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PRESIDENT'S COLUMN

EVOLVING TIMES AND A LOOK FORWARD

Jeanne Craft, MD, FAAP

President

New Jersey Chapter, American Academy of Pediatrics

The second major surge of the COVID-19 pandemic is upon us. As overwhelming as this may seem, we have months of experience under our belt. Offices are adjusting to new scheduling patterns and workflows, and clinicians are continuing to be a steadying influence for children and families. Treatment is improving for both acute COVID-19 and for MIS-C (Multisystem Inflammatory Syndrome in Children). Protocols are being updated regularly as data is collected and analyzed. A recent publication in the New England Journal of Medicine, **Multisystem Inflammatory Syndrome in U.S. Children and Adolescents,** included NJAAP members among the authors https://www.nejm.org/doi/full/10.1056/NEJMoa2021680 . Our bi-weekly Monday Q&A sessions continue to offer support and information in an interactive panel format. Feedback from participants is useful in guiding advocacy efforts and in identifying topics for future sessions.

In these difficult times, the news of emerging successes in COVID (SARS-COV2) Vaccine Phase III clinical trials is very encouraging and we will likely see the first vaccine approved before the end of the year. Vaccination of our communities will take time. The New Jersey Department of Health has invited NJAAP member Dr. Meg Fisher to be a key advisor in the Vaccine plan for the state, and NJAAP leadership is continuing to meet regularly with Dr. David Adinaro, the Deputy Commissioner for Public Health. As soon as a vaccine is approved and made available to the NJ Department of Health, the phased roll-out will begin. Here is the link to the plan: https://www.state.nj.us/health/cd/topics/New%20Jersey%20Interim%20COVID-19%20Vaccination%20Plan%20-%2010-26-20%20(1).pdf . Health care workers will be in the initial target group for vaccination. The roll out will begin with adults. Safety and efficacy data is not yet available for children, but at least one vaccine developer has begun to include children down to the age of 12 in clinical trials, and others are expected to follow. We will keep you posted as new information becomes available. In the meantime, wear a mask, keep your distance (physically, not emotionally), wash your hands, try not to touch your face, and get a flu shot.

The voters of New Jersey have voted yes to legalize the recreational use of marijuana. The legislature is moving forward on the bills to enact the ballot initiative, regulations for implementation will follow. Dr. Jen Chuang and Dr. Steve Marcus, both members of the NJAAP Government Affairs Committee, had the opportunity to provide written and oral testimony to legislators explaining the potential harms to the developing brains of children, impairment of school performance in adolescents and the risk of accidental poisoning among other concerns. They also offered recommendations for safety including limiting product design and marketing targeted toward children and adolescents, such as candy-like products and packaging. The testimony was well received, and we will continue to promote safety as regulations are developed.

The 2020-2021 Agenda for Children is now available on the NJAAP website. https://njaap.org/wp-content/uploads/2020/10/AAPNJ-legislative-booklet2020-2021-2.pdf

We have updated and reorganized the agenda to reflect changes over the past 2 years since the previous version was released. Our Agenda for Children describes our primary focus areas so Legislators and others can easily tap into our expertise about issues that we have in common. Take a look, and share with colleagues, community partners, your local legislators and anyone else who would benefit from a better understanding of our priorities for the health and well-being of children.

Our Pediatric Practice Council, led by Dr. Richard Lander is seeking additional members. This council helps pediatric practices operate efficiently and works with payors to ensure fair and reasonable payment for the work we do.

Through these challenging times, I am inspired by the work our NJAAP members, staff and partners continue to do to optimize the health and well-being of children, families and health care teams across the state. The work we are doing is not easy, but it is absolutely necessary. Thank you.

We are pleased to announce that the NJAAP is relaunching its Practice Management Committee and Pediatric Council. Our initial Pediatric Council was the second one established in the country and was highly regarded for its work with the insurance industry. Dr Richard Lander, Holly Parlavecchio and Jean O'Connell are the Co-chairs and have been involved both here in NJ and with National AAP in this area. We are looking for interested members to help us interact with our insurers. Please reach out to Aldina Hovde at ahovde@njaap.org for details.

CEO'S COLUMN

Felicia K. Taylor, MBA, CAE

Chief Executive Officer

New Jersey Chapter, American Academy of Pediatrics

Happy Holidays and Cheers to the New Year!

As you all prepare for a fresh start in the New Year, please know that 2021 will be replete with challenges and opportunities. Although many may be still suffering from pandemic fatigue, you are at a distinct advantage because you have the experience and knowledge to safely navigate the healthcare crisis while providing the best possible care for your patients. The arrival of a vaccine will bring relief to many as we learn more about the efficacy, side effects and its impact on children. NJAAP will continue to bring you the latest information as it becomes available. We will work with partners at the state to help guide us as we learn more about the regulations and guidance from the CDC and FDA for a seamless vaccine rollout.

Diversity, Equity and Inclusion

As we reflect on 2020, remember the favorable outcomes throughout the year. Our strength has been tested in many ways, including developing the courage to speak up and take action in response to acts of violence and social injustice. Many organizations, institutions and companies were called to action as a result of the display of blatant acts of racism throughout the country. Those actions led to embracing the concepts of diversity, equity and inclusion throughout many organizations and businesses. NJAAP is no exception. We have made a commitment to formally develop a committee to address these pressing issues. The Diversity, Equity and Inclusion committee is comprised of an all-encompassing combination of members from different areas of practice with a fair balance of race, gender, age, specialty and tenure with the organization. The work of the committee will further support pediatricians and the mission of the chapter through the execution of its initiatives and program. Please watch your email for further details.

Member Engagement

Are you interested in becoming more involved in the chapter? If so, join one of our committees. It is through these groups where much of the work happens to bring you the best quality programs, services and events. If you are interested in joining a committee and sharing your expertise, please let us know by emailing us at njchapter@njaap.org. A committee listing is available under the Member Login button on www.njaap.org.

NJAAP Kids Fund

We appreciate your commitment to life-long learning by remaining a member of the chapter. Making a donation is another way to support your professional organization. Your contribution to the NJAAP Kids Fund will ensure the expansion of our programs and resources. The fund was created to help us grow the organization to offer additional resources, products and services to members like you. If you have not yet donated, please consider making one today. Please help us grow as we enter another year of uncertainty. Make your gift to the NJAAP Kids Fund by simply texting the word "GIVE" to 609-544-5481 to make your gift! Or, make your gift online at njaap.org. Click on the Donate button on the top right of the Home Page. Checks made payable to NJAAP can be mailed to 50 Millstone Rd, Building 200, Suite 130, East Windsor, NJ 08520.

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LESSONS LEARNED DURING THE PANDEMIC

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The pandemic is raging again and the next four to six months appears to be eye of the storm. New Jersey's rate of rise is a little less than most of the rest of the country and we seem so far to be able to avoid a complete shutdown. Pandemic fatigue however is playing a much larger role and more people are traveling and flying and gathering together: all especially concerning now that the positivity rate is back up to about 3%.

The vaccine might begin to provide some hope of a return to normalcy but even the best vaccine will take many months to show an effect and to be trusted by families and by the health care community. If it is the Pfizer version then there will be additional issues with storage and accessibility and the need for two shots three weeks apart.

And although we are certainly not prospering, we are making adjustments and learning how to keep NJAAP active and vital to pediatricians and to children.

It is clear that there may never be the need for as many face to face meetings. Zoom has proved amazingly reliable and useful and hours of travel time can now be avoided. Even the large conferences and galas can be handled virtually although i think there will always be an advantage to in person gatherings and the need for networking and sharing and having human contact.

Similarly, telehealth has a role even when the pandemic ends. For many issues and for many families, a virtual visit for follow up and for care management can be very useful especially where transportation, distance or families with other children in need are important factors.

Emergency room visits and some office visits are proving to be unnecessary and families are finding that they do not need to rush to care for certain acute symptoms. There is certainly the concern for families waiting too long, but thus far there is only anecdotal evidence.

Pediatricians have become more connected to schools and day care because of the need to monitor the children coming to school, or wanting to participate in more advocacy for children and families having to deal with the stress of home schooling, especially for students with learning difficulties and behavioral or mental health issues. Families who used to be automatic pilot are now having to confront daily decisions about child care, schooling, parental involvement, as well as the general anxieties of contracting the virus.

Managed care and Medicaid have had to adapt and move quickly to cover services, especially telephonic and virtual visits, that they would not have considered it a year ago.

The challenges and opportunities for adaption, for ongoing changes in care delivery and for new models of care and payment will continue for the foreseeable future. NJAAP is keeping abreast of all of these changes and looking to ensure better care for children and families and better support for clinicians.

Shilpa Pai, MD, FAAP
Marissa Carranza, MD Candidate, Rutgers Robert Wood Johnson Bachelor of Science, University of Vermont

INTRODUCTION

Before COVID 19, rates of food insecurity (defined as the lack of consistent access to healthy and nutritious food) amongst New Jersey children were at 11%. After school and childcare center closings and unemployment rates rising, food insecurity (FI) prevalence amongst children is exponentially increasing. According to the Community Food Bank in NJ September 2020 report, FI rates in NJ children are projected to increase 19.5%, which is one of the highest percentage increases in childhood FI rates throughout the nation.

1. CONTRIBUTORS TO FOOD INSECURITY

There are multiple levels of consideration when delving into the causes of food insecurity: from behaviors to built environments to policies. Food security is too often simplified as either having or not having enough money to purchase food for your family, but this issue runs much more complex than a financial situation.

At the individual level, eating behaviors are influenced by personal motivations and social norms. In a household where money is limited, food choices tend to be based on cost, taste and satiety rather than nutrient content. Parents may buy foods that they know their child will eat as opposed to spending their limited budget on trying a food which may be healthier and new, but their child may not eat.

The physical environment plays a significant role since it determines which foods are readily available or unavailable as is the case with food deserts. About 23.5 million Americans live in food deserts – neighborhoods where people have limited access to healthful and affordable food. According to the U.S. Department of Agriculture (USDA), roughly half of the people who live in food deserts are low income, making it that much more difficult to travel or have food delivered from areas outside their immediate residence. Consequently, food deserts lead to worsening food insecurity and nutrition-related health problems, such as obesity, anemia and diabetes.

The macro-environment plays an indirect yet important role on what people eat. The complex influences of food marketing, production and distribution leads to significant cost differentials on nutrient-dense versus energy-dense food. For instance, the cost of nutrient-dense foods such as fruits, vegetable and whole grains has increased faster than the cost of energy-dense foods (e.g., chips and cookies).

