Buddies—A children's friendship training to teach individuals with FASD appropriate social skills.

2. Families Moving Forward (FMF) program to provide support for families who deal with challenging FASD behaviors. This intervention is most appropriate for children with severe, clinically significant behavior problems that is based on positive behavior support techniques.

3. Math Interactive Learning Experience (MILE) program to help with mathematics difficulty.

Co-morbid conditions can also include Oppositional Defiant Disorder, although this needs to be considered carefully as it overlaps with ADHD and children may appear defiant if they are not able to meet the educational or social demands. Autism Spectrum Disorders are also seen in children with FASDs as well as high levels of anxiety, depression and other mood issues.
Adolescents

Adolescents with FAS/FASDs still need high levels of supervision, limits and protection due to difficulties with abstract reasoning, social judgement and memory. They are more likely to be drawn into high risk behaviors. They are more susceptible to suggestions from television, websites, and social media outlets including YouTube. They can have difficulty with daily hygiene and may have sexual preoccupations. There is high risk for school drop-out due to academic struggles. Adolescents with FASDs struggle with common sense and reasoning often times not reflected by IQ scores. It is not uncommon to have much lower adaptive functioning. It is important to advocate for comprehensive functional and socially meaningful programming that will appropriately address the individual’s needs. Transitioning to young adulthood includes consideration of guardianship, if capabilities are low and the individual needs support for medical decision making and money management. Vocational training that includes on site instruction and job placement can be provided by the individual’s school district through the age of 21 years. Medical documentation and advocacy can ensure that these necessary services are in place. Mental health screenings are useful tools to determine underlying depression, anxiety that may be secondary to social isolation. Counseling to promote self-awareness and acceptance may lead to improved self-esteem.

Below are three cases that further illustrate the difficulties children and adolescents with FASD experience. Each case demonstrates the importance of comprehensive supportive services and medical advocacy.

Child Presentation 1

Clare is a 3½ year old girl previously in foster care and then adopted. She is very affectionate and has a great sense of humor. She has a very short attention span and needs constant redirection even for her developmental level. She has severe tantrums with throwing items, flailing and screaming. Car rides are very difficult as she does not like to be confined and aggravates the other children screaming and kicking. She has sleep difficulties and instead of sleeping has pulled the wallpaper off the wall. She is described as very demanding, intense and defiant. She yells back when disciplined. Her biological mother had no prenatal care, used alcohol, heroin and methadone during pregnancy. She was born prematurely at 27 weeks gestation with multiple medical problems and spent 4 months in the Neonatal Intensive Care Unit. He was transferred to a chronic care facility where he remained until 14 months and then went home with his pre-adoptive family. At 2½ years old he was climbing out of the crib onto the shelves. He was described as fearless and has a significantly high activity level with reactivity, impulsivity and aggression from a very young age. He has sleep difficulties with trouble falling asleep even with melatonin and wakes several times during the night. He gets up, gets into food and breaks household items. He has difficulties in school with listening and following directions. There are learning difficulties. He has deliberately hurt the family pet.

Child Presentation 2

J is 7 year old boy who presented with several developmental difficulties. He has been diagnosed with FAS and ADHD. He is described as sweet, curious and inquisitive. His teacher indicates that he is funny. He is a great helper and a good friend. Past medical history is significant for prenatal exposure to alcohol, cigarettes and crack cocaine. His mother had diabetes treated with insulin. He was born prematurely at 27 weeks gestation with multiple medical problems and spent 4 months in the Neonatal Intensive Care Unit. He was transferred to a chronic care facility where he remained until 14 months and then went home with his pre-adoptive family. At 2½ years old he was climbing out of the crib onto the shelves. He was described as fearless and has a significantly high activity level with reactivity, impulsivity and aggression from a very young age. He has sleep difficulties with trouble falling asleep even with melatonin and wakes several times during the night. He gets up, gets into food and breaks household items. He has difficulties in school with listening and following directions. There are learning difficulties. He has deliberately hurt the family pet.

Child Presentation 3

Jan is a 14 year old girl in 8th grade who has been diagnosed with FAS. She has struggled with many of the difficulties described above. She is receiving special education services. She is excessively on the internet and is obsessed with celebrities. She has difficulty distinguishing fact from fantasy. She reports that she is teaching herself German. She is involved in a mental health program 2 days a week. She has no friends and doesn't really want to interact with family. She is asking about her learning difficulties and physical differences. Updated testing revealed a full scale IQ of 73 although learning scores were in the average range. Vineland adaptive behaviors scales demonstrated significant impairment with an adaptive composite of 55. Recommendations were made for transition planning, pre-vocational testing and training with emphasis on vocational functional skill development. Social skills group to foster peer interactions was also recommended. She returned at the age of 17 years in 11th grade. She did not receive vocational training and was scheduled to graduate at the age of 18 years because her academic scores were not low. Her school district was contacted directly by the physician to convey recommendations of realistic vocational opportunities, training with job training and placement, school placement through 21 years, services through Division of Developmental Disabilities, life skills training to improve adaptive behavior, self-help, problem solving and social interactions. After reviewing the medical documentation, her school district enrolled her in vocational training and agreed to keep her in the program beyond the age of 18 years.

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Summary

Although individuals with FASDs face many challenges, early identification and diagnosis allows for ongoing comprehensive management. Clarification of co-morbid conditions allow for targeted interventions. Special education programming to remediate and implement multi-sensory teaching methods will contribute to optimizing the child’s learning potential. Related services including speech/language occupational and physical therapies can improve these areas of functioning. Specific programs to teach social skills at the various developmental levels can promote socially appropriate behaviors and interactions. A loving, nurturing and stable home environment with the absence of violence contributes to the child’s well-being. Fostering stable family life involves ensuring that the needs of the parent are also met. Involvement of Children's System of Care (CSOC) can mobilize in-home services to support the family. These protective factors help reduce the effects of FASD. When assessing a child with possible FASD, consider a complete multidisciplinary evaluation at one of the 5 state FAS diagnostic centers.

References

2. SAMSA 2013

Resources

Pediatrics 2016 138: Updated Clinical Guidelines for Diagnosing Fetal Alcohol Spectrum Disorders Hoyme, H.E. et al

For additional information and learning opportunities pertaining to the Assessment and Management of FASD, visit www.njaap.org/event/webinars to access the three-part FETAL ALCOHOL SPECTRUM DISORDER WEBINAR SERIES:

Part 1 – Prenatal Alcohol Exposure
Part 2 – Assessment & Management of FASD
Part 3 – Addressing Behavioral and Educational Issues to Support Children with FAS/FASD and Their Families –

1.0 CME, CNE, & CE contact hour is awarded per webinar.
CME Quiz

1. How much alcohol is safe for a pregnant woman to drink?
   a. 1–2 drinks per day
   b. 1 drink a week
   c. Any amount in the third trimester
   d. None

2. The characteristics of an individual who has been diagnosed with FAS include:
   a. Growth retardation
   b. Facial dysmorphology
   c. Central nervous system dysfunction
   d. All of the above

3. The placenta protects the developing fetus from prenatal alcohol exposure.
   a. True
   b. False

4. Minimizing chaos and decreasing sensory stimulation are some of the modifications that can be made to the environment for young children with FASD.
   a. Yes
   b. No

5. Assessment of children for possible FAS/FASD should be a team approach with emphasis on multi-disciplinary evaluation and comprehensive management.
   a. Yes
   b. No

6. All of the following are concerns for children with FAS except:
   a. Poor peer/social relationships
   b. Mental health concerns (mood swings, depression, anxiety)
   c. Good sense of self esteem
   d. Poor judgement

7. Which of the following areas need to be considered for an adolescent with FAS/FASD transitioning into adulthood?
   a. Guardianship
   b. Job training
   c. Housing
   d. Adult providers
   e. All of the above

8. Universal protective factors include:
   a. Early diagnosis
   b. Stable, nurturing home environment
   c. No violence/victimization
   d. Educational and social services
   e. All of the above

9. Possible misdiagnosis or co-occurring conditions include:
   a. Autism Spectrum Disorder
   b. Oppositional Defiant Disorder
   c. Generalized Anxiety Disorder
   d. All of the above

10. There are 5 Dept of Health funded FAS diagnostic centers across the state of NJ
    a. True
    b. False
Acute Onset Lower Extremity Weakness in an 18 Year-Old Caucasian Female

The patient is admitted to the pediatric floor where she is carefully monitored for signs of respiratory distress due to concern for Guillain-Barre Syndrome. Repeat lab work shows potassium of 2.3 mmol/L, phosphorus of 3.5 mg/dL, and magnesium level of 1.3. Thyroid studies are sent and show elevated free T4 (19 ug/dL) and decreased TSH (0.01 uIU/mL). Methimazole and magnesium supplementation are started, and to address the hypokalemia, she is initially given IV followed by PO potassium. Heart rate improves, and no beta blocker was needed. On hospital day 3 her potassium levels improve to 3.8 mmol/L, and weakness resolves. Potassium supplement is discontinued, and the patient is able to maintain normal potassium levels. Lower extremity strength is back to baseline prior to discharge.

Since her admission, the patient has been well with no further episodes of weakness. She has continued on methimazole but has not required potassium supplementation. Further laboratory evaluation indicated elevated thyroid stimulating immunoglobulin consistent with a diagnosis of Graves’ Disease.

Discussion:

Thyrotoxic periodic paralysis (TPP) is a rare potentially fatal complication of hyperthyroidism. It is characterized by acute onset of hypokalemia and weakness in the setting of hyperthyroidism, most commonly due to Graves’ Disease.\1\ The male-to-female ratio has been reported from 17:1 to 76:1 despite the fact that hyperthyroidism is more common in females (female-to-male ratio of 9:1), and TPP is particularly more common in young Asian men.\2\ The pathophysiology of TPP remains unclear. However, it is known that the hypokalemia in TPP is due to a shift of potassium intracellularly and not to total body depletion of potassium. The hypokalemia may then cause hyperpolarization of the cell membrane resulting in paralysis. The transcellular distribution of potassium is managed by the Na+/K+-ATPase in the cell membrane, which is stimulated by insulin and beta-adrenergic catecholamines to increase potassium influx into cells. There are several postulations regarding how thyrotoxicosis influences this cellular shift of potassium. Thyroid hormone itself has been shown to directly stimulate Na+/K+-ATPase activity.\3,4\ In patients with thyrotoxicosis and normal muscle function who were compared with patients who develop TPP, there was greater Na+/K+-ATPase activity in the group with TPP.\4\ Thyroid hormone increases the sensitivity and number of beta-receptors, increasing catecholamine-mediated potassium

continued on next page
influx, which may explain why stress may precipitate attacks of TPP. Insulin is well-known to increase activity of the Na+/K+-ATPase, causing influx of potassium into cells, resulting in hypokalemia, which may explain why high carbohydrate ingestion, obesity, and insulin-resistance have been associated with TPP.6 The male predominance of TPP may reflect androgen influence on Na+/K+-ATPase activity.7

Clinical manifestations of TPP consist of acute onset of muscular weakness, often affecting the proximal muscles of legs and may range from mild weakness to paralysis. Decreased muscle tone with normal or decreased deep tendon reflexes is commonly observed. Bulbar paralysis and respiratory compromise, though rare, have been reported in few cases.8-10 Sensation, level of consciousness, and bowel and bladder function are usually spared. Episodes typically occur in the morning or evening hours, and known precipitating factors include strenuous exercise, high carbohydrate meal, emotional stress, trauma, exposure to cold, infection, alcohol ingestion, menses, and medications, such as insulin, steroids and diuretics.11 The weakness may last a few hours to a few days. Findings of thyrotoxicosis may not be evident but are important clues to the diagnosis.12 Fatalities in TPP have been reported due to dysrhythmias and respiratory failure.13-17

Laboratory abnormalities in TPP include hypokalemia and thyroid studies consistent with thyrotoxicosis. Mild hypophosphatemia, hypomagnesemia, and urine calcium to phosphate ratio greater than 1.7 are more likely to be present in TPP and help distinguish from familial hypokalemic periodic paralysis.18-21 Urine potassium is appropriately low and acid-base status is normal, and may help distinguish TPP from renal tubular acidosis. Elevation of CPK may be present in up to two-thirds, and rhabdomyolysis has occurred in patients with TPP.1,22 Electrocardiogram changes are commonly present and most frequently include flattened T waves, diffuse ST changes, sinus tachycardia, U waves, and prolonged QT intervals.3 Atrioventricular blocks, ventricular fibrillation, ventricular fibrillation, and sinus arrest have also been reported.13,14,17,23,24

The differential diagnosis of acute weakness in the setting of hypokalemia includes familial hypokalemic periodic paralysis, idiopathic hypokalemic periodic paralysis, renal tubular acidosis, Conn syndrome, and other conditions that may cause hypokalemia, including diuretic use and diarrhea. Because patients with TPP may have no or subtle signs of thyrotoxicosis, the importance of obtaining thyroid studies must be stressed in order to distinguish TPP from idiopathic or familial hypokalemic period paralysis. The presentations of each are quite similar, but management differs. Additionally, it is also important to consider other causes of acute onset weakness including Guillian-Barre Syndrome, spinal cord compression, transverse myelitis, tick paralysis, severe thyrotoxic myopathy, polymyositis, and infectious myositis.

The mainstay of management of TPP is correction of hypokalemia to prevent cardiac arrhythmias and improve muscle weakness. Treatment of thyrotoxicosis is also needed. Generally, severity of muscle weakness improves as hypokalemia is corrected. Oral or IV potassium may be used, and it has been suggested that approximately 27 mEq of potassium be given every 2 hours orally for 6 hours, then every 4 hours with close monitoring.25 The average recovery from hypokalemia with potassium supplementation occurs within 5 hours.1 It is important to appreciate that TPP patients do not have a total body deficiency of potassium, and TPP is instead due to intracellular shifts of potassium into cells; therefore, potassium replacement must be given judiciously with close monitoring, as overly aggressive treatment may result in rebound hyperkalemia. A nonselective beta-blocker, such as propranolol, may also be included in management, as it can blunt the hyperadrenergic stimulation of the Na+/K+-ATPase, decreasing the intracellular shift of potassium. The recommended dose of propranolol has been suggested to be 20 to 40 mg, 3 to 4 times per day.26 It is not necessary to correct hypophosphatemia and hypomagnesemia as they typically normalize with correction of potassium.1,27 Because TPP does not recur when euthyroid status is achieved, management of hyperthyroidism is vital to prevent future attacks of TPP. Initially beta-blockers and anti-thyroid medications are effective, but radioactive iodine or thyroidectomy may be necessary depending on the underlying cause of thyrotoxicosis. Additionally, patients should be encouraged to avoid precipitating factors including heavy carbohydrate intake, alcohol ingestion, and excessive physical activity until thyrotoxicosis is under control.

Conclusion
Thyrotoxic periodic paralysis is a rare complication of thyrotoxicosis. It is most common in young Asian males, but must be considered in any patient presenting with acute onset weakness, as this case highlights that TTP can be a presentation of thyrotoxicosis in a Caucasian female. While the diagnosis of thyrotoxic periodic paralysis is a rare diagnosis, we hope that this case will encourage consideration of TPP in patients with acute onset weakness and hypokalemia.
References


continued from page 4

• **Preventative Oral Health:** NJAAP with NJDA, NJ Oral Health Coalition, Henry Schein Foundation, ADA Foundation and Rutgers School of Dental Medicine have made a joint commitment to create a new collaborative, Health Home 2.0; an initiative to be piloted in NJ and potentially become a national model for medical-dental integration that ensures every child is connected with a Medical and Dental Home and that their care is coordinated. On February 3rd, in NYC at NASDAQ the proposal will be “unveiled” as part of the 15th Anniversary celebration of Give Kids a Smile.

• **Food Insecurity:** NJAAP received a grant from the Food Trust (via funding from RWJ Foundation), to develop a MOC Part 2 program, pilot it in NJ and replicate it with other AAP Chapters. The program will focus on screening for food insecurities using 2 evidence-based questions and innovative technology for linking families who screened positive to healthy food in their communities.

These truly are just a few of the highlights, there are many more. We have secured new resources and funding from NJDOH to develop educational activities and public messaging related to Zika and Lead. Our NJ Immunization Network is extremely active in working to raise immunization rates across the lifespan, and leading the first AAP District-wide Quality Improvement Program: Hub & Spoke with a focus on HPV. Our conferences have grown to record numbers of attendees and exhibitors, helping increase revenues for supporting special projects and member benefits. With a focus on practice transformation, NJAAP has established the Pediatric Practice Management Alliance.

Looking to get involved? Want to learn more about how to maximize membership value or tap NJAAP resources? Reach out to leadership or staff with your questions, thoughts or ideas. Join us at our conferences and/or trainings. Getting involved and engaging colleagues to do the same, will help ensure we remain a strong and supportive voice for children, families, and pediatricians throughout the certain uncertainty ahead. Thank you for your membership and thanks for all you do every day! Til next year….

Warm Regards,

[Signature]

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14 New Jersey Pediatrics Winter 2016 www.njaap.org
Abstract:

**Introduction:** The duration of time from the initial out of hospital cardiac / respiratory arrest to initiation of cardiopulmonary resuscitation (DownTime) and to return of spontaneous circulation / respiration (ROSC) is of critical importance upon the final neurodevelopmental outcome. In a large referral hospital in central New Jersey, we found that bystander cardiopulmonary resuscitation has a significant impact on DownTime, ROSC and outcome.

**Methods:** For the period 2011–2015, in a large referral children's hospital, we reviewed all admissions with the diagnosis of apparent life threatening event (ALTE), cardiac or pulmonary arrest, acute respiratory failure, drowning and apnea, who received at least one element of the CAB (chest compression, airway manipulation, breathing) of cardiopulmonary resuscitation (CPR). Patient characteristics, care from point of arrest / ALTE until final disposition and outcome were compared using the pediatric cerebral performance category scoring system. The scoring system ranged from 1 being discharged essentially neurologically intact to 7 being death.

**Results:** Fifty-nine (59) subjects were identified as satisfying the inclusion and exclusion criteria. Fifty-one (86%) survived to hospital discharge. Forty-one (69%) survived neurologically intact. Eight (14%) died. Out of 36 patients who received resuscitation measures within 5 minutes, 33 (92%) survived and 27 (85%) survived neurologically intact. Bystander CPR decreased the DownTime and the time to ROSC.

**Conclusions:** Bystander CPR prevents progression to full cardiopulmonary arrest. For those in full cardiopulmonary arrest, ROSC is most significantly correlated with neurological outcome. Thirty (30) minutes without ROSC is a reasonable cut-off to end CPR, since longer time periods are generally associated with poor outcome or death.

**Keywords:** cardiac arrest, cardiopulmonary resuscitation, bystander CPR, pediatric out of hospital cardiac arrest, return of spontaneous circulation

**Abbreviations:** OHCA= pediatric out of hospital cardiac arrest; DownTime = time from initial out of hospital cardiac/respiratory arrest to initiation of cardiopulmonary resuscitation; ROSC = return of spontaneous circulation / respiration; ALTE= apparent life threatening event; CPR=cardiopulmonary resuscitation; BLS = Basic Life Support CPR as taught by the American Heart Association; bCPR= CPR done by bystander, CAB= sequence of resuscitation in BLS starting with chest compression, then airway manipulation, and then breathing; EMS= Emergency Medical Service; ED= Emergency Department; CPCP= Pediatric Cerebral Performance Category score; SPSS=Statistical Package for the Social Sciences.