Legislative policies, in addition to the environment individuals live in, are a major contributor to the rate of food insecurity. In February of 2020, the public charge final rule went into effect, disproportionately impacting communities of color. Implementation of this legislation has instilled fear in individuals - forcing them to choose between basic needs of food and healthcare or the assurance of their long-term citizenship status. Prior to the public charge rule going into effect, one in five low-income immigrant families avoided using noncash government programs out of fear of immigration consequences. While the public charge rule does not include many immigrant families, enrollment of immigrant families has decreased in federal nutrition support programs from fear of this public charge ruling.

2. IMPACT OF FOOD INSECURITY ON CHILD HEALTH & WELL-BEING

Food insecurity is inextricably linked to a broad range of health conditions across all age groups – nutrition, physical, mental and cognitive well-being. Food-insecure toddlers have a 140% increased likelihood of iron-deficiency anemia, which leads to impaired cognitive, mental and psychomotor development. Whereas food insecure adolescents are noted to have protein, Vitamin A and magnesium deficiencies.

Moreover, children in food insecure households are found to be 30% more likely to be hospitalized at least once since birth and 90% more likely to be in "fair" to "poor" health as opposed to "good" or "excellent" health.

Mental health is also significantly impacted by food insecurity. More than 80% of children without enough to eat reported experiencing nervousness, anxiety and inability to sleep given their concern about food supply. Pre-school and school-aged children have been found to have increased irritability, aggression, hyperactivity as measured on the Child Behavior Checklist. Teenagers with FI are four times more likely to have dysthymia and five times more likely to have attempted suicide.

The cognitive effects of food insecurity is multifold. FI has been linked with lower cognitive indicators, dysregulated behavior and emotional distress among children. Kindergarten students who are impacted by FI are predicted to have lower academic achievement in math and reading over a 4-year period. Older school age children are more likely to have repeated a grade, have lower math scores, higher rates of absenteeism, tardiness and school suspension. This research demonstrates the far-reaching effects that FI has on children and young adults and further emphasizes the importance of preventing FI.

3. THE ROLE OF THE COVID-19 PANDEMIC ON FOOD INSECURITY

Food insecure households are suffering more so from the impacts of COVID-19. The pandemic has strained food systems, especially for families living in or near poverty. Families are experiencing increasing food prices and shortages of staple items which are the items often covered by federal nutrition benefits. Social distancing restrictions make it even more challenging for lower income families to access food – having to utilize public transportation safely, shop at crowded grocery stores in food deserts or stand in long lines at food pantries. Infants, and young children may be particularly vulnerable to these disruptions given their specific nutritional needs.

Due to the multitudinous effects of COVID-19, FI rates are worsening as financial situations fluctuate daily. Many report being employed but with less hours or having additional financial strain

because their children are eating more of their meals at home rather than at school. While multiple supplemental nutrition programs exist, families who screen positive for food insecurity may still may not be eligible for these benefits. For example, about 25% of those surveyed who reported not having enough to eat had annual incomes of about $50,000 per year.5 Yet, this income would only be eligible for supplemental nutrition programs if this income was for household of more than 4 people. These eligibility constraints leave many households unable to meet their basic food needs.

Between the multi-generational history of structural racism and its disproportionate effects from the COVID-19 pandemic, FI rates are rising disproportionately amongst Black and Latinx households. These households are likely to experience FI at double the rates compared to white households, even after accounting for differences in income, poverty, unemployment and home ownership. One study led by Burke and colleagues showed that a one-unit increase in the frequency of lifetime racial discrimination was associated with a 5% increase in the odds of having very low food security, even after adjusting for other socioeconomic and demographic cofounders. The threat of increased food insecurity has always existed for communities of color and with COVID-19 and the public charge concerns, that threat is only becoming more harmful.

4. PREVENTION AND MANAGEMENT

When screening patients for FI, pediatricians must know how to respond to a positive answer by familiarizing themselves with the variety of food resources available in their community and beyond. Resources include those at the local, state, and federal level, as well as short and long-term solutions with which to connect families in need. Short term solutions are typically local emergency food sites in the community - i.e., food pantries and soup kitchens. Long term solutions are available from a vast array of government-supported agencies such as Supplemental Nutrition Assistance Program (SNAP), National School Lunch and Breakfast Program (NSLP/SBP) and Women, Infants and Children (WIC).

SNAP (formerly known as Food Stamps) is the leading program in the safety-net against hunger, as 1 in 7 Americans benefit from their services. The program directly augments a household's resources available for purchasing food.Monthly SNAP benefits can be used at grocery stores, farmers' markets and food retail outlets that accept this benefit. The Children's Health Watch reported that SNAP benefits can make a crucial difference in determining a child's health status and development. In addition, economists from the Center on Budget and Policy Priorities reported that they consider SNAP one of the most effective forms of economic stimulus.

The National School Lunch and Breakfast Programs (NSLP/SBP) are managed by the United States Department of Agriculture (USDA). These programs offer free or reduced-price school meals to eligible families at participating schools. Children are eligible for a free lunch if their family's income is at or below 130% of the Federal Poverty Level (FPL), and reduced-price lunch if the household income is between 130% to 185% of FPL. The Community Eligibility Option allows schools based in extreme poverty neighborhoods to provide free breakfast and lunches to all students if there is a high percentage of SNAP participants in the community. According to the Kids Count Data Center, almost 400,000 New Jersey children were enrolled in the NSLP during the 2018-2019 school year. To further protect against food insecurity, NJ. Governor Chris Christie signed a bill in 2015 prohibiting denying students a meal if the meal account has a negative balance without parent notification.

The Supplemental Special Nutrition Program for Women, Infants and Children or WIC aims to safeguard the health of low-income women, infants, and children up to age 5 who are at nutritional risk by providing healthy foods, food education, breastfeeding support and referrals to health care. Participating WIC families can save up to $5,000 in food costs if the mother enrolls in the program early in her pregnancy, and the family continues the program until the child reaches their fifth birthday. In addition, the WIC Farmers Market Program provides additional monies to purchase fresh local produce at participating farmers markets. In New Jersey, there are 16 WIC agencies and 900 participating stores throughout the state.

5. PIVOT DURING THE PANDEMIC

In 2020, the pandemic has caused record-setting unemployment, sudden health care expenses and increasing hours of children not being in school. Consequently, there has been a dramatic spike in the number of hungry children throughout New Jersey and the United States. According to the Census Bureau and the USDA, the number of children in 2020 who report that they "sometimes do not have enough to eat" is 14 times higher than it was in 2019. Another projection by Feeding America says as many as 1 in 4 children could be food insecure by the end of 2020. Not surprisingly, the NJ WIC Program is currently experiencing an increase in WIC participation (following a decline in 2019), reporting having served about 137,000 individuals in September of 2020.

The initial federal response to these challenges has been the passage of the Families First Coronavirus Response Act (P.A. 116-127) by U.S. Congress. The COVID-19 Child Nutrition Response section includes several crucial provisions to NSLP, SNAP, WIC: (1) increased funding for fiscal year 2020 to support anticipated increases in program enrollment (2) authorized the USDA to waive regulatory requirements at a state's request, including the physical presence requirement. Each of these provisions is crucial to ensure that the NJ WIC program had the capacity to serve the increased number of food insecure families, while preventing the spread of the COVID-19 virus.

In addition, the pandemic-EBT (specific debit card distributed by SNAP) was introduced in March of 2020. The P-EBT gives families food benefits they can use to replace free/reduced priced meals that children would typically have received while in school. When schools closed due to the pandemic, every state implemented a form of P-EBT providing about $250-$450 per month per child to account for missed in-school meals.

More locally, NJ WIC recently added new ways for families and providers to communicate with WIC offices while maintaining social distancing. NJ WIC offices increased their usage of communications via telephone, email and WIC Participant Portal for clients to have improved access to WIC. In November 2020, the USDA's Food and Nutrition Service (FNS) announced they are expanding capacity for SNAP and WIC participants to utilize online shopping services through a purchasing pilot. On-line ordering of groceries will allow participants to practice social distancing yet still be able to have

regular access to healthy foods. These innovations demonstrate the collaboration between national government and local agencies in order to meet the increasing demand of food insecure families.

6. THE ROLE OF THE PEDIATRICIAN

During the first 5 years of a child's life, pediatricians have at least 12 opportunities during the numerous well-child visits to screen and intervene for food insecurity. Given the critical brain development that occurs during early childhood, pediatricians can prevent and mitigate the effects of FI and identify it as a potential underlying cause for other physical ailments. In December 2015, the American Academy of Pediatrics (AAP) released a policy statement recommending that pediatricians engage in efforts to 1) address food insecurity; 2) become aware of food-related resources and 3) know how to refer eligible families. The AAP recommended using a 2-question validated screening tool, "The Hunger Vital Signs" at every health maintenance visit:

1. "Within the past 12 months, we worried whether our food would run out before we got money to buy more." ("Identifying food insecurity: Two-question screening tool …") (Yes or No)

2. "Within the past 12 months, the food we bought just didn't last and we didn't have money to get more." ("Food insecurity screening | Healthy food playbook") (Yes or No)

The tool should be used at every well child visit especially now given the fluid nature of food insecurity and economic uncertainty. If a family responds affirmatively to one or both questions, further questions around other social determinants of health should be asked. Pediatricians should take a team-based approach to work with staff to ensure that every patient is screened for food insecurity in a consistent, seamless, and sensitive manner. Outside of the clinical setting, pediatricians should educate themselves on the local short-term resources in the communities and long-term federal programs.

CONCLUSION

While food insecurity disproportionately affects low-income families and people of color, the numbers and demographics of those affected by food insecurity is continuing to expand during the COVID-19 pandemic. The issue of food insecurity goes beyond the act of putting food on the table. Combating food insecurity in the current environment involves advocacy around safe food distribution practices, screening every family at every well-child visit, fighting against the long-standing structural barriers and finally collaborating with communities. Pediatricians have a unique platform when advocating for programs that will ultimately help decrease the amount of food insecure families.