**Introduction:**

Out of hospital cardiac arrest is a major cause of mortality in the adult population, with survival rates as low as 6%–9%\(^1\). Pediatric out of hospital cardiac arrest (OHCA) has not been extensively studied. The most significant study, to date, is a multicenter retrospective cohort study, involving 138 cases, published in 2011\(^2\). In this study, pediatric OHCA appeared to have better survival odds (38%) as compared to adult population, but still have significant mortality risk (62%). To the best of the authors’ knowledge, there has not been a study on pediatric OHCA in the state of New Jersey. We hereby present our findings in regard to 59 cases that were referred to a large central New Jersey hospital. We also looked at the effect of bystander CPR on pediatric OHCA outcome.

**Objective:**

1) Identifying difference in outcomes in group who received bystander CPR versus group that did not

2) Identifying variables associated with favorable versus unfavorable outcomes

**Hypothesis:**

Witnessed life-threatening events that received immediate bystander BLS-CPR arrest the progression of an ALTE to a full blown cardiopulmonary arrest and predict a good outcome.

continued on page 16
Method:

This study # 15:13 was approved by the Institutional Review Board (IRB) at Saint Peter’s University Hospital. For the period between 2011 and 2015, we retrospectively reviewed all admissions to the pediatric emergency room, floor and pediatric intensive care unit with the diagnosis of apparent life threatening event (ALTE), cardiac or pulmonary arrest, acute respiratory failure, drowning, and apnea. A total of 232 charts were identified, out of which 59 cases satisfied our inclusion and exclusion criteria (see Table 1).

The following variables were abstracted: demographic and epidemiologic features, circumstances around which the event happened, timeline for initial bystander CPR, EMS response, primary interventions out on the field, clinical status on presentation in ED, intervention in ER, PICU course including all different interventions required, complications encountered and discharge outcome. Discharge outcomes were classified as per pediatric cerebral performance category (PCPC)3 ranging from category 1 to 7 with 1 being normal neurological status and 7 being Death (See Table 2 of PCPC description – 1 to 7). Outcomes were further subcategorized to favorable (PCPC 1 to 3) and unfavorable (PCPC 4 to 7).

Table 2: Pediatric Cerebral Performance Category Score

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal</td>
<td>Normal at age appropriate level, school age child attends regular school classroom</td>
</tr>
<tr>
<td>2</td>
<td>Mild disability</td>
<td>Conscious alert and able to interact at an age appropriate level, school age child attending regular school classroom but grade perhaps not appropriate for age, may have a mild neurologic deficit (eg. Seizure Disorder)</td>
</tr>
<tr>
<td>3</td>
<td>Moderate disability</td>
<td>Conscious, sufficient cerebral function for age-appropriate independent activities of daily life, school age child attending special education classroom, may have learning deficit</td>
</tr>
<tr>
<td>4</td>
<td>Severe disability</td>
<td>Conscious, dependent on others for daily support because of impaired brain function</td>
</tr>
<tr>
<td>5</td>
<td>Coma/ vegetative state</td>
<td>Any degree of coma without any of the criteria for brain death, unawareness even if awake in appearance without interaction with the environment, cerebral unresponsiveness, no evidence of cortical function and not aroused by verbal stimuli, possibly some reflexive responses spontaneous eye opening and/or sleep-wake cycles</td>
</tr>
<tr>
<td>6</td>
<td>Brain death</td>
<td>Apnea OR areflexia OR electroencephalographic (EEG) silence</td>
</tr>
<tr>
<td>7</td>
<td>Death</td>
<td></td>
</tr>
</tbody>
</table>

Statistical analysis of data was performed using chi2 test and stepwise multivariate logistic regression using SPSS 16.0.

Table 1: Inclusion and Exclusion Criteria of out-of-hospital OHCA or ALTE

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the child received either one or both of:</td>
<td>1) No cardiac compression</td>
</tr>
<tr>
<td>1) Chest compression</td>
<td>2) No emergent mouth to mouth breathing, mask ventilation, or endotracheal intubation</td>
</tr>
<tr>
<td>2) emergent mouth to mouth breathing, mask ventilation, or endotracheal intubation</td>
<td></td>
</tr>
</tbody>
</table>

continued on next page
Results:

The demographic characteristics of the 59 cases are shown in Table 3 (Age, Sex, Insurance).

Table 3: Demographic Distribution

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Number of children</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1 month</td>
<td>9</td>
<td>15.2%</td>
</tr>
<tr>
<td>1 month - &lt; 3 months</td>
<td>11</td>
<td>18.6%</td>
</tr>
<tr>
<td>3 months - &lt;1 year</td>
<td>16</td>
<td>27.1%</td>
</tr>
<tr>
<td>1 year - &lt; 5 years</td>
<td>16</td>
<td>27.1%</td>
</tr>
<tr>
<td>5 years - 12 years</td>
<td>5</td>
<td>8.5%</td>
</tr>
<tr>
<td>&gt; 12 years</td>
<td>2</td>
<td>3.4%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
<td>57.6%</td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>42.4%</td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicaid</td>
<td>6</td>
<td>10.1%</td>
</tr>
<tr>
<td>Horizon NJ Health</td>
<td>18</td>
<td>30.5%</td>
</tr>
<tr>
<td>Horizon Blue Cross</td>
<td>8</td>
<td>13.5%</td>
</tr>
<tr>
<td>Self-pay</td>
<td>2</td>
<td>3.4%</td>
</tr>
<tr>
<td>United Health</td>
<td>7</td>
<td>11.9%</td>
</tr>
<tr>
<td>Ameriguard</td>
<td>4</td>
<td>6.8%</td>
</tr>
<tr>
<td>Aetna</td>
<td>4</td>
<td>6.8%</td>
</tr>
<tr>
<td>Cigna</td>
<td>1</td>
<td>1.7%</td>
</tr>
<tr>
<td>Empire Health</td>
<td>1</td>
<td>1.7%</td>
</tr>
<tr>
<td>Information Not Available</td>
<td>8</td>
<td>13.5%</td>
</tr>
</tbody>
</table>

Figure 1: Preceding events as per age groups

As shown in figure 1, most common identified etiologies for pediatric OHCA for age group < 1 year were gastroesophageal reflux with aspiration and ALTE; while for the toddler age group those were seizures and drowning.

Out of the 59 subjects, 51 (86%) survived to hospital discharge, 41 (69%) were neurologically intact and 8 (14%) mortalities were noted. 36 patients received resuscitation measures within 5 minutes, out of which 33 (92%) survived and 27 (85%) survived neurologically intact.

As figure 2 shows, children who had a witnessed OHCA and received bCPR (Bystander CPR) had 8.5 times higher chances of falling into favorable category of outcome as compared to children who did not receive bCPR (Pearson Chi2 = 11.98, p value = 0.035, Odds ratio = 8.56). Children who did not receive bCPR had 4.3 times higher chances of falling into unfavorable outcome category (Pearson Chi2 = 10.32, p value = 0.047, Odds ratio = 4.37).

Children who received mouth to mouth breathing by a bystander witness had 6 times higher chances of favorable outcome compared to children who did not receive any initial interventions (Pearson Chi2 = 10.24, p = 0.049).

Children with DownTime < 5 minutes had statistically significant chances of having favorable outcomes as compared to children with DownTime > 5 minutes (Pearson Chi2 = 18.29, p = 0.003, Odds ratio = 18.60).

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There was no statistically significant difference noted with age, gender, cardiac compression, any specific circumstances, use of resuscitative medications when comparing favorable to unfavorable outcomes.

Patients for whom ROSC was not achieved in the initial 30 minutes, neurological outcome were uniformly unfavorable with 8 out of 17 (47%) dying (p=0.0003). (Figure 3).

Figure 2: Neurological Outcomes with and without bystander CPR

Figure 3: Neurological outcomes in relation to ROSC time

Discussion:

Results of this study clearly show major positive impact of bystander CPR on outcome of pediatric out of hospital cardiac arrest. It further strengthens the idea of propagating CPR training in the general population.

There is a significant difference in survival between our study (86%) and the PECARN study (38%) but that could be due to differences in our case definitions, sample size (see limitations).

Continuing CPR beyond 30 minutes when ROSC is not achieved, did not result in statistically significant mortality or morbidity benefits. It increases the healthcare costs with prolonged PICU stay without a significantly better neurological outcome.

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Conclusion:

1) Bystander CPR prevents progression to full cardiopulmonary arrest and converts it into ALTE like event as well as improves neurological outcome significantly.

2) When in cardiopulmonary arrest, ROSC is most significantly correlated with neurological outcome, with 30 minutes without ROSC being a reasonable cut-off to end CPR, since longer time periods are uniformly associated with associated poor outcome or death.

References

1. Cardiac Arrest Registry to Enhance Survival (CARES): Out-of-Hospital Cardiac Arrest Surveillance—Cardiac Arrest Registry to Enhance Survival (CARES), United States, October 1, 2005—December 31, 2010

Limitations:

The limitations of our study are:

1) We had expanded the case definition for a pediatric OHCA, to include patients who had some form of emergent airway or breathing support, with or without the need for chest compression versus the previous major study2 case definition of “receiving chest compression for at least 1 minute”. Thus, the studies may not be directly comparable. The current BLS CPR guideline supports a CAB sequence, starting with chest compression. We recognize that the majority of the causes of a full cardiopulmonary arrest in a pediatric patient are asphyxial in nature, and we recognize that the quick actions of many parents in mitigating the asphyxiating cause may have prevented their children from having a full cardiopulmonary arrest, and thereby converting the situation into an ALTE.

2) It is a single center study so that the results may not be generalizable to the whole population. Our center, however, does get referrals from all parts of central and north New Jersey.

3) Our sample size is small which decreases the power of the study significantly.

To mitigate these limitations, further studies are needed.

What is your diagnosis?