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Quiz:

Food Insecurity in the Pediatric Primary Care setting during COVID-19

1. As a result of the pandemic, rates of food insecurity amongst children in NJ is expected to change by approximately what percentage?

a. -5%

b. +1%

c. +9%

d. +23%

2. What factor contributes to the current rise in food insecurity?

a. Public charge ruling

b. Food deserts

c. Cost differentials between nutrient dense vs. calorically dense foods

d. Children not attending school in person

e. All of the above

3. What is a health impact on children who suffer from food insecurity?

a. Iron deficiency anemia

b. Asthma

c. Anxiety

d. Both a & b

e. None of the above

4. What is an example of a federal nutrition support program?

a. TANF

b. SNAP

c. SSI

d. PPP

5. Black and Latinx households are at disproportionate increased risk for food insecurity due to structural racism.

a. True

b. False

6. What is the screening tool that the AAP recommends to screen for food insecurity?

a. Food Insecurity Experience Scale

b. Hunger Vital Signs

c. USDA FSS

d. None of the above

7. Which of these is an example of short-term solution for food insecurity?

a. SNAP

b. WIC

c. Food pantries

d. SLP

8. How have federal nutrition programs pivoted during the pandemic to support their participants?

a. Creating a pandemic-EBT card to replace free/reduced priced meals from schools

b. Allowing WIC participants to shop on-line for their groceries

c. Passage of the Families First Coronavirus Act

d. All of the above

9. Older children who experience food insecurity are more likely to have higher rates of:

a. Teen pregnancy

b. Cyberbullying

c. Absenteeism

d. Vaping

10. Pediatricians can address food insecurity by:

a. Implementing The Hunger Vital Signs screening questions

b. Familiarizing themselves with local and federal nutritional support programs

c. Recognizing the role that food insecurity has on a child physical and mental well-being

d. All of the above

Atlantic Health System

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CME Instructions
Read the CME-designated article and answer the Winter issue, quiz questions above. Submitter must answer 80% correctly inorder to obtain Credits. Print your name and phone number and mail or fax this form within six months from the date of issue to: NJAAP CME Quiz, 50 Millstone Road, Building 200, Suite 130, E. Windsor, NJ 08520• Fax: 609.842.0015

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CASE STUDY

BABY-SIOSIS: A CASE REPORT OF INFANTILE BABESIOSIS

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Summary: In this case report, an infant is presented with no known tick bites and diagnosed with babesiosis. The case follows the hospital stay and follow-up.

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Conflict of Interest: The other authors have indicated they have no potential conflicts of interest to disclose.

Contributor Statements:

Dr. Mallari conceptualized the case report, drafted the initial manuscript, revised, reviewed and approved the final manuscript.

Ms. Knapp contributed, revised and reviewed manuscript. Ms. Knapp approved the final manuscript.

Dr. Amir is the patient's primary pediatrician, helped communicate with the patient, revised and reviewed the final manuscript for submission.

Informed consent: (obtained by Dr. S. Amir over the phone-5/28/2020@ 2:20 PM)

Verbal informed consent was obtained from the patient for his anonymized information to be published in this article.

ABSTRACT

Human babesiosis is an emerging parasitic infection in the United States. To date, babesiosis has been observed in areas that were otherwise not endemic for the infection. We present a pediatric patient with intermittent fever for eight days, upper respiratory symptoms, pallor, lethargy, splenomegaly on exam and complete blood count demonstrated anemia and thrombocytopenia. Blood smear and blood polymerase chain reaction (PCR) DNA confirmed infection with Babesia microti. The patient showed marked improvement with appropriate treatment and upon follow-up did not demonstrate any symptoms of recurrence.

KEYWORDS: Babesiosis, Infant, Tick-borne

1. INTRODUCTION

Babesia microti is an intraerythrocytic parasitic infection that causes human babesiosis and has been reported in Northeastern and northern Midwestern states in the United States. [1] The primary reservoir is the white-footed mouse and the primary vector is the tick, *Ixodes scapularis.*[1] Babesia protozoa infect mammals and cause lysis of host red blood cells. *Babesia sp*. has a complex life cycle as they reproduce asexually in erythrocytes by budding rather than schizogony (asexual reproduction by multiple fission in parasitic sporozoans).[1] *B microti* specifically can reproduce twice and the four resulting nuclei result in a merozoite tetrad known as the "Maltese cross."[1] Most Babesia infections occur between May and October. There have been a number of cases of babesiosis transmitted through blood transfusion and rarely through organ transplantation or congenitally.[1-6] The severity of babesiosis is dependent on the immune status of the patient. Those who are immunocompetent range from asymptomatic to moderate severity. Vulnerable populations for more severe disease include neonates, patients over 50 years of age, patients with splenectomies, cancer, patients on immunosuppressive agents, or those undergoing organ transplantation. [1] Complications of human babesiosis include acute respiratory distress, congestive heart failure, liver failure, renal failure, splenic rupture, coma or death. Most reported cases of the disease are in adults, but in this case human babesiosis was found in an infant.[1-5]

2. HISTORY AND PHYSICAL

A 4 month old male, born at 41 weeks gestation by a normal spontaneous vaginal delivery, 3,386 grams, AGA (appropriate for gestational age), to a 25 year old female (G3P1), presented to the emergency department at a community hospital after being referred by their pediatrician, for an 8 day history of generalized paleness and daily intermittent fever (101.6 degrees Fahrenheit) despite acetaminophen treatment. Patient demonstrated upper respiratory infection (URI) symptoms consisting of congestion, non-productive cough, fussiness and rhinorrhea for the past 3 days prior to admission. He lives with his parents, 5-year-old brother, and a pet dog. The patient's older brother was reported to have missed 2 days of school because of vomiting and fever. The mother denied any other sick contacts. The family lives in a wooded area and reported many ticks around the residence.

On arrival to the emergency department, the patient was in no acute distress, febrile with Tmax temperature of 101 degrees Fahrenheit. He appeared appropriate for development, with generalized pallor, pale conjunctivae and a palpable spleen 6-8 cm below the left costal margin. The liver edge was palpable 2-3 cm below the right costal margin. The patient had no other significant physical findings.

3. DIAGNOSTIC FOCUS AND ASSESSMENT

A complete blood count with differentials showed anemia (hemoglobin of 8.5 and hematocrit of 25.1) and thrombocytopenia (platelets of 40,000). His WBC was 7,800 with a normal differential count. The comprehensive metabolic panel revealed a low albumin (3.0 g/dL, reference range 3.5-5.5 g/dL), elevated lactate dehydrogenase (LDH), aspartate transaminase (AST), and alanine transaminase (ALT) at 636 U/L (reference range 80-225 U/L), 125 U/L (reference range 10-40 U/L), and 78 U/L (reference range 10-40 U/L) respectively. C-reactive protein (CRP) was elevated to 83.5 mg/L (reference range ≤ 0.8 mg/dL). Uric acid and reticulocyte counts were all normal. The patient was negative for influenza or respiratory syncytial virus. Blood and urine cultures were negative.

4. THERAPEUTIC FOCUS AND ASSESSMENT

With the history of an 8-day intermittent fever pattern,

physical exam findings of pallor, marked splenomegaly and laboratory findings of anemia and thrombocytopenia, a hematology consult was obtained from a pediatric hospital who then advised transfer to their facility. The patient was admitted to the hospital's general pediatric unit and was observed to be intermittently febrile. A repeat CBC showed hemoglobin of 7.8 and platelets down to 35,000 with a normal white blood cell count and elevated CRP (110 mg/L). Hematology was consulted and IV ceftriaxone was started.

The results of the parasite screen at the referring hospital came back positive for malaria or babesiosis and this was forwarded to the pediatric hospital. The peripheral smear was repeated and reported as positive for babesiosis with 5% parasitemia. A *B. microti* polymerase chain reaction (PCR) obtained confirmed the infection. Infectious disease was consulted, and the patient was started on a 10-day course of atovaquine and azithromycin.

5. FOLLOW-UP AND OUTCOME

On hospital day 2 at the pediatric center, the hemoglobin dropped to 6 g/dL and the patient received 1 unit of a packed red blood cell transfusion. Maintenance fluids were started due to poor oral intake and low urine output. The patient stabilized and improved throughout his stay. On the day of discharge, the blood parasite screen was negative, and his hemoglobin level was 8.2.

The patient followed up with his pediatrician upon completion of his 10-day antimicrobial therapy without any difficulties or side effects. His spleen on exam was not palpable. His mother reported him back to his baseline. A repeat follow-up of his labs after 3 weeks revealed normal results of his CBC (Hb-12.8 g/dl, WBC-12,800 and platelets of 244,000). His liver enzymes were reported back to normal (AST-34, ALT-23 and alkaline phosphatase-225).

6. DISCUSSION

While the primary transmission of *B microti* is a tick bite and the family reports residing in a wooded area with significant tick exposure, the exact mechanism of transmission to the patient is unknown. The parents deny any history of tick bites to the patient. It is a possibility that the family's pet dog could have been acting as a zoonotic reservoir and this contact caused the patient's infection. Ground-foraging songbirds migrating across Canada during spring and bats in Hungary and Romania acting as possible zoonotic reservoirs of Babesia species have been documented in the literature.[2]

The patient was diagnosed at the end of the typical time of tick transmission in September 2019. At this time of the year, patients can be coinfected with Lyme disease and Anaplasmosis (Ixodes scapularis tick is a common transmitter to all three), however the history, clinical course, lab (microscopy and PCR) and the quick response to standard antibiotic therapy confirm Babesia alone as the cause of infection. [8, 10, 12, 13]

The patient presented with symptoms of moderate illness consisting of intermittent fever, pallor, and upper respiratory complaints. Fever is the salient feature. [7, 9, 10] Physical examination showed marked splenomegaly (6-8 cm) but no hepatomegaly (just 2 cm below the right costal margin). Lymphadenopathy was absent. No rash was reported. Laboratory abnormalities common in patients with Babesia and present in our patient include—anemia, thrombocytopenia, elevated transaminases, and elevated alkaline phosphatase. [1, 4, 11] The patient's parasitic burden was more than the typical "mild to moderate" presentation at 5%, compared to usual parasite burden of <4%. [1]

The patient's diagnosis was confirmed with *B microti* polymerase chain reaction (PCR) and by microscopy. Interestingly, the peripheral smear did not have the characteristic "Maltese cross" but instead demonstrated one of the pleomorphic ring forms, which brought malaria as a potential diagnosis. [3-5] Once the diagnosis was confirmed, he was treated with the antimicrobial combination of atovaquine and azithromycin for 10 days. An alternative regimen is clindamycin plus quinine given orally but this is associated with more frequent adverse effects, such as tinnitus, diarrhea and decreased hearing that frequently requires a reduction in dose or stopping the medications. [3, 14, 15]

Finally, reoccurrence is common in many patients with babesiosis. Relapse usually occurs within a few days or a week after discontinuation of antibiotics, but the interval can be longer. [3] The patient's outpatient follow-ups demonstrated that the treatment was successful. It would be important to monitor the patient for any reoccurrence at any sick or well visits in the future.

7. CONCLUSION

Babesiosis is an important disease not only in the adult population but also in the pediatric population, who can present very similarly. Many of the severe disease clinical manifestations can be prevented with timely intervention with the appropriate antimicrobial treatment. It is often more difficult to identify specific transmission of the parasite to a patient in the pediatric population, as tick bites may not be apparent in the history. Overall, clinicians should be aware of the clinical manifestations of this parasitic infection even in areas that are not endemic because severe complications can be prevented with appropriate treatment. It is also very important to follow patients closely because recurrence is common.