Presentation 2 year-old with pruritic rash to the lower part of the neck also similar rash to upper chest for the past 2 weeks. No fever or other symptoms.

a) Contact Dermatitis  
b) Scabies  
c) Varicella  
d) Poison Ivy

(answer on page 23)
Initial Implementation of State Mandated Congenital Heart Defect Screening in a New Jersey Hospital

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Robyn Harvey, RN, BSN, MBA2
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Thomas Westover, MD4
Gary E Stahl, MD1

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2. Women’s and Children’s Institute, Cooper University Hospital, Camden, NJ
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Introduction

Congenital heart disease (CHD) is the largest subgroup of congenital malformations, with an incidence estimated to be 8–12/1,000 newborns born each year,1 and carries a high risk of cardiovascular collapse and death in the first year of life.2,3 CHD accounts for more deaths than any other type of congenital malformation, and is associated with up to 40% of all deaths due to congenital defects4,5 and 3–7.5% of all infant deaths.6 Critical CHD (CCHD), defined as congenital heart disease that requires early detection and surgical intervention or cardiac catheterization in the first year of life to sustain life, has an incidence of approximately 2.5-3/1000 live births.1 Surgery greatly improves survival from CHD, particularly for infants with potentially life threatening critical disorders. However, if defects are not detected early there is a risk of circulatory collapse which can result in shock and acidosis, with substantial adverse effects on prognosis and worse outcomes.6,7

Not all forms of CHD can be diagnosed with prenatal ultrasounds and physical examinations. Estimates of the diagnostic gap for CCHD vary and depend on prenatal detection and practitioner physical examination. However, best estimates indicate that as many as 25% of all infants born with CCHD may leave the nursery undetected.8

Pulse oximetry has been developed as a screening method to detect the defects in newborn babies based on a rationale that most critical congenital heart defects have a degree of hypoxemia that does not necessarily produce visible cyanosis and therefore might not be detected clinically. In 2009, the American Heart Association and American Academy of Pediatrics released a statement on the potential use of pulse oximetry screening to detect CCHD.9 In 2011, New Jersey became the first state to mandate universal newborn pulse oximetry testing for CHD to be implemented by each hospital and performed prior to discharge.10 Some literature calculated the savings in healthcare costs from one undiagnosed CCHD may exceed the cost of screening 2000 newborns.11

The aim of our research is to evaluate our experience of implementing universal screening of newborn infants with pulse oximetry in a large tertiary level teaching hospital in New Jersey.

Materials and Methods

A retrospective evaluation was conducted of all infants admitted to the maternal infant unit, transitional nursery and neonatal intensive care unit (NICU) from August 31, 2011 to August 31, 2012 in Cooper University Hospital, Camden, New Jersey, a large university hospital with approximately 2200 deliveries per year.

Training and education

Prior to the implementation of screening, all nursing staff on all shifts working on maternity and labor and delivery units were required to attend a clinical skills training seminar. Training was conducted covering all shifts. Training included education on protocol aims, background and significance of pulse oximetry screening for CCHD. The staff responsible for conducting screening completed hands-on training on correct pulse oximetry technique.

Completion of a competency checklist and a knowledge assessment quiz were required for all the nursing staff. In-service trainings were provided accordingly for newly hired staff to ensure that 100% of staff was educated.

Once screening was implemented, parents of all newborns were informed of the indication of screening and the use of equipment. They were also made aware that a pass on the screen did not exclude the existence of a cardiac disorder.

Implementation of screening

In the Mother Infant Unit (MIU) and transitional nursery, the SpO2 measurement was screened at 24–48 hours of age. It was recommended that the SpO2 be bundled with the drawing of discharge labs and newborn metabolic screening, and be measured prior to phlebotomy. In the NICU, the SpO2 measurement was screened at 24–48 hours of age or when medically appropriate prior to discharge. Results were made available to the provider by morning rounds of the following day. A pulse oximetry probe with a reusable sensor and protective cover was applied to the right hand and a selected foot and the results documented. The difference between the pre- and post-ductal reading were measured. The infant was considered to have passed the test if the reading from both hand and foot were greater than 95% and the difference between them was 3% or less. If the pulse oximetry reading was less than 90% in either extremity, this was considered a failed screen and a pediatric provider needed continued on next page
to be notified immediately. When the SpO2 reading was less than 95% in either hand or foot and/or the difference between the hand and foot was greater than 3%, the screen was evaluated failed, which necessitated a repeat screen within one hour. Three failed screenings, each one hour apart, may be performed to be considered a failed screen. A failed screen was then further evaluated for potential cause of low oxygen saturation (e.g. persistent pulmonary hypertension, pneumonia, infection, etc.). In the absence of a clear cause of hypoxemia, a diagnostic echocardiogram by an expert was performed and the results were reviewed prior to discharge home. Infants confirmed to have congenital heart diseases were required to be registered with the New Jersey Birth Defect Registry as soon as possible and were transferred to the NICU. The results of the screen and its implications were shared with the parents.

Documentation

In the MIU, the nurse caring for the infant recorded the SpO2 measurement, the pre and post-ductal difference and the final screening results in the infant’s electronic medical record.

In the NICU and the transitional nursery, the nurse caring for the infant recorded the results of the screen in the infant’s electronic record and on the discharge care maps.

Results

From 8/31/11 to 8/31/12, there were 2099 live births with 2051 newborns screened. A total of 2.3% of all eligible newborns were not screened prior to discharge (Figure 1).

There was a 4.8% miss rate initially (8/31-11/31/11) with an improved miss rate of 0.7% (6/1-8/31/12) after further staff education. Eleven newborns had positive screens and required an echocardiogram, which was read by a cardiologist. Of these, four had CCHD (2 with Transposition of Great Vessels, 1 Total Anomalous Pulmonary Venous Return and 1 Aorta-pulmonary Window*), two had serious CHD (Patent Ductus Arteriousus (PDA) with Pulmonary Hypertension and significant Ventricular Septal Defect), and five had false positive screens. There were two false negative screens (large PDA with coarctation of the aorta and a critical aortic valvular stenosis) that were found in the hospital and required surgical care during first week of life. See Table 1 and 2 for sensitivity, specificity, positive and negative predictive values for CHD overall and critical CHD. Average cost of conducting pulse oximetry screening in our hospital is $5-10 per patient depending on location of the screen.

Table 1: All Congenital Heart Disease

<table>
<thead>
<tr>
<th></th>
<th>Percent</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>75</td>
<td>34.9–96.8</td>
</tr>
<tr>
<td>Specificity</td>
<td>99.8</td>
<td>99.4–99.9</td>
</tr>
<tr>
<td>Positive predictive value</td>
<td>54.5</td>
<td>23.4–83.3</td>
</tr>
<tr>
<td>Negative predictive value</td>
<td>99.9</td>
<td>99.6–99.99</td>
</tr>
</tbody>
</table>

Table 2: Critical Congenital Heart Disease

<table>
<thead>
<tr>
<th></th>
<th>Percent</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>68.7</td>
<td>22.2–95.7</td>
</tr>
<tr>
<td>Specificity</td>
<td>99.7</td>
<td>99.3–99.9</td>
</tr>
<tr>
<td>Positive predictive value</td>
<td>36.4</td>
<td>10.9–69.2</td>
</tr>
<tr>
<td>Negative predictive value</td>
<td>99.9</td>
<td>99.9–99.99</td>
</tr>
</tbody>
</table>
Discussion

This study was conducted in a single academic hospital after mandatory implementation of CHD screening by the State of New Jersey. The study was to evaluate our experience of implementing universal screening of newborn infants with pulse oximetry.

Physical examination has been the gold standard in the detection of CHD prior to implementation of universal screening; however, the characteristic symptoms are not always present in the first postnatal days (prior to discharge home).

In the present study, we saw 6 patients with CHD (4 with CCHD), which included those in the MIU and NICU. In the current environment, most of our patients are screened prenatally with ultrasounds and therefore, only 2 of the 6 patients were not prenatally known. These numbers are similar to those by Walsh, who had a 0.78% failed screening rate as compared to ours of 0.54%. In the Tennessee study, there was no easy access to pediatric cardiology as opposed to our hospital with on-site pediatric cardiologist. Therefore, all of our patients who failed CHD screens were evaluated with echocardiography.

Another difference between other studies and our implementation technique was the evaluation of NICU babies. In the study by Bradshaw, NICU patients were not included. However, due to the New Jersey ruling of universal screening, all neonates regardless of what unit they were discharged from, needed CHD screening.

One major difference that may account for variability seen between multiple studies is the cut off used for normal SpO2 reading. In certain studies 94% was considered normal, as opposed to ours as well as many others in which 95% was the cut off, while other studies used 96%. These differences in prenatal screening, definition of “normal SpO2”, and access to pediatric cardiology are just some of the discrepancies that may explain variations in incidence of CCHD, as well as positive and negative predictive values.

Initial implementation of universal screening in our medical center had a 4.8% screening miss rate of all eligible newborns in the first quarter, with 92% of these being in the MIU. However, an 85% improvement (0.7% missed screening rate) was seen in the 3rd and 4th quarter, mostly due to further staff education. This indicates that implementation is feasible and may not be too difficult in this setting. A similar conclusion was reached in the study by Bradshaw, who found that the average time required to screen an infant was 3.5 minutes (0-35 minutes range) and no additional staff were needed to support the screening operations.

As with any screening program, cost of the process has to be addressed. Cost of medical care is only one consideration, as well as cost per quality-adjusted life year saved, and multiple others. There have been a number of evaluations measuring the cost effectiveness of CCHD screening to date. In 2005, a review was published noting that while echocardiography was associated with the highest detection for CHD, it was also associated with the highest cost, and pulse oximetry was identified as being the most cost-effective strategy. Screens have been used for many years and the Newborn Metabolic Screening program is very well-known. Hoffman reports an estimated cost of $9000 per asymptomatic CCHD case detected, which compares to a patient diagnosed with newborn metabolic screen. In another analysis, the cost of conducting CHD screen was approximately $5 per infant screened, which compares to the $5–12 cost per screen seen in our study. The variability of the cost seen in our hospital is partially explained by the need to screen patients both in the MIU and NICU.

Conclusion:

Pulse oximetry can be successfully and effectively implemented, without significant financial burden on the hospital. Rigorous education of staff improves screening success.

[Editor’s Note] although a significant CHD, this is not included in the CDC’s list of CCHD. Find the list here: www.cdc.gov/ncbd/dd/heartdefects/hcp.html

References:


continued on next page


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Scabies
Scabies is a skin infestation caused by the scabies mite (Sarcoptes scabiei var. hominis). The most common presentation of scabies is an intensely itchy rash with small pimple like lesions. Common sites of scabies outbreaks are at nursing homes, prisons, and day care facilities. Lesions are commonly seen in the webbing between fingers and toes, arm pits, waistline, folds of the knee and elbow. In infants and young children they can occur in the neck, face, head and palms and soles. Sometimes tiny burrows of the mite can be seen under the vesicle.

Scabies is spread by direct, skin-to-skin contact with a person who has scabies. The mite does not survive on surfaces of furniture and clothing beyond 72 hrs. Diagnosis of scabies is usually clinical by fining the lesions and possibly the burrow. skin scraping to examine under a microscope for mites, eggs, or mite fecal matter can be done. The treatment of choice for scabies is 5% permethrine cream, to be applied to entire body usually at bedtime and rinsed off in the morning. Other medications used are, Lindane, sulfur products and Ivermectine. Permethrine is safe, effective and scabicidal. In addition to the infested person, treatment also is recommended for household members and sexual contacts, particularly those who have had prolonged skin-to-skin contact with the infested person. All persons should be treated at the same time in order to prevent re-infestation.

www.cdc.gov/parasites/scabies/gen_info/index.html
Legal Update: *Terminating the Physician-Patient Relationship Due To a Parent's Choice Not to Vaccinate: Key Considerations*

Guillermo J. Beades, Esq.
Kern Augustine, PC

The American Academy of Pediatrics (AAP) recently published new policies aimed to boost child immunization rates. The AAP urges pediatricians to speak with parents to address any concerns they may have about vaccines and offers a free online training course for pediatricians counseling vaccine hesitant parents. However, if counseling and education efforts fall on deaf ears and parents continue to decline immunizations, the AAP has suggested that pediatricians go as far as requesting that the parents seek care from a different health care provider.

Before a pediatrician can terminate the physician-patient relationship, though, certain safeguards must be in place to prevent accusations of patient abandonment or discrimination based on religious beliefs.

If the parent declines immunizations, it must be clearly communicated to the parent in no uncertain terms that the patient's discharge from the practice is based solely on health policy reasons. The physician should explain the AAP's position that unimmunized children are at risk of contracting vaccine preventable diseases and create risk of disease outbreaks in young infants and those children who medically cannot be immunized.

Once the decision to terminate the physician-patient relationship has been made, but before discharging a patient, the physician must first review the New Jersey State Board of Medical Examiners (“Board”) Regulations and New Jersey Statutes to ensure full compliance with same.

Pursuant to N.J.A.C. 13:35-6.22(c), in order to terminate a physician-patient relationship, the physician must:

1. Notify the patient, in writing, that the licensee shall no longer provide care to the patient as of a date certain. The notification required by this paragraph shall be made no less than 30 days prior to the date on which care is to be terminated, and shall be made by certified mail, return receipt requested, or other proof of delivery, sent to the patient's last known address; (“emphasis added”)

2. Provide all necessary emergency care or services, including the provision of necessary prescriptions, until the date on which services are terminated. The provision of any such emergency care or services shall not be deemed to manifest any intention to reestablish a licensee-patient relationship; and (“emphasis added”)

3. Comply with all requirements set forth in N.J.A.C. 13:35-6.5 for access to and transfer of patient records.

As per N.J.A.C. 13:35-6.22(d), a physician is prevented from terminating the physician-patient relationship in instances:

1. Where doing so would be for any discriminatory purpose and/or would violate any laws or rules prohibiting discrimination; or

2. Where the licensee knows, or reasonably should know, that no other licensee is currently able to provide the type of care or services that the licensee is providing to the patient.

It should also be noted that the Board regulations further require physicians “[w]hen requested by the patient … [to] make reasonable efforts to assist the patient in obtaining medical services from another licensee qualified to meet the patient's medical needs. These efforts may include, but are not limited to, providing referrals to the patient.” N.J.A.C. 13:35-6.22(f)

Therefore, in order to ensure compliance with New Jersey laws and regulations, a letter should be sent to the patient's parents to satisfy the notice requirements of N.J.A.C. 13:35-6.22(c) and offer assistance in finding a new physician as per 13:35-6.22(f). Note that the reason for the discharge need not be detailed in the discharge letter.

The debate over immunizations is controversial, emotional and unlikely to go away any time soon and pediatricians have been thrust into the front lines of this national issue. As states pass non-medical exemption laws and parents claim religious exemptions, pediatricians are left with difficult decisions, including when and how to terminate the physician-patient relationship. If a pediatrician decides to terminate the relationship though, all laws and regulations must be strictly adhered to in order to avoid potential civil litigation and Board discipline.
SAMPLE LETTER TO TERMINATE PHYSICIAN-PATIENT RELATIONSHIP

INSERT LETTERHEAD OF PRACTICE

Via Certified Mail, Return Receipt Requested
Patient’s name
Patient’s last known address

Dear __________________________:

It is with much regret that I must inform you that I will no longer be able to serve as your physician. If you desire, I will continue to provide care to you for a period of thirty (30) days following the date of this letter, but as of ________________ I will no longer be available to provide you care. However, there are many excellent [insert specialty] in the area and I suggest that you contact the [insert name of County] County Medical Society or one of the following physicians for any future care you may require:

{insert names of other physicians}

Of course, in the event of an emergency, please seek treatment at the nearest hospital. Please beware that if you suffer from a condition for which you have been under my care, it may be detrimental to your health if you do not seek further continued treatment.

Please rest assured that your medical records remain confidential, and that a copy can be transferred to another physician or, released to you (or another person you designate) only with your written permission. If you need to obtain a copy of your medical records, please contact ______________ at ______________. Until then, your records will remain on file at my office.

While we regret that we are no longer able to treat you, I wish you good health and the very best of luck in all of your endeavors.

Very truly yours,

{insert name of physician}
The State Legislature returned in September and worked on a number of bills of interest to AAP members and the children you serve.

The Senate passed S2156 and the Assembly Health Committee scheduled it and its Assembly companion, NJ AAP’s request, requires health care professionals with prescribing authority to discuss the addiction potential of opioid drugs that are Schedule II controlled dangerous substances prior to issuing a prescription for the medication to a patient who is under 18 years of age and to include a note in the patient’s medical record indicating that the discussion took place. We expect the Assembly bill to be amended to be identical to the Senate bill. AAP’s securing of the amendments and subsequent support for the bill was instrumental in moving it forward.

Legislation advancing telemedicine in New Jersey also moved forward in the fall. Two Senate Committees released S291 which would authorize health care providers in the State including licensed physicians, practical nurses, registered professional nurses, advanced practice nurses, psychologists, psychiatrists, psychoanalysts, clinical social workers, physician assistants, professional counselors, respiratory therapists, speech pathologists, audiologists, optometrists, pharmacists, and any other health care professional acting within the scope of a valid license, certification, or registration issued pursuant to Title 45 of the Revised Statutes – to engage in telehealth and telemedicine. This authorization would extend to mental health screeners, who, as specified by the bill, would be allowed to engage in mental health screening procedures through telemedicine or telehealth without necessitating a waiver from existing rules. The Assembly Health Committee considered A1464, the Assembly version of this legislation, earlier this month.

The Assembly Financial Institutions and Insurance Committee also consider A1469 which requires insurance coverage for expenses incurred in screening patients who are under 18 years of age for depression, including, but not limited to, a depression screening performed by a pediatrician using a nationally-recognized screening tool. The bill would apply to hospital, medical, and health service corporations; commercial individual, small employer, and larger group insurers; health maintenance organizations; and the State Health Benefits Program and the School Employees’ Health Benefits Program. We have supported this bill in the past and will continue to do so moving forward by submitting a slip of support.

The Senate also passed S2419, legislation requiring health care professionals who have the authority to prescribe opioid medications, including physicians, physician assistants, dentists, and optometrists (who have limited authority to prescribe only hydrocodone), to complete one continuing education credit on topics that include responsible prescribing practices, alternatives to opioids for managing and treating pain, and the risks and signs of opioid abuse, addiction, and diversion. The continuing education credits required under the bill will be part of a professional’s regular continuing education credits and will not increase the total number of continuing education credits required. Representatives of NJAAP have been meeting with the sponsors of this legislation, looking to secure amendments to the bill.

Finally, we were pleased to be invited to the Assembly Women and Children’s Committee meeting for a discussion on the “diaper gap” or the inaccessibility of affordable diapers for low-income families. As always, Dr. Radhakrishnan did an excellent job testifying on behalf of NJAAP.

OPPORTUNITY TO GET INVOLVED

Seeking: NJAAP Members Interested in joining a “short list” when media and/or legislators contact us for pediatric expertise. Interested but not sure you have the experience or skills? No worries, NJAAP Advocates/Lobbyists and our staff will hold a dinner training session and are with you every step of the way. This is on an as available basis and the time needed is not demanding, however sometimes there is little notice and we face a rapid response challenge. By growing our “short list” we ensure we are at the table on behalf of children, families and pediatricians caring for them. For more information please contact Fran Gallagher or Mark Firth at 609.842.0014.
Family Voices: *Our Experience in the NICU*

Karina and John Romano

When my husband, John and I first found out we were expecting, we were thrilled and immediately went into planning mode: what to get for the nursery, what was the best stroller, if I should bottle-feed or breast-feed, and a variety of other things that excited first-time parents set out to decide. Never once did we ready ourselves for the possibility of a premature baby. However, on Sunday, August 23, 2015, that possibility became our reality, when our son Evan was born at just 25 weeks and 4 days.