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CASE STUDY

PUZZLING PATIENT DIAGNOSED WITH FAMILIAL MEDITERRANEAN FEVER WITH RECURRENT ARTHRITIS, BOWEL ULCERATIONS AND ALPHA THALASSEMIA

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CASE REPORT

A nine-year-old boy, recently emigrated from the Middle East presented to the emergency department with left knee pain and swelling for two days. He had a history of intermittent arthritis with warmth involving the knees, hips and ankles for the past five years, sometimes associated with fever and an erythematous petechial rash over his palms. He was treated with ibuprofen and 2-4 days later, his symptoms would resolve. Parents were told he had juvenile rheumatoid arthritis while in the Middle East. He also had occasional abdominal pain with loose stools for the past few months. Past medical history included the diagnosis of alpha thalassemia at age three and an abdominal hernia surgically repaired with mesh at age eight.

On physical exam the patient was found to be afebrile with normal vital signs. He was less than the 5th percentile for height at 120 cm and at the 25th percentile for his weight at 26kg. He had splenomegaly and an epigastric hernia repair scar. His left knee was warm, swollen and tender to touch and extension was limited. Lab studies showed elevated inflammatory markers (table 1).

An MRI of the left knee showed prominent joint effusion with diffuse synovial enhancement, consistent with synovitis, and an abnormal marrow signal that was likely related to chronic anemia from alpha thalassemia. A whole body nuclear scan was normal except increased uptake in left knee, but not consistent with osteomyelitis.

Left knee arthritis resolved in a few days on ibuprofen. Infectious work up was non-contributory and he was discharged on ibuprofen. The five-year history of recurrent synovitis, sometimes accompanied by fevers and rash on his palms, and resolution with non-steroidal anti-inflammatory drugs (NSAIDs), splenomegaly, persistent leukopenia, elevated inflammatory markers, abdominal and pleuritic pain, and decreased height velocity, made us concerned for Familial Mediterranean Fever (FMF) and the genetic testing was sent.

On follow-up with hematology the patient was found to have alpha thalassemia (see table 1). Bone marrow biopsy showed nearly depleted iron stores and he was started on iron infusions and folic acid supplementation, and was monitored by hematology.

FINAL DIAGNOSIS AND DISEASE COURSE

Sequencing of the MEFV gene revealed that he was compound heterozygote for FMF (see table 1 for details). He was started on Colchicine 0.9mg daily. For worsening symptoms, he was tried on Anakinra and some improvement was seen and eventually was switched to Canakinumab 150mg every 6 weeks. He improved on IL-1 blockade.

Over the course of a few years, the patient continued to have worsening periumbilical pain and loose, non-bloody, foul-smelling stools and recurrent, and non-fistulizing peri-rectal abscesses. A colonoscopy revealed ulcerations in his terminal ileum and cecum, and crypt abscesses and was presumptively treated for Crohns Disease with Mesalamine. Also he started developing severe facial acne. Upon consultation with national experts, it was felt that the recurrent perianal abscesses without fistula and acne were a part of his underlying autoinflammatory process. After appropriate antibiotic treatment and drainage, the frequency of Canakinumab was changed to every 4 weeks. He received treatment for his severe acne with isotretenoin. The alpha thalassemia did not seem to play any role in the symptoms but the patient had a baseline anemia as a result of being a carrier. He was followed by Hematology for that.

DISCUSSION

FMF is an inherited autoinflammatory disorder that is characterized by recurrent fevers and varying degrees of serosal inflammation and arthritis. As the name suggests, FMF is prevalent in patients of Sephardic Jewish, Armenian, Turkish, Greek, Italian, and Arab descent. It is a recessive condition caused by mutations in the MEFV gene (1), which encodes a 781 amino acid protein called pyrin that is expressed predominantly in the cytoskeleton of neutrophils, synovial fibroblasts and dendritic cells. Pyrin has been linked to cytokine processing, inflammation, and the apoptotic cascade. Studies suggest that 80 percent of FMF mutations are missense mutations located at one of three sites within a stretch of 46 amino acids encoded on exon 10 of MEFV, with two mutational sites, 694 and 726 being the most common. Although FMF is thought to be inherited in an autosomal recessive manner, incomplete penetrance (although unusual), variable expression, and occurrence of some carriers who appear affected with FMF suggest the presence of other factors that influence the expression of the disease. In a study of 70 Egyptian children determined to have FMF, the majority experienced abdominal pain, fever, and arthralgias (95.7%, 94.3%, and 77.1%, respectively). Most had an incomplete response to colchicine therapy (2).

Clinically, patients with FMF usually present acutely with a prodrome (3) followed by self-limited episodes of inflammation, comprising of fever and abdominal pain, especially with symptoms related to peritonitis, pleuritis, synovitis, pericarditis (4), and rash (erysipelas-like) that lasts for 1-4 days and repeats at irregular intervals (1,5).

Many patients get recurrent attacks of severe abdominal pain (in 95% of patients) and fever lasting 1 to 3 days that usually resolves spontaneously (6). If untreated, patients may develop amyloidosis (7). Colchicine is commonly used but in some cases,

other medications (immunosuppressives and biologics including IL-1 blockade) may be required (8,9). Canakinumab (IL-1 blockade) has been successfully used in treatment of FMF (10).

Interestingly, a number of patients with FMF are evaluated by gastroenterologists prior to the diagnosis (11). Causes for abdominal pain range widely from functional abdominal pain, paralytic or mechanical ileus, ascites, malabsorption, bowel infarction, ulceration, and bleeding, arising either directly from FMF or secondary to FMF associated diseases such as amyloidosis, vasculitis, inflammatory bowel disease, irritable bowel syndrome, or colchicine side effects (11). One study showed small bowel mucosal defects in 44% and edema in 29% of the patients using capsule endoscopy (12). Most of the ulcers and erosions were found in the jejunum, and only 24% were in ileum (12). In another study, biopsy specimens of FMF patients with gastrointestinal symptoms revealed abnormality in 21 (75%) patients (13).

In a case report, a patient presented with diarrhea and weight loss, recurrent fever, abdominal pain, anal fistula and stomatitis (14). Colonoscopy showed ulcers in the terminal ileum and aphthous erosions in the colorectum. Endoscopy showed multiple gastric and duodenal erosions. He was diagnosed with FMF and after treatment with colchicine the ileal ulcers and colorectal aphthous lesions resolved (14).

Patients with Pyogenic arthritis, pyoderma gangrenosum, and acne (PAPA) syndrome may have mutations in the gene encoding proline-serine-threonine phosphatase-interacting protein 1 (PSTPIP1) (15), which interacts with the product of MEFV gene (16l). This may explain why some patients with severe FMF may have some overlapping features with PAPA. This patient appears to have clinical overlap with PAPA syndrome, especially the cystic acne.

CONCLUSION

Our patient had alpha thalassemia with depleted iron stores and a five-year history of undiagnosed Familial Mediterranean Fever. He presented with intermittent arthritis, intermittent pleuritic pain, leukopenia, splenomegaly, acne, abdominal pain with bowel ulcerations, and perianal abscesses. These abscesses had interconnecting tracts to each other and to the skin, but did not connect to the bowel. He required 10 trips to the OR to treat these. His poor growth and chronic abdominal pain that culminated in severe ulceration and recurrent abscesses, were suggestive of Crohns disease, but the constellation of symptoms and multisystem involvement are more indicative of his severe FMF disease process. This puzzling case illustrates that inflammation in different organ systems may mimic juvenile rheumatoid arthritis and Crohns disease, but we need to consider Familial Mediterranean Fever as the unifying diagnosis. Further studies might be beneficial for elucidating the genetic factors involved in their coexistence and tailoring specific therapies to each patient.

TABLE 1: LABORATORY TESTING DATA

TEST	RESULT
White blood cell count	3.2 thousand/ul
Hemoglobin	10 g/dL
Platelet count	164 thousand/ul
Mean corpuscular volume	59 fL,
Erythrocyte-sedimentation rate,	38 mm/hr,
Ferritin	63 ng/ml,
C-reactive protein	11mg/dL
Synovial fluid	14400 red blood cells, 1340 nucleated cells, and abundant polymorphic neutrophils.
MEFV gene sequencing	Heterozygous variants, c2177T>C (p.Val726Ala) in trans with c.2076_-2078delAAT (p.Ile592del) and c.442G>C (p.Glu148Gln) were reported. c.2177T>C is classified as pathogenic; c.2076-2078delATT is classified as likely pathogenic and c.442G>C is classified as a variant of uncertain significance.
Alpha thalassemia	Found to have a heterozygous deletion on the alpha-2 gene from IVS-I-2 through IVS-I-6 of -TGAGG known as the IVS-I donor site 5-nucleotide deletion.

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CASE STUDY

PREPUBERTAL GYNECOMASTIA IN A CHILD WITH PEUTZ-JEGHERS SYNDROME

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ABSTRACT:

Peutz-Jeghers syndrome (PJS) is a rare autosomal dominant condition characterized by hamartomatous polyps in the gastrointestinal tract, mucocutaneous hyperpigmentation, and increased predisposition to cancers of several sites. Here we present a case of prepubertal gynecomastia and significant bone age advancement in an eight-year-old male with PJS and testicular microlithiasis suggestive of large-cell calcifying Sertoli cell tumor (LCCSCT). Three years of treatment with an aromatase inhibitor led to reduction of gynecomastia as well as improvement in the rate of skeletal maturation resulting in a normal bone age, without any adverse side effects.

INTRODUCTION:

Gynecomastia is the enlargement of the male breast due to proliferation of glandular breast tissue, and is thought to result from an imbalance between estrogens and androgens (Kang et al.). Pubertal gynecomastia is a common, often physiologic occurrence, with up to 69% of boys being affected (Lemaine et al.). However, prepubertal gynecomastia, the presence of palpable breast tissue in boys lacking other signs of sexual maturation (Kang et al.), is rare and requires evaluation for pathologic sources of absolute or relative estrogen excess (Table 1).