After experiencing some cramping, my husband rushed us to the hospital where they found that I was dilated 4–5 cm. They immediately put me on magnesium sulfate to slow down contractions long enough to administer the first of two betamethasone shots to help speed up the baby’s lung maturation. The magnesium managed to slow my contractions enough to get the second shot the next morning but by afternoon, Evan was born.

When Evan came out, he let out a big cry. For one moment, I thought that everything was normal and that my baby was perfectly fine. However, in just a few minutes, the NICU team intubated and stabilized Evan, then rushed him away to the NICU to continue working on him. I never even laid my eyes on him until a few hours later when the NICU informed us that we could finally see him.

As we walked through those doors, we entered what was to be our world for the next four months. It was one big room with many isolettes, each surrounded by various beeping machines and blinking monitors. Here and there one of the monitors would go off, sometimes a low steady tone, other times a loud, blaring alarm. The team led us straight to Evan’s isolette and for the first time in hours, I saw my son. As the doctors and nurses gave us a rundown of his status, I took in the sight of my 1lb 8oz baby. He was very skinny, but long at 13 inches. He had multiple wires hooked up to him and was still intubated; you could practically see his lungs through his chest as the machine pumped each breath in and out of him.

We were warned that being in the NICU would mean taking a few steps forward, and several steps back, and that things were going to get worse before they got better. As a 25-weeker, we were told that Evan was going to face a whole slew of challenges regarding his lungs, his brain, his heart, his intestines, his eyes, and a variety of other things. Little did we know that we would experience most of what they warned us about.

Evan’s first challenge happened about 10 days after he was born when he had a spontaneous bowel perforation. He became very sick and I will never forget the feeling of helplessness and despair as the doctor told me to prepare myself for the worst. After a few very tough days, he underwent surgery and, thankfully, the pediatric surgeon was able to repair what he could and give Evan a temporary ileostomy.

Not long after, Evan needed to have a PDA ligation, which a team from CHOP was able to perform right in the NICU. A few weeks after that, Evan was transferred to Jefferson Hospital in Philadelphia to undergo surgery to fix his ROP. It seemed that when it rained, it poured, and John and I desperately wondered just how many more setbacks our baby boy would have to face.

When we returned from Jefferson, it was as if Evan had turned a corner. He started quickly going down on his oxygen support until he was on room air. He started eating more and more, first through an NG tube, then by a bottle. He was moved to the special care nursery and was improving everyday. The relative calm was a welcome respite from the hellish first month and a half. We began to embrace our new “normal”—work, hospital, home, repeat—and we even enjoyed watching Evan grow up before our very eyes.

By that point, most of the nurses and NICU staff knew us and we cultivated relationships with a few of them; we spent more time at the hospital than anywhere else. We knew that they were taking excellent care of our son but what we didn’t expect was how much they ended up taking care of us. They were there to comfort us when things weren’t going well, and they cheered Evan on alongside us whenever he hit a milestone, big or small. They were always so attentive to his and our needs and always answered all of our questions. I called the NICU at least once every night and the nurses never made me feel as if I was being a nuisance.

By December, John and I had let our guard down enough to start looking forward to the day we would be able to take Evan home, but before that happened, he needed one more surgery to reverse the ileostomy. When the day came, we found that the NICU rollercoaster was not done with us yet; when the surgeon finished with the surgery, he let us know that he ended up needing to resect a large portion of Evan’s large intestine because two thirds of it had died. He was able to complete the reanastomosis but it was a very complicated surgery and Evan didn’t do as well as he did the first time around, and he lost a lot of blood.

Eventually, Evan healed and before we knew it, it was time for him to go home. It was a surprisingly bittersweet moment; somehow in the last four months, this stark, sterile, uninviting hospital became our home, and visiting our son was part of our daily routine. Our vocabulary grew to include medical terms, and quantities were measured in CCs. His nurses became our friends, his doctors our confidants. All of a sudden, it would all fall to John and me to truly become his primary caretakers, and it was a little intimidating.

However, the joy and relief of knowing that our son was finally healthy enough to go home overshadowed any other feeling we had. It has been almost a year since Evan came home and he has flourished. He is on track with hitting his milestones and is growing more each and every day. His NICU journey will never be far from our minds but looking back we know that there were good times as well as bad, pleasant moments as well as horrible moments, and that we learned a lot along the way. We are forever grateful to the doctors, nurses and staff of the NICU for their incredible knowledge and care of our son.
The Growth of Pediatric Urgent Care

In recent years, the number of urgent care centers and retail-based clinics (RBCs) in the US has grown significantly. According to the Urgent Care Association of America, there are approximately 7,100 urgent care centers in the US. If (RBCs) are added to the figure, the number approaches 9000. These centers have varying capabilities and many are not staffed with providers with sufficient training and experience in acute care pediatrics. Furthermore, many of these facilities do not have appropriate medical equipment, diagnostics or treatment to handle true pediatric emergencies. This has led to the development of specialized pediatric urgent care practices, staffed by pediatricians and pediatric emergency specialists. Currently, there are approximately 330 specialized pediatric urgent care centers.

Pediatric urgent care centers provide access to care for patients and families when their pediatrician is not available for management, especially after hours and on weekends. In addition, the scope of services provided in pediatric urgent care centers are often not available in a pediatricians office- evaluation and management of fractures, laceration repair, higher acuity medical conditions requiring IV hydration, respiratory care or prolonged observation.

Pediatric urgent care centers can serve as an ally to a pediatric office, able to perform the majority of testing and management available in an ED yet without the barriers to entry or cost associated with ED care.

AAP and RBCs and Urgent Care

- In 2006, the AAP published a policy statement opposing RBCs as an appropriate source of medical care for infants, children, and adolescents and strongly discouraged their use.1

- In a follow-up policy statement in March 2014, the AAP acknowledged the growth of utilization of RBCs for pediatric patients and stressed the importance for RBCs to work collaboratively with the medical home.2 The policy recommended the use of evidence-based pediatric protocols and standards, pediatric quality review, prompt communication of all pertinent visit information to the medical home and referral of all patients back to their pediatric medical home.

- In May 2014, the AAP published pediatric care recommendations for freestanding urgent care facilities.3 The policy stated that well-managed freestanding urgent care facilities can improve the health of the children in their communities, integrate into the medical community, and provide a safe, effective adjunct to the medical home or emergency department. The policy statement established several quality standards for urgent care centers caring for children including emergency preparedness, scope of care, and evidence-based/family-centered approaches to common pediatric complaints. The policy also described the need for appropriately trained staff and emphasized the importance of supporting the medical home.

- In 2015, the Subcommittee on Pediatric Urgent Care was established as a subcommittee of the AAP Section on Emergency Medicine. The subcommittee is actively creating standards and measures for pediatric urgent care, developing educational guidelines for training future pediatric urgent care providers and launching advocacy efforts to educate the pediatric community about pediatric urgent care. Liaisons from SOAPM and SOEM serve on the subcommittee and are working with the other officers to address these issues.
Pediatric Urgent Care Education

Education is critical to further the development of Pediatric Urgent Care medicine as a specialty. Increasingly, pediatric residents do not receive sufficient training in critical or procedural care as many residency programs have shifted training programs to create tracts more directed to the primary care environment. The need for additional specialized urgent care training has led to the formation of fellowship training programs for Pediatric Urgent Care. In July 2012, PM Pediatrics launched its fellowship program and to date has graduated 6 fellows and has 5 current fellows. This one-year program includes supervised clinical training at PM Pediatrics sites as well as rotations in orthopedics, radiology, ENT, ophthalmology, EMS, allergy and asthma, and a procedural training elective. The fellowship is designed to close the gaps from pediatric residency training while enhancing the clinician’s ability to practice in a high-acuity, fast-paced environment. In addition to the clinical experience and sub-specialty rotations, fellows attend monthly lectures, procedural training workshops and medical simulation. PM Pediatrics also offers an accelerated 6-month fellowship track specifically tailored for experienced pediatricians. When making the transition to pediatric urgent care, pediatricians may have limited experience with bedside procedures, orthopedic injuries, and radiology interpretation. In addition, urgent care providers are called upon to render expert and often emergent care in a setting where there is limited availability of on-site consultants. With the understanding that a seasoned pediatrician has already acquired expertise in various areas, the accelerated track is targeted at filling in the gaps where needed, personalizing the program to the fellow’s individual needs. This year Children’s Healthcare of Atlanta will also be initiating a one year pediatric urgent care fellowship program and other programs will likely develop in the next few years.

There are two national meetings that offer additional educational opportunities for pediatricians to learn more about Pediatric Urgent Care. The Society of Pediatric Urgent Care (SPUC) hosts an annual educational meeting in the fall (www.urgentcarepeds.org) and PM Pediatrics in conjunction with SPUC hosts an annual Pediatric Urgent Care Conference each spring. (www.pucconference.com)

References


Jo-Ann Jordan, MD, FAAP—Monmouth Pediatric Group, Red Bank

It is important to me to have an urgent care facility operated by board certified pediatricians to which I can confidently refer my patients for after-hour care. Especially one that provides comprehensive care and communicates seamlessly with our office, so that we can follow up in a timely manner. This is a more preferable alternative to the emergency room.

THE NEW JERSEY CHAPTER,
AMERICAN ACADEMY OF PEDIATRICS
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SEVENTH ANNUAL
New Jersey Children’s Ball
SPOTLIGHT ON CHILDREN

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A Rare Etiology of Neonatal Cholestasis

Elizabeth Yen, MD
Fellow, Division of Neonatal-Perinatal Medicine
Rutgers Robert Wood Johnson Medical School

Suja Vinod, MD
Fellow, Division of Neonatal-Perinatal Medicine
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CASE PRESENTATION

A 7-day old newborn male was transported to our center for cholestasis. He was born full-term via vaginal delivery to a mother with gestational diabetes. Mother's Group B Streptococcus (GBS), hepatitis B surface antigen, human immunodeficiency virus, and other serology values were all negative. Rupture of membrane was 6 hours with meconium-stained amniotic fluid. Following a traumatic extraction due to shoulder dystocia, the baby emerged floppy, pale, and with no cry. Positive pressure ventilation and tracheal suctioning improved his heart rate, tone, and color. Apgar scores at 1 and 5 minutes were 6 and 9 respectively. He was in respiratory distress and developed right-sided facial palsy and brachial nerve injury. Chest X-ray showed fluid in the fissures, consistent with transient tachypnea of the newborn. Baby was placed on continuous positive airway pressure. Hypoglycemia was noted within the first hour of life. Due to the difficulty in obtaining peripheral intravenous access, an umbilical venous (UV) catheter was placed. Ampicillin and Gentamicin were started.

Respiratory distress resolved within 8 hours, and he was quickly weaned to room air. Baby tolerated breastfeeding with normalization of glucose level, and the UV line was removed within 12 hours. Routine bilirubin draw on day of life (DOL) 3 showed an elevated total bilirubin, thought to be due to ABO incompatibility and/or breastfeeding jaundice. Despite overall clinical improvement, his laboratory values were abnormal, showing thrombocytopenia and an elevated immature to total neutrophil (I:T) ratio of 0.45, hence antibiotics were continued. He also had scant bloody stools with positive guaiac results. Stool culture, blood culture, and other infectious workups returned negative. Bilirubin check on DOL 6 was abnormal with total bilirubin of 7.6 mg/dL and conjugated bilirubin of 2.1 mg/dL, and baby was transferred to our facility.

Physical examination demonstrated a comfortable, active appearing male infant with generalized jaundice and sclera icterus noted. Right-sided facial palsy and arm weakness was present. Abdominal exam demonstrated no tenderness on palpation, present bowel sounds, and no hepatosplenomegaly. The rest of the examination was unremarkable. A liver panel showed an elevated conjugated bilirubin (2.5mg/dL; total bilirubin 6.9mg/dL), AST of 78 IU/L, GGTP of 111 IU/L, and the rest of the panel was normal. White blood cell count was 12,700/µL with elevated band count and abnormal I:T ratio. C-reactive protein was markedly abnormal at 27.6 mg/dL. Urine study was negative for reducing substance. Urine cytomegalovirus culture and hepatitis panel was also negative. Initial newborn screening test was normal for galactosemia, thyroid, and cystic fibrosis.

With history of hypoglycemia, thrombocytopenia, cholestasis, and abnormal infection makers, infectious etiology was high on the differential. Repeat blood culture and urine culture were obtained, and antibiotics were broadened to Vancomycin and Piperacillin/Tazobactam. All cultures returned negative. An imaging study revealed the diagnosis.

DISCUSSION

Diagnosis: liver abscess

Abdominal ultrasound (US) demonstrated a 3.5X1.5X4.5 cm complex mass in the right liver concerning for a liver abscess, as well as a 2.7X2.4X3.8 cm suprarenal mass concerning for right adrenal hemorrhage. The bile duct was normal in diameter, with absence of cyst in the biliary tree system. Computed tomography of the abdomen confirmed presence of adrenal hemorrhage and intrahepatic abscess with two additional small abscesses scattered in the right lobe of the liver.

continued on next page
Needle aspiration under US guidance produced 4mL dark blood, suspicious for bloody abscess versus liquefied hematoma. Aspirate culture returned positive for *B. fragilis* and extended-spectrum beta-lactamase-producing *E. coli* that was resistant to Ampicillin, Piperacillin-Tazobactam, and Ampicillin-Sulbactam. Antibiotics were switched to Meropenem and Metronidazole for 21 days total. Echocardiogram, renal ultrasound, brain imaging did not show any evidence of metastatic abscesses. Serial ultrasound images and abdominal MRI during the antibiotic course demonstrated a gradual regression of the liver abscess and a complete resolution of the adrenal hemorrhage. Baby’s stools were free of blood, direct bilirubin and infection markers normalized, and he was discharged in a good and stable condition.

**BRIEF DISCUSSION OF DIFFERENTIAL AND TEACHING POINTS OF CASE**

Cholestasis in newborn is pathological and demands a thorough investigation. It is defined as the presence of a conjugated bilirubin more than or equal to 20% of the total bilirubin concentration. It affects approximately 1 in 2,500 infants. Biliary atresia is the most common obstructive etiology in the early neonatal period, characterized by a complete obstruction of bile flow due to a defect or absence of the extrahepatic bile ducts. Other obstructive causes include choledochal cyst, inspissated bile syndrome, gallstone or biliary sludge. Inherited form of cholestasis, such as progressive familial intrahepatic cholestasis, Alagille syndrome, and cystic fibrosis comprises another category. Metabolic syndromes seen on the newborn screen, e.g., galactosemia, tyrosinemia, can also present in the early neonatal period. Endocrine disorders that lead to cholestasis include hypothyroidism and hypopituitarism. Infectious etiology is a major category, ranging from congenital viral infections such as TORCH, to fungal and bacterial infections such as GBS, *E. coli, Listeria monocytogenes*, which are perinatally acquired.

Horizontal transmission from a prolonged stay in the hospital and other exposures to nosocomial infections may be another source of infection-related cholestasis. Drug-induced cholestasis and total parenteral nutrition-related cholestasis usually present later in life.

A prolonged and difficult delivery process increases the risk of perinatal infection and multi-organ injuries. Traumatic birth accounts for 2% of neonatal deaths and stillbirths in the United States, with an average of 6 to 8 injuries per 1,000 live births. Risk factors for traumatic birth include cephalopelvic disproportion, use of vacuum or forceps, and difficult rotations. Soft tissue injury (e.g., cephalohematoma, caput succedaneum, subgaleal hemorrhage, intracranial hemorrhage, abrasion, laceration), nerve injury (brachial plexus, cranial nerve, laryngeal nerve, spinal cord), bone injury (fracture of the clavicle and long bones, epiphyseal displacement), and intra-abdominal injuries (hepatic and splenic rupture, gastrointestinal hemorrhage, adrenal hemorrhage, peritoneal bleed) are common birth-related injuries.

Neonatal liver abscess is a rare entity with one study reporting an incidence of 0.03%. Since its first description in the 1930s, only about 100 cases have been reported in the literature. The first review of solitary liver abscess was done in 1936 by Kutsunai where he described two infants with fatal peritonitis, evidenced by a solitary liver abscess on necropsy. There are two types of liver abscess, multiple or solitary. Multiple type is more common and has an acute onset. Solitary liver abscess tends to be indolent, and with relatively no systemic symptoms.
In conclusion, we reported a very rare case of liver abscess as an etiology of neonatal cholestasis. Traumatic birth process increases the risk of multi-organ injuries as well as perinatally acquired infection, a combination which led to a compromised GI tract and an ascending infection, and finally a liver abscess in our infant. A thorough evaluation prompted the diagnosis of the liver abscess, which enabled a timely intervention. The abscess regressed after a needle aspiration drainage and prolonged antibiotic treatment, all of which benefitted the patient without foreseeable complications.

ACKNOWLEDGMENTS

We would like to thank Drs. Patricia Whitley-Williams, Amisha Malhotra, and Sunanda Gaur for their expert opinions on the infectious workup and antibiotic coverage for the patient.

REFERENCES

Whether in a Glass, Bowl or Plate – Low-fat Dairy Makes Mealtime Complete.

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- Milk contains 9 essential nutrients, including calcium, vitamin D and protein for better bone health at every age.
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- baked fish or chicken
- green beans
- red potatoes
- whole grain roll
- fat-free milk

**The Vegetarian Plate**
- meatless chili with beans
- low-fat shredded cheese***
- brown rice

**Breakfast Anytime**
- yogurt***
- fruit
- low-fat granola
- orange juice

**One Dish Meal**
- whole grain pasta
- meat sauce and cheese
- salad
- low-fat milk

**Lunch to Go**
- whole grain tortilla wrap
- lean deli meat
- low-fat Swiss cheese***
- lettuce, tomato
- fruit

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*Daily recommendations are: 3 cups per day for those 9 years and older, 2 ½ cups for children 4 to 8 years, and 2 cups for children ages 2 to 3.


***Even for those with lactose intolerance, aged cheeses and yogurt, as well as lactose-free milk, are great options to enjoy the taste and nutrition dairy offers.

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**NJAAP Annual Conference & Exhibition**
Re-Stock Your Pediatric Toolbox
Wednesday, May 24, 2016
The Palace at Somerset Park, Somerset, NJ

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Susan Hudome, MD, Regina Grazel, MSN, RN, BC, APN-C and Kim Van Naarden Braun, PhD with their poster on Evaluation of CCHD Screening in the NICU at the recent Hot Topics in Neonatology meeting in Washington, DC.
A Case of Abnormal Critical Congenital Heart Disease Screening in a Newborn

Celina de Borja, MD
Chelsi Flippo, MD
Stephanie Chin, MD
Department of Pediatrics
Jersey Shore University Medical Center

Background

Critical congenital heart disease (CCHD) is defined as cardiac lesions requiring surgery or a catheter-based intervention in the first year of life. Approximately 25% of congenital heart disease is considered to be critical. This category includes ductal-dependent and ductal-independent cardiac lesions that may or may not be associated with cyanosis. Although many newborns with CCHD are either diagnosed by prenatal ultrasound or are symptomatic and identified soon after birth, others are not diagnosed until after discharge from the birth hospitalization. Cyanosis may not be clinically apparent in patients with mild desaturation (>80 percent saturation) or anemia, and in darkly-pigmented infants, cyanosis can be especially difficult to appreciate. The risk of mortality has been reported as high as 30 percent for infants with CCHD who are not diagnosed during the birth hospitalization. Pulse oximetry is a relatively inexpensive test that can be performed at the time of newborn state screening and has the potential to prevent significant morbidity and mortality from CCHD, and because of this universal screening is now recommended by the American Academy of Pediatrics, American Heart Association, American College of Cardiology Foundation, and U.S. Health and Human Services Secretary's Advisory Committee on Heritable Disorders in Newborns and Children.