Peutz-Jeghers syndrome (PJS) is a rare autosomal dominant disorder characterized by hamartomatous polyps in the gastrointestinal tract, mucocutaneous hyperpigmentation, and increased predisposition to neoplasms of gastrointestinal and extra-gastrointestinal sites (Beggs et al.). A meta-analysis of cancer risk in 210 individuals with PJS revealed a relative risk of 15.2 for all cancers (95% CL 2,19) and 93% risk of any cancer between the ages of 15-64 years (Giardiello et al.). The major cause of PJS is thought to be germ line mutations in the serine threonine kinase 11 gene (STK11), which codes for the liver kinase B1 protein (LKB1), a tumor suppressor (Ham et al.). Described cancers include those of the colon, pancreas, stomach, small intestine, and esophagus, as well as extra-gastrointestinal cancers of the lung, breast, ovaries, cervix and testes. All described tumors of the testes in patients with PJS have been Sertoli cell tumors, with a cumulative risk of 9% for testicular tumorigenesis in males with this condition (Giardiello et al.).

Endocrine complications of PJS in males include gynecomastia and skeletal advancement due to estrogen production by calcifying Sertoli cell tumors of the testes, referred to as large-cell calcifying Sertoli cell tumors (LCCSCTs) (Grandone et al.; Ham et al.). These sex cord-stromal tumors of the testis are rare, and account for 0.4-1.5% of testicular tumors. They are usually benign, and are often characterized by bilateral, multifocal calcifications. LCCSCTs are sporadic in 60% of cases, and linked to neoplastic syndromes such as PJS and Carney complex in the remaining cases (Gourgari et al.). In normal testes, aromatase, an enzyme which functions to convert androgens to estrogens, is expressed in Leydig cells. Aromatase is minimally expressed in Leydig cells prior to pubertal development, with a dramatic increase during late puberty. However, in patients with LCCSCTs, the neoplastic Sertoli cells express aromatase, and this aberrant aromatase expression is thought to be responsible for the pathogenesis of gynecomastia and bone age advancement seen in some patients with PJS. (Gourgari et al.; Koç Yekedüz et al.). The mean age of LCCSCT diagnosis in males with PJS is approximately 9-years (Giardiello et al.).

CASE PRESENTATION:

An 8-year-10-month-old male presented to our pediatric endocrinology outpatient clinic with a 1-year history of painful bilateral breast enlargement, without nipple discharge. He was being followed by pediatric gastroenterology for constipation and abdominal pain, without hematochezia or occult bleeding. Prior esophagogastroduodenoscopy and colonoscopy revealed nonspecific biopsy findings without evidence of polyps, and a small bowel series was normal. Aside from his gastrointestinal complaints, he was in otherwise good health. There was no known exposure to exogenous sex steroids, and no family history of gynecomastia or pubertal disorders. His medications included only Benefiber daily and Glycolax as needed, neither of which have been implicated in the development of gynecomastia.

His height and weight were 130.4 cm (35^{th} percentile) and 27.3 kg (43^{rd} percentile) respectively, with a BMI of 16.1 kg/m^2 (50^{th} percentile). Height was at the upper end of his mid-parental target height (MPTH) range (MPTH 165.9 cm, 6^{th} percentile) (Figure 1), and review of his growth charts showed increased height acceleration from the 15^{th} percentile after age 5-years. Physical examination was initially notable for melanotic macules on his lips, perioral area, and oral mucosa. His mother reported onset of these lesions at age 3-years and denied family history of similar mucocutaneous lesions. Based on the presence of these lesions, the diagnosis of PJS was suspected in the past, however genetic testing was not done. Bilateral gynecomastia was evident without nipple discharge, with a diameter of approximately 6 cm, corresponding to female Tanner stage 3. Tanner I pubic hair, prepubertal sized phallus and bilateral testicular volumes of 2-3mL without palpable testicular mass were noted on genital examination. The remainder of the exam was unremarkable without thyromegaly or abdominal masses.

Laboratory workup revealed prepubertal gonadotropin, estradiol and testosterone levels (LH 0.033 mIU/mL, FSH 0.211 mIU/mL, E2 6.8 pg/mL, T <2.5 ng/dL). Serum DHEAS, prolactin, AFP, b-hCG and thyroid function tests were all within normal limits (DHEAS 32 ug/dL, PRL 7.3 ng/mL, AFP 0.9 ng/mL, b-hCG <1 mIU/mL, TSH 1.630 mIU/mL, fT4 1.09 ng/dL). Liver function tests were also normal. Bone age (BA) was advanced by approximately 5 standard deviations at 12-years-9 months, 3.83 years greater than his chronologic age (CA). Testicular ultrasound showed right testicular measurement of 16 x 9 x 12 mm and left testicular measurement of 17 x 9 x 14 mm, with multiple scattered small calcifications bilaterally, accordant with testicular microlithiasis. No focal masses were identified and Doppler analysis showed normal

arterial inflow and venous outflow. The patient was subsequently referred to urology as well as genetics to confirm clinical suspicion of PJS.

The patient was treated with the aromatase inhibitor (AI) anastrozole (Arimidex) at a dose of 1 mg daily for three years. The decision to discontinue treatment stemmed from concerns of limited long-term safety data in the pediatric age group. Gynecomastia decreased in size within the first 3 months of treatment, with near resolution in 1.5 years. Further, the rate of skeletal maturation also improved, with a decrease in the BA – CA difference from 3.83 years at the start of treatment to 1.58 years after 3 years of treatment (Figure 2). The patient denied any adverse effects on treatment. On routine monitoring, gonadotropin as well as estradiol and testosterone levels remained prepubertal, however estradiol decreased from 6.8 pg/mL to 1.5 pg/mL, and testosterone increased from <2.5 ng/dL to 5.5 ng/dL, from baseline to one month after treatment, with general persistence of these levels through the course of treatment. Total cholesterol and LDL increased from 177 mg/dL and 89 mg/dL prior to treatment to peak levels of 210 mg/dL and 125 mg/dL respectively, after two years of treatment. BMI increased from 16.1 kg/m^2 (50th percentile) to 19.4 kg/m^2 (78th percentile) in this time period. Dual energy X-ray absorptiometry (DEXA) at baseline and at the cessation of treatment, showed expected bone density for age.

After discontinuation of treatment at age 11-years-11-months, gynecomastia remained minimal and unchanged for over 2 years, and then began to increase slightly at age 14-years-2-months at which time the patient was in early puberty with testicular volumes of 6mL bilaterally. Gonadotropin and testosterone levels were consistent with central pubertal development (LH 3.8 mIU/mL, FSH 2.2 mIU/mL, T 242 ng/dL). Estradiol was within normal limits for the patient's age and pubertal stage (E2 13.4 pg/mL), and tumor markers remained negative[1]. The BA – CA difference continued to decrease off treatment (Figure 2).

Magnetic resonance enterography (MRE) at age 10-years-9 months demonstrated the presence of 2 polyps in the small intestine. Genetic testing confirmed the diagnosis of PJS with the finding of a heterozygous 4 base pair deletion in the STK11 gene (c.790_793delTTTG also termed c.787del4), a deletion previously reported to be associated with PJS. This deletion causes a frameshift mutation resulting in abnormal truncation of the STK11 protein, thereby partially disrupting the catalytic kinase domain and completely disrupting the C-terminal regulatory domain (Thakur et al.). The patient had no known family history of PJS. His mother underwent genetic testing and was found to have a normal STK11 gene, however his father has not yet undergone genetic testing. Yearly testicular ultrasonography continues to show stable testicular microlithiasis without focal mass. The patient was last seen at age 14-years-11 months via telehealth due to COVID-19, and reported improvement in gynecomastia.

DISCUSSION:

Bilateral multifocal testicular microlithiasis in prepubertal patients with PJS has been described in those with underlying LCCSCTs (Cooper et al.; Lefevre et al.). LCCSCTs are uncommon tumors and develop in only a minority of PJS cases. To date, only 100 LCCSCTs have been described (Bardisi et al.), with approximately 30 of these cases occurring in patients with PJS; all but one presented with gynecomastia (Lefevre et al.). Nonetheless, it is important to keep in mind that signs of estrogen excess related to LCCSCTs may be the first presenting sign in PJS (Hertl et al.). While definitive diagnosis of LCCSCTs requires biopsy, the risk of altering lymphatic drainage and causing testicular damage must be considered. Due to this risk and the overwhelmingly benign nature of these tumors, LCCSCT diagnosis based on clinical and laboratory findings may be considered in patients with PJS, and treatment of estrogen excess has previously been initiated without biopsy confirmation (Koç Yekedüz et al.; Zhang et al.). Of note, these tumors predominately remain confined to the seminiferous tubules of the testes and are unlikely to progress to invasive large cell Sertoli tumors (Cooper et al.), but should be followed with testicular ultrasound imaging annually (Beggs et al.).

Interestingly, the prevalence of ovarian tumors is higher than that of testicular tumors in patients with PJS, at 21% and 9% respectively (Giardiello et al.), although PJS occurs in both sexes equally. It is likely that the reported data of LCCSCTs is an underrepresentation of the true prevalence, as the gynecomastia may be minimal, may be masked by adipomastia, or the patient may be misdiagnosed with physiologic or pubertal gynecomastia (Hertl et al.). Additionally, ovarian tumors may be more frequently discovered than testicular tumors as females may be more likely to seek medical attention for abnormal uterine bleeding or precocious puberty due to estrogen-secreting sex cord tumors with annular tubules (SCTATs) (McGarrity et al.).

Our patient had prepubertal estradiol levels at presentation. Despite increased aromatase expression in Sertoli cells of LCCSCTs, estrogen levels in prepubertal males with gynecomastia may vary between age appropriate and elevated (Koç Yekedüz et al.). Similarly, other tumors like melanomas and breast cancers may occasionally overexpress aromatase. In these settings, systemic estrogen levels may be normal, though local estrogen production is increased (Coen et al.). It is suggested that small amounts of estrogen are sufficient to stimulate breast enlargement and promote skeletal maturation. Other mechanisms behind the clinical signs of estrogen excess despite normal estrogen levels include increased bioavailability, increased aromatase activity in the breast of patients with PJS, or altered tissue responsiveness to estrogens (Lefevre et al.). Additionally, other estrogens may be elevated, such as estrone (Ham et al.), which unfortunately was not measured prior to treatment initiation in our patient.

In accordance with the literature, our patient's bilateral multifocal testicular microlithiasis and signs of estrogen excess which responded to AI treatment suggests diagnosis of aromatase expressing LCCSCT, though biopsy would be needed to make a definitive diagnosis. Three years of AI treatment led to regression of gynecomastia and improved the rate of skeletal maturation. Growth velocity slowed during treatment and height measurements decreased accordingly from a baseline height at the 35th percentile to the 17th percentile at treatment cessation (with prepubertal testicular volumes during this time). Skeletal maturation improved from a baseline advancement of approximately 5 standard deviations to normal maturation at treatment cessation, with a bone age of only 1.58 years

greater than chronologic age, within 1 standard deviation for age and sex. Interestingly, the BA - CA difference continued to decrease off anastrozole treatment (Figure 2).

The patient did not report any adverse effects while on anastrozole. Studies of postmenopausal women on aromatase inhibitors for breast cancer treatment revealed significantly reduced bone mineral density (BMD) compared to those taking tamoxifen or placebo (Gnant et al.). This effect on BMD has not been reported in four controlled trials of adolescent boys, suggesting that 1-3 years of aromatase inhibitor treatment in young males has a neutral effect on BMD (Wit et al.), consistent with the DEXA findings in our patient. There is still a possibility that the patient's bone quality was affected, which would not be evident with DEXA, as DEXA utilizes a 2D measurement technique and does not provide analysis of bone quality in different compartments or geometrical properties of bone. While AI treatment of peripubertal male rats impairs trabecular bone quality and bone geometry, data in children is lacking (Wit et al.). Of note, the patient did have evidence of dyslipidemia while on anastrozole (total cholesterol and LDL levels increased from pretreatment values of 177 mg/dL and 89 mg/dL to peak values of 210 mg/dL and 125 mg/dL, respectively), however BMI did increase from the 50th to 78th percentile in this time period. Hero et al. reported increased total cholesterol levels in 7 prepubertal boys treated for two years with letrozole, another aromatase inhibitor (Hero et al.). Other reported adverse effects in patients with PJS treated with anastrozole include asthenia and hot flushes (Lefevre et al.), both of which our patient denied.

Our patient began pubertal development around age 13-years-10-months as evidenced by testicular volumes of 4mL bilaterally, and the growth velocity increased accordingly. At age 14-years-2-months, approximately two years after treatment cessation, the patient reported increase in gynecomastia. At this time, examination showed testicular volumes of 6 mL bilaterally. However, within 9 months the patient reported improvement in gynecomastia without any additional treatment. Pubertal gynecomastia has its highest prevalence in males with testicular volumes of 5-10mL bilaterally and Tanner stage III or IV pubic hair (Kumanov et al.). It also usually regresses between 6 months and 2 years (Fayed and Kholosy). The timing and duration of this breast tissue development likely corresponds to pubertal gynecomastia, however effects of LCCSCT cannot be ruled out. Review of his last in-office height measurement at the 5th percentile (consistent with his genetic potential) and normal skeletal maturation have been reassuring, and the family has decided not to pursue any further treatment at this time.

Bilateral or unilateral orchidectomy with or without mastectomy has been performed in males with PJS and LCCSCTs, with one study reporting that 11 of 22 patients underwent orchidectomy (Lefevre et al.). As evident in our patient, conservative treatment with an aromatase inhibitor may successfully treat clinical signs of aromatase excess and delay or eliminate the need for orchidectomy and/or mastectomy indefinitely. In conclusion, testicular microlithiasis suggestive of a large-cell calcifying Sertoli cell tumor is an important etiology of gynecomastia and advanced skeletal maturation in patients with Peutz-Jeghers syndrome. Treatment with an aromatase inhibitor may effectively treat these clinical signs of estrogen excess.

TABLE 1

Exogenous exposure	Estrogens (oral or topical) Lavender oil Tea-tree oil Soy products
Endogenous production	Neoplasms (testicular, adrenal) Congenital Adrenal Hyperplasia (3-b-hydroxysteroid dehydrogenase deficiency, 11-b-hydroxylase deficiency)
Decreased estrogen metabolism	Liver disease
Androgen insufficiency	Klinefelter syndrome 17-ketosteroid reductase deficiency
Androgen insensitivity	Complete androgen insensitivity Partial androgen insensitivity
Increased Sex-Hormone Binding Globulin (SHBG)	Hyperthyroidism
Increased aromatization of androgens to estrogens	Aromatase excess syndrome Sertoli cell tumors of the testes Hyperthyroidism
Medications & Other Drugs	Central Nervous System agents (amphetamines, diazepam, methyldopa, phenytoin, reserpine, tricyclic antidepressants) Cimetidine Cytotoxic agents (alkylating agents, vincristine, nitrosoureas, methotrexate) Isoniazid Ketoconazole, metronidazole Spironolactone Marijuana

Table 1: Select examples of pathologic etiologies of prepubertal gynecomastia (Hertl et al.; Lemaine et al.; Ma and Geffner; Ran)

FIGURE 1

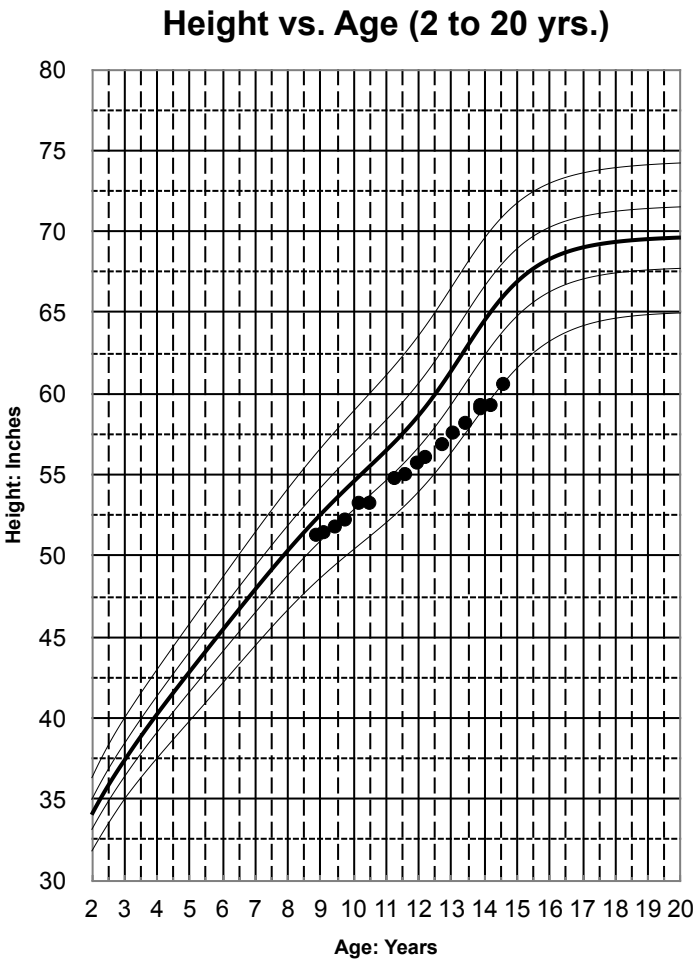

Figure 1: Height versus chronological age. Shaded area represents the period of anastrozole treatment.

FIGURE 2

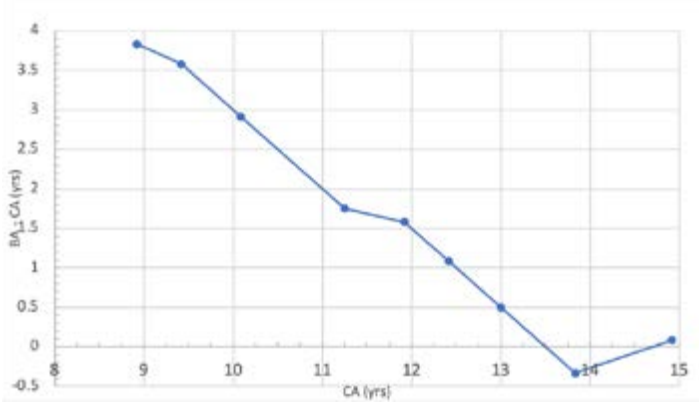

Figure 2: Difference between bone age (BA) and chronologic age (CA) as compared to chronologic age (CA). Shaded area represents the period of anastrozole treatment.

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BRIEF

TELEHEALTH FOR IMPROVED PEDIATRIC MENTAL HEALTH AND SPEECH DEVELOPMENT

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ABSTRACT:

Mental health burden is increasing in pediatric populations during times of COVID-19. Additionally, virtual schooling has decreased access to in-person speech/language therapy. Telehealth has demonstrated clinical benefits in multiple domains and holds promise for addressing mental illness as well as speech and language delays in children. To optimize the efficacy value of telehealth, therapy providers should try to minimize the following risks: 1) Lack of pediatric experience, 2) Poor connectivity and technology and 3) Lack of provider training in virtual therapy best practices. Do pediatric telehealth platforms and provider networks that provide high quality pediatric speech therapy and mental health services exist? What does it look like from a pediatrician's and family perspective? A case study highlights the application of telehealth best practices for a pediatric special needs population.

Mental health burden is increasing in children and adolescent populations during times of COVID-19, particularly for children with existing diagnoses and other special health care needs.[1] Additionally, virtual schooling has decreased access to in-person speech/language therapy.[2] Recommended public health strategies to combat the spread of the virus have resulted in social isolation and lack of contact with peers and caring adults in the lives of children. The effects on pediatric behavioral health include anxiety and depression, and risk of parental mental illness.[3] There are few opportunities for experiences and environments that support stress regulation, such as sports and social events.

Access to care for pediatric developmental and behavioral health has diminished during the pandemic as well. As schools have transitioned to a virtual environment, school-based counseling and therapy have halted for many patients. Many children with special health care needs, children experiencing trauma, and children living in poverty have increased challenges in receiving care, as schools have been the hub for many of their services.

Telehealth has demonstrated clinical benefits in multiple domains and holds promise for addressing mental illness as well as speech and language delays in children.[4] A metanalysis of telemental health technologies found that telemental health care has potential to fill the existing gaps in care.[5] In particular, the advantages of telehealth for mental illness includes: 1) improved access to care, 2) excellent results from individual and group therapies, 3) social networks, 4) flexible online interactions, and 5) automated questions and answers. Another metanalysis of use of telehealth for speech therapy in school aged children found that both telehealth and in-person participants made significant and similar improvements.[6]

To optimize the value of telehealth, therapy providers should try to minimize several risks. First, providers must have adequate pediatric experience. Telehealth platforms are growing rapidly, but most are focused on adults. Second, there is the risk of poor connectivity and technology challenges. Given the importance of nuanced verbal and non-verbal communication, high quality connectivity is important for providers to have. Establishing adequate connectivity can be a significant resource investment in the internet bandwidth, computing technology, as well as security. Third, lack of provider training in virtual therapy best practices is another important risk to reaching the full value of telehealth for speech therapy and mental health, as restructuring the roles of staff and buying equipment takes time and costs money.

To overcome these challenges, providers must demonstrate the following attributes of high quality telespeech therapy and telemental health services. First, the service must have exceptional internet connectivity with substantial deliberate redundancies to ensure backup access if the primary modality is disrupted. Second, the services must be provided by certified, high quality providers that are thoroughly vetted upon hiring, receive continuous training and quality assurance to improve clinical and technology fluency, and are financially incentivized to provide the highest quality care. Third, high-quality telehealth for speech and mental health therapy must be delivered through a very easy to use platform that is secure. Security is especially important to avoid privacy risks such as scenarios whereby a patient may meet another patient in the waiting room.

In order for a family to benefit from high-quality telehealth services, they will need access to some foundational resources. One resource families need is access to computers or smartphones with hardware capable of running audio-visual communication software. Additionally, families will need access to the internet via either home internet or mobile data capable of supporting synchronous audio-visual communication. This may be a challenge for lower income families or families in some rural areas.[7] In addition to computer and internet access, families will need a basic knowledge of how to effectively use their computer. Given that parents tend to be younger and more tech native, this is generally a well mitigated risk. However, when the primary caregiver may be a grandparent, some technology illiteracy may be a risk factor for adoption. Finally, it is important for children to have the physical and cognitive ability to use computers or smartphones, or to have an assistant or caregiver manipulate the device and to physically prepare for the visit.

Given these barriers and requirements, there are few telehealth platforms that specialize in pediatric speech therapy and mental health services. The four largest telehealth vendors, Teladoc, AmWell, Doctor on Demand, and MD Live, are generalist providers with some family medicine doctors and occasional pediatricians that serve kids' medical needs but no speech therapy and negligible pediatric mental health providers. The pediatric urgent care provider PM Pediatrics uses telehealth to extend dedicated pediatrician services, but they also lack speech therapy and mental health services. Some startups are emerging, such as Brightline, that are focusing specifically on pediatric mental health. This company holds potential but is nascent and functionally they have little speech therapy experience. One veteran, telespeech therapy, and telemental health provider, DotCom Therapy, has

significant experience with deployment across 63 school districts and 250 schools, with expansion into working with healthcare partners directly. DotCom Therapy also exhibits the above-mentioned attributes needed to deliver high-quality telehealth intervention.

One case example of a client of DotCom Therapy was a 2.5 year old male who was diagnosed with Autism Spectrum Disorder (ASD). His parents were most concerned about his speech, which was entirely echolalic. His parents were also very concerned about COVID-19 and were not in favor of in-person therapy. The client's pediatrician referred him to DotCom Therapy and communicated his diagnosis as well as his parents' concern about his speech. A speech-language pathologist with experience with children with ASD was selected to evaluate the little boy and develop a care plan to meet his and his family's needs. The therapist worked with the child to support his independent speech while training his parents to address behaviors that restrict his progress. By his 3 year old visit, about half of his speech was independent and his parents felt comfortable sending the boy to an Early Childhood Special Education preschool.

This case exemplifies the findings from prior research showing that telehealth for speech therapy in school aged children is comparable in achieving significant improvements relative to in-person speech therapy. The added benefit of telespeech therapy and telemental health therapy is the ability to socially distance in times of COVID-19 as well as meet family preference and access needs beyond COVID-19. Whether pediatricians choose Dotcom Therapy or other platforms, they should vet telespeech and telemental health partners for high quality pediatric-specific providers using a seamless and secure platform with high-grade connectivity. If families lack access to technology or connectivity, pediatricians and their social work colleagues may need to provide additional support through coordination and advocacy to ensure equitable access for children with speech and language delays or mental illness.

Disclosures: Dr. Kraft and Dr. Ostrovsky each has a financial interest in Dotcom Therapy.

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BRIEF

CREATION OF A NOVEL CHILD RESISTANT, ELDER FRIENDLY PILL CONTAINER

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ABSTRACT

Background: Unintentional medication overdoses in children five years and under occur approximately 60,000 times a year in the United States. This research project sought to develop a novel more child resistant pill container that was easily opened by the elderly.

Materials and Methods: A novel pill container was designed using Autodesk Inventor and printed on a Sindoh 3D printer. The design included an inset lid that had a zig-zag pattern on the top that aligned with a separate key that allowed the lid to be unscrewed. Children and elders were asked to open the standard container, the novel container and the novel container with the key. During each trial the time it took to open the container was recorded, as well as the subjective difficulty to open on a Likert scale of 0 (easy) to 10 (hard).

Results: Thirteen children (5 female) and 13 elders (10 female) participated. The average ages in years were 3.85 (range, 2-6) and 81 (range, 73-90) of the children and elders respectively. Two of the 13 children (15.4%), ages 3 and 4 years, could open the standard container, none could open the novel container without the key, and 1 (7.7%), age 5.9 years, could open it with the key. Twelve of the 13 (92.3%) elders opened the standard container, none could open the novel container without the key, and all (100%) opened the novel container with the key. There was no significant difference in the opening time or the difficulty rating between the pill containers for the children or elders.

Conclusion: The novel pill container was proven to be un-openable by both children and elders without the key. With access to the key, it was child resistant and easily opened by elders.

HIGHLIGHTS

- Unintentional medication overdoses continue to be a significant public health problem
- A novel pill container design with a separate key is child resistant
- This novel pill container can still be easily opened by elders

KEYWORDS

Pill bottle; safety; accidental overdoses; pediatric

INTRODUCTION

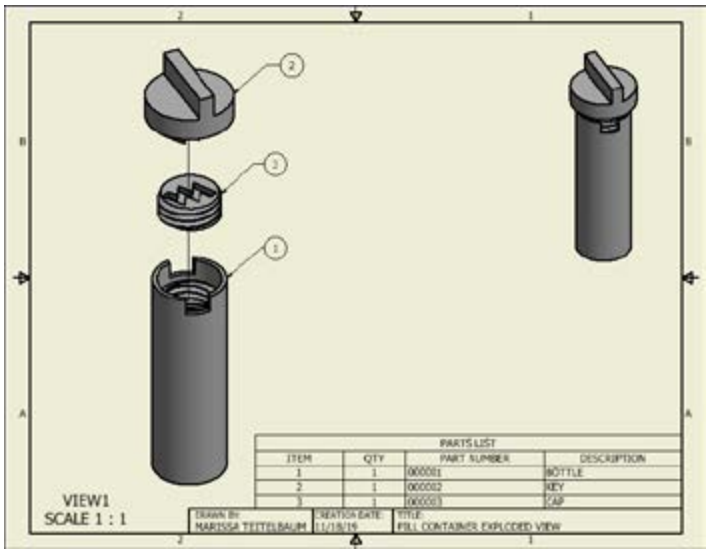
Unintentional medication overdoses in children five years and under occur approximately 60,000 times a year in the United States.[1] Of these overdoses, more than 90% of the emergency department visits reveal that they are the result of oversight by the child's caregiver.[2] This is a major issue as children instinctively want to put colorful-looking pills or other objects that they find in their mouths.[1] In order for a container to be considered child resistant, 85% of children under the age of five must not being able to open the container within five minutes. [3] However, there are currently no Centers for Disease Control and Prevention approved improvements for pill containers.[4]

The purpose of this study was to design a novel child resistant pill container that could still be easily opened by elders over 65.

Materials and Methods:

A novel pill container was designed using Autodesk Inventor and printed on a Sindoh 3D printer. The design included an inset circular lid that had a zig-zag pattern on the top. This aligned with a separate piece, a key, that when lined up correctly could be used to unscrew the container's lid (Figure 1). This design was compared to a standard child resistant pill container in which one has to push down and turn the lid at the same time.

FIGURE 1:
Exploded view of novel pill container and key assembly



Consent was obtained from the parents of the child subjects and the elder subjects. Each participant was asked to open the standard container, the novel container and the novel container with the key. The children were presented with a number of household items (a toothbrush, spoon eraser, button, pencil, ring, hair band, and hair clip) in addition to the key and told to "see if any of these items could help to open the novel container". The elders were given instructions on how to open the containers (standard, and novel with key) while the children were not. During each trial the time it took to open the container was recorded, as well as the subjective difficulty to open on a Likert scale of 0 (easy) to 10 (hard). The maximum time allowed for any attempt was five minutes.

Statistical analysis was done using ANOVA, with an alpha of $p=0.05$.

The study was approved by the research division of High Technology High School, Lincroft, New Jersey. Specifically permission was granted for testing on human subjects based on protocol review by a medical professional with expertise in research ethics. The individual conducting the study successfully completed

the Collaborative Institutional Training Initiative (CITI) courses in conflicts of interest and biomedical research.

RESULTS:

Thirteen children (5 female) and 13 elders (10 female) participated. The average ages in years were 3.85 (range, 2-6) and 81 (range, 73-90) of the children and elders respectively. Three of the 13 children were ages 5 to six years. Summative data for the children and elders are presented in Tables 1 and 2.

Two of the 13 children (15.4%), a 3 year old boy and a 4 year old girl, could open the standard container in 12 and 38 seconds respectively. They each rated the difficulty as a 0 (easy) on the Likert scale. No child could open the novel container without the key. One child, a 5.9 year old girl (7.7%), opened the container with the key in 45 seconds. She rated this a 1 on the Likert scale. There was no significant difference in the opening time (p=0.334) or the difficulty rating (p=0.331) between the novel container with the key and the standard pill container for the children.

One of the 13 elders (7.7%), a 79 year old woman, was unable to open the standard container in five minutes, giving it a difficulty rating of 10. No elder could open the novel container without the key. All (100%) opened the novel container with the key. The time it took the elders to open the standard (average 28 seconds) versus the novel with the key (average 34 seconds) yielded no significant differences (p=0.789). For the difficulty rating in the elders, there was no significant difference between the standard (average 3.04), and the novel with the key, (average 5.85), although there was a trend suggesting the novel container was more difficult (p=0.051).

TABLE 1:
Summative data table for 13 children test subjects

	Age (years)	Standard time (sec.)	Standard difficulty	Novel no key time (sec.)	Novel no key difficulty	Novel with household items and key time (sec.)	Novel with household items and key difficulty
Mean	3.85	257.69	8.46	300	10	280.38	9.31
Median	4	300	10	300	10	300	10
Range	2-6	12-300	0-10	300-300	10-10	45-300	1-10
Std. dev.	1.14	103.41	3.76	0	0	70.72	2.50

TABLE 2:
Summative data table for 13 elder test subjects

	Age (years)	Standard time (sec.)	Standard difficulty	Novel no key time (sec.)	Novel no key difficulty	Novel with key time (sec.)	Novel with key difficulty
Mean	81	23	3.04	300	10	34	5.85
Median	81	3	2.5	300	10	33	7
Range	73 - 90	2-300	0-10	300-300	10-10	12-73	0-10
Std. dev.	5.05	81.85	3.34	0	0	16.51	3.65

DISCUSSION

This study demonstrates that the novel pill container with a separate key and inset lid is child resistant. Of note, the novel container was un-openable without the key. Furthermore, considering all children tested, a smaller percentage were able to open the novel container with access to the key (7.7%) compared to the standard pill container (15.4%). Based on the 10 children under the age of 5 years, the novel container was 100% child resistant, whereas the standard container was not opened by 80%. Thus the standard container, by definition [3], was not child resistant. Moreover, the novel pill container was also opened by more elders (100%) than the standard container (92.3%). Finally, the elders found the novel container similar to the standard container with respect to ease of opening as measured using a simple Likert scale.

As accidental ingestions continue to be a pediatric public health issue, this novel pill container would help prevent future morbidity and mortality. While other child resistant containers exist using technology such as finger print identification, the expense would

make it impractical for everyday use. The inexpensive nature of this plastic design would allow for easy manufacturing and mass production from pharmacies. Educating adults to keep the key separate from the container would guarantee a 100% child proof solution. The wide spaced zig zag design prevents using other household items, such as a knife, from being utilized to unscrew the lid. Concerns centered on the "loss of the key" are likely insignificant as the keys would be ubiquitous, and thus as one gets multiple prescriptions, each household would likely have multiple keys. Similarly, a friend, neighbor, or pharmacy could provide people with a replacement key. A recent study [5] found that many accidental ingestions were due to adults removing pills from child proof containers and storing them in alternate containers such as a "Sunday thru Saturday" container. The novel key and screw technology could be applied to such containers to make them child resistant as well.

The novel pill container could be further improved upon to help elders open them, as the data suggests that it was slightly more difficult to open than the standard container. The increased difficulty seemed to be centered on identifying the inset zig zag pattern in the lid. Changing the inset to a contrasting color from the lid would likely minimize this issue. Also, the diameter of the lid would need to be increased slightly to over 3.17 cm to ensure it is not a choking hazard.[6] This would further increase the circumference of the container making it more difficult for small hands to grip.

The study findings are potentially limited by the small number of subjects in each group.

Conclusion:

The novel pill container was proven to be un-openable by both children and elders without the key. With access to the key, it was child resistant and easily opened by elders.

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TRACKING THE IMPACTS OF COVID-19 INFECTION ON PREGNANT WOMEN AND THEIR INFANTS

Joshua Payyappilly, COVID-19 Pregnancy & Infant Outcomes Intern, New Jersey Department of Health

The COVID-19 pandemic has fundamentally altered the lives of millions all over the world. However, since the virus responsible for this pandemic (SARS-CoV-2) has only been studied and observed for less than a year, limited information exists at this time on the impacts of infection on pregnant women and their infants. Understanding the health implications of this virus on pregnant women is of utmost importance, as this group is vulnerable and more susceptible to serious infections in general.[1] Especially given recent documentation of how viruses such as Zika have resulted in adverse impacts on maternal-infant health, it is in the best interest of preserving the wellbeing of pregnant women and their infants that more research is done in this area regarding SARS-CoV-2.[2]

The few existing preliminary studies on this topic have often relied on small sample sizes and anecdotal evidence, offering inconclusive and sometimes even conflicting results. For instance, an analysis of nearly 40 pregnant women in China who tested positive for COVID-19 showed not a single instance of viral transmission from mother to fetus in utero, as well as no instances of maternal deaths.[2] Several other studies have shown similar results, with both mothers and infants faring generally well and not experiencing any serious health issues.[3-4] On the other hand, there have been some analyses that have shown that even under circumstances where newborns were separated from their infected mothers directly after birth, they themselves tested positive for the virus, indicating that vertical transmission of SARS-CoV-2 may be uncommon but is still possible.[5-6] It should be noted that information published thus far about COVID-19 and pregnancy by the Centers for Disease Control and Prevention (CDC) has not yet shown alarming infant health outcomes or strong evidence to suggest vertical transmission, but pre-term birth rates do seem to be slightly elevated and pregnant mothers themselves may be more likely to be hospitalized during the course of infection.[7-8]

In an effort to obtain more information about the impacts of SARS-CoV-2 infection in pregnant women and their infants, the CDC began rolling out an initiative in the earlier months of 2020 centered on collecting data and tracking maternal-infant health outcomes. The CDC has been collaborating with 16 jurisdictions around the US to take part in this project, one of them being the state of New Jersey. To assist in this effort, the New Jersey Department of Health (DOH) has been corresponding with hospitals and obstetricians throughout the state to collect information on pregnant women who have tested positive for COVID-19. As of early November 2020, more than 2700 cases of COVID-19 infection have been documented amongst pregnant women in New Jersey. So far, data that has been obtained mainly pertains to whether the women themselves suffered serious infection, if they experienced any health complications during the course of their pregnancy and/or delivery, and whether their infants also tested positive following birth. To facilitate efficient data collection, the DOH created a form which was sent out to participating hospitals and physicians. This information is then routinely shared with the CDC.

Even though some of the questions on the initial form ask about the health of newborns, emphasis over the past few months has been focused on maternal outcomes of COVID-19 infection. However, at this point in time, infants born to infected mothers in the early days of the pandemic are beginning to reach and even surpass 6 months of age with limited information known about their outcomes past their first few days of life. Because of this, the DOH is eager to start transitioning to the next phase of this project: infant follow-up. More specifically, information will be requested from physicians regarding the health and development of these infants, both at 2 months and 6 months after birth. Questions will be asked with the intention of identifying what impacts maternal COVID-19 infection has directly had on newborns and whether they exhibit any signs of developmental delays or health issues that are out of the ordinary. Further, inquiries will be made regarding if and how conditions such as maternal-infant separation after birth, delayed onset of breastfeeding, and/or changes to the frequency of physician visits due to safety concerns may be affecting infants.

Similar to the maternal-infant outcomes form that has been used to collect information on pregnant women and their newborns, the DOH is finalizing the creation of a form to be sent out to pediatricians throughout the state asking about infant outcomes at 2 months and 6 months of age. To make data collection less of a burden for physicians and to have more efficient communication between physicians and the DOH, there will be a single form to record outcomes at both of these ages and it is only requested that the forms are sent in after the infant has reached 6 months of age. Pediatricians will be able to help provide data for this initiative by: 1) filling out the infant follow-up form provided by the DOH; 2) electing to provide access to their Electronic Medical Records or 3) sending copies of complete records for infants to make the process easier. Ultimately, this data collection and eventual analysis will be used to identify what, if any, adverse health outcomes may be experienced by infants born to pregnant women infected with COVID-19.

The DOH looks forward to collaborating with pediatricians during this next phase of this extremely important project. For additional information and clarification, please refer to the letter that the DOH will be sending out to pediatricians statewide. Thank you in advance for your help and cooperation during this time, as our findings will help better inform departments of health, physicians, and the public in an effort to protect the wellbeing of mothers and infants during the ongoing pandemic.

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IMPROVING HEALTHCARE PROVIDER (HCP) KNOWLEDGE USING A QUALITY IMPROVEMENT PROGRAM

Aldina M. Hovde, Cheryl AS McFarland, G Melissa Garcia, Fran Gallagher, L. Nandini Moorthy

We would like to thank the following individuals for their expertise throughout this project:

Jennifer Stinson, RN-EC, PhD, CPNP, Emily von Scheven, MD, MAS, Marissa Klein-Gitelman, MD, Harry L. Gewanter, MD, FAAP, MACR, and Angela Chandra, BDS, MPH.

INTRODUCTION

Childhood onset systemic lupus erythematosus (cSLE) is a complex disease associated with significant morbidity and long-term treatments. It is critical that healthcare providers (HCPs) are educated about cSLE, and have access to valuable and reliable websites and online resources. As part of our aim to enhance the Medical Home for cSLE patients, we developed and implemented a comprehensive 6-month Quality Improvement (QI) program to expand knowledge regarding early identification, medication adherence and improved care coordination and referral to support services. Data collection included practice and physician surveys, chart abstractions and progress reports. Our primary goal of improving awareness of cSLE among HCPs was achieved.

METHODS

Participants were required to participate in an in-person opening learning session before the start of the project. This session provided an opportunity for participants to learn about cSLE and project requirements. A closing learning session at the end of the project provided an opportunity for practices to share what they learned, including successes and challenges. Several surveys were required components of this program. Prior to the start of the project, a practice survey assessed organizational characteristics of the practice including practice size, number and type of staff, number of patients, patient characteristics, type of insurance accepted, current status of patient acceptance, group meetings and various other organizational characteristics of the practice. Pre- and post- physician surveys included questions regarding demographic characteristics of the provider, collaboration effectiveness, organizational trust, and knowledge and comfort with QI processes and barriers to implementation of QI. Chart abstractions included prospective identification of charts of patients presenting with one of 11 American College of Rheumatology (ACR) criteria. Participants reviewed up to 10 charts for screening and presence of the 11 identified symptoms. The results were submitted from 10 patients' charts per time period. In total, practices conducted 4 chart reviews, with a maximum of 10 chart abstractions per review for a maximum of 40 charts abstracted during the program.

A total of 10 practices and 11 associated physicians began the Pediatric Alliance for Lupus (PAL) Maintenance of Certification (MOC) program. Of the 10 practices, 7 reported having suspected 0-5 patients having rheumatic diseases in the past 12 months. All practices reported having 0-5 patients they suspected of having cSLE. Half of all practices provided referrals to pediatric rheumatologists for 6 to 15 patients, while the other half provided referrals for 0-5 patients. Only three practices reported having patients diagnosed with cSLE. Of those with cSLE patients, 2 reported providing influenza, pneumococcus, meningococcal, and h. influenza vaccinations. All practices with cSLE patients reported almost always or always providing referrals to specialists, of which patients are only referred to pediatric rheumatologists.

Chart Review Results: Ten pediatric providers completed the program and submitted a total of 4 chart reviews each. Each practice prospectively selected up to 10 charts for each time point and reviewed them for documentation of screening, follow-up planning, and referrals. Charts for 106 patients were reviewed by the practices. All charts had at least one symptom present with a range of one to four symptoms. On average patient charts identified had 1.5 symptoms present. Overall, of the patient charts identified, 89 patients (84%) received a follow-up plan or were ordered additional diagnostic tests. Additionally, 47% or 50 patients were referred to a specialist. In total, 105 or 99% of patients received some form of additional evaluation.

Documentation of Screening: The program recommended that charts identified as having one of the 11 common symptoms associated with cSLE should be screened for the remaining criteria not identified. In order to meet successful screening requirements, physicians needed to have documentation that they screened for all 11 common symptoms. Overall, 78% of charts documented no additional screenings beyond the criteria used to pull the chart. Of the remaining charts identified, 12% documented one additional screening beyond the chart pull criteria, 7% documented two additional screenings, 