Case Presentation

The patient is an African American baby boy born at 38 5/7 weeks gestational age via normal spontaneous vaginal delivery to a 29-year-old Gravida 2, Parity 001 mother. Prenatal echocardiography revealed a patent foramen ovale. Those results were unremarkable. The mother had no significant past medical, surgical, or obstetric history; she was on prenatal vitamins during the pregnancy and denied smoking, alcohol, or drug abuse. Spontaneous rupture of membranes was 7 hours prior to delivery, and fluid was clear. Apgars were 9 and 9 at 1 minute and 5 minutes of life, respectively. Birth weight was in the 50th percentile for gestational age. Mother’s and baby’s blood type were both A+. Patient was roomed in with the mother soon after birth and was breastfeeding with no signs of cardiorespiratory distress or cyanosis. At 24 hours of life, patient had critical congenital heart defect screening which revealed pre- and post-ductal oxygen saturation at 70%.

On examination, the patient was awake, comfortable, and in no acute distress. The oral mucosa was pink and moist. The lungs were clear to auscultation with good air entry, there were no retractions, grunting, or nasal flaring noted. On cardiac examination, the heart rate was normal with regular rhythm, S1 and S2 were normal and no murmurs were detected. Both brachial and femoral pulses were 2+ and equal. The abdomen was soft, non-distended, with normoactive bowel sounds in all quadrants, there was no hepatosplenomegaly. The skin was darkly pigmented with acrocyanosis.

Chest x-ray revealed a normal cardiac silhouette and no active parenchymal findings. Initial blood gas revealed hypoxemia. Hyperoxia challenge was performed with 100% FIO2 and PCO2 was 29 while PaO2 was 50. Echocardiography was performed which revealed an infradiaphragmatic total anomalous pulmonary venous return (TAPVR Figures 1 & 2). The patient was transferred to Children’s Hospital of Philadelphia for sutureless total vein repair, ASD closure and PDA ligation.

Figure 1: Blood blow visualized in left atrium is from the PFO

Cardiac lesions that may be detected by CCHD Screening:

- Hypoplastic left heart syndrome
- Pulmonary atresia
- Tetralogy of Fallot
- Total anomalous pulmonary venous connection
- Transposition of the great arteries
- Tricuspid atresia
- Truncus arteriosus
- Coarctation of the aorta
- Double-outlet right ventricle
- Ebstein’s anomaly
- Interrupted aortic arch
- Single ventricle

continued on next page
1. Conclusion

Total anomalous pulmonary venous return (TAPVR) is a congenital heart defect wherein the pulmonary veins do not have a connection with the left atrium, and instead drain into the systemic circulation.\textsuperscript{11} TAPVR usually presents as cyanosis, respiratory distress and shock in the newborn period, usually within the first 12 hours of life. However, in uncommon cases, an unobstructed TAPVR with left to right shunting may present with tachypnea, poor feeding, or failure to thrive. Cyanosis may not be present in these cases.\textsuperscript{11,12} Diagnosis of TAPVR is made by echocardiography and management requires emergent surgical correction of the defect.\textsuperscript{11}

Cyanosis may not be clinically apparent in patients with mild desaturation (>80 percent saturation), anemia, and in darkly pigmented infants, cyanosis can be especially difficult to appreciate.\textsuperscript{5} Critical Congenital Heart Defect (CCHD) screening, which uses pulse oximetry to detect preductal and postductal oxygen saturations, is routinely performed at 24 hours of life in the newborn nursery to detect critical congenital heart defects that will require surgery or catheter-based intervention in the first year of life. CCHD and early diagnosis decreases morbidity and mortality from CCHD.\textsuperscript{5,13} CCHD screening is particularly useful when cyanosis is not clinically apparent. Timely identification of infants with critical CHD prior to discharge minimizes the morbidity and mortality associated with delayed diagnosis.

2. References

Joseph Carl Bogdan, MD
Spring Lake

Joseph Carl Bogdan MD, 78 of Spring Lake passed away on September 21, 2016 at his home surrounded by his devoted family.

Born in Jersey City, he was a graduate of St. Peter’s Prep, St. Peter’s College and then completed his Medical Doctorate at Seton Hall College of Medicine and Dentistry, Jersey City, NJ. Following Medical School he proudly served as a Captain in the 50th Medical Battalian in the Army National Guard for 10 years.

He had resided in Neptune, Deal and then in Spring Lake for the past 43 years. At home in Spring Lake, he enjoyed his vegetable garden, fishpond and pool. Dr. Bogdan had three main passions in his life: pediatrics, fishing, and most of all, family.

Following graduation from medical school, he did his pediatric residency at Jersey Shore Medical School (previously known as Fitkin Hospital). He went on to be the co-founder of Pediatric Associates in 1968 in Neptune, and later opened a second office in Marlboro. He was Chief of Pediatrics at Jersey Shore from 1975-1995, where he also served on the hospital Executive Committee from 1971-2016. He served as President of the New Jersey Chapter of the American Academy of Pediatrics for many years. After retiring from Pediatric Associates in 2010, he spent nearly 6 very rewarding years teaching Pediatric residents at the Rosa Family Health Center. He was famous for his bowties that he wore everyday to the office. He was dedicated to his patients and was on call 24/7 even when he was off. He had a special bond with so many of the children that he took care of including introducing them into the world of fishing.

Findings Detail Importance of Initial and Continuing Evaluation of Infants With Possible Congenital Zika Virus Infection

CDC researchers in collaboration with researchers from the United States and Brazil, investigated the first series of infants with laboratory evidence of congenital Zika virus infection documented to have onset of microcephaly after birth. The report, published today in CDC’s Morbidity and Mortality Weekly Report, describes 13 infants in Brazil with congenital Zika virus infection who had head size in the normal range at birth, but later experienced slowed head growth. Among these infants, 11 later developed microcephaly. Slowed head growth and microcephaly were accompanied by significant neurologic complications. Although microcephaly was not present at birth, the infants had other brain abnormalities consistent with congenital Zika syndrome. The study reveals that among infants of mothers exposed to Zika virus during pregnancy, the absence of microcephaly at birth does not rule out congenital Zika virus infection or the presence of Zika-related brain abnormalities.

The findings highlight the importance of CDC guidance on initial and continuing medical and developmental evaluations of infants with possible congenital Zika virus infection and the importance of early neuroimaging for infants who were exposed to Zika virus prenatally.

For additional resources related to Zika and microcephaly, go to:

- Initial Evaluation and Outpatient Management for Infants with Zika
- Measuring Infant Head Circumference: An instructional video for healthcare providers
  - https://www.youtube.com/watch?v=HWV1JdAhSo

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Dairy and the 2015 Dietary Guidelines: All You Need to Know

On January 7, 2016, the Department of Health and Human Services (DHHS) and the United States Department of Agriculture (USDA) released the 8th edition of the Dietary Guidelines for Americans (DGA). The 2015 DGA provides dietary recommendations for Americans ages two years and older, and is the cornerstone of federal nutrition policy in the United States.

The 2015 DGA affirms the vital role that dairy foods provide in the diet and reminds Americans that they will continue to benefit from three daily servings of low-fat and fat-free dairy. The DGA states that current intakes of dairy foods for most Americans “are far below recommendations of the Healthy U.S.-Style Pattern” and call for a change to increase consumption of more dairy products. Milk, cheese, and yogurt are important answers to the question of how Americans should change their diet for the better.

While people eat foods, not nutrients, the nutrients in food do matter. Low-fat or fat-free dairy foods are fundamental to all of the patterns recommended by the DGA: Healthy U.S.-Style Pattern, Healthy Vegetarian Pattern and Healthy Mediterranean-Style Pattern. That's because low-fat and fat-free dairy foods offer a unique set of nine essential nutrients, including calcium, vitamin D and potassium, which most people do not get enough of in their diets.

The good news for people across the country is that dairy foods taste great, are accessible almost anywhere, contain essential nutrients and come in a variety of options (including lactose-free, low-fat, fat-free or lower sodium) at a reasonable cost. In fact, you can get three servings of milk for less than $1 a day (with each 8-ounce serving costing about 25 cents). With eight grams of protein in every eight ounces, milk is a natural source of high-quality protein, meaning it provides the full mix of essential amino acids our body needs.

For more information on dairy’s role in the diet, visit the American Dairy Association North East Health & Wellness page, or contact our registered dietitian, Stacey Jackson, MS, RDN, CDN via email at sjackson@milk4u.org or by calling 914-615-9286.

To Learn More Visit: https://health.gov/dietaryguidelines/2015/guidelines/
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The New Jersey Chapter, AAP, and NJAAP Purchasing Alliance have partnered with Positive Physicians Insurance Exchange (PPIX) to provide you exclusive proprietary member rates on Medical Malpractice Insurance. These excellent rates are 28% below PPIX’ standard rates. In addition, when switching to PPIX under a claims-made policy, PPIX will offer prior acts coverage. The simply means that PPIX will honor the retroactive date shown on your current policy. Positive Physicians Insurance Exchange, one of the only professionally managed, physician driven medical malpractice companies in the country, has a Financial Stability Rating® of A, Prime, from Demotech, Inc.

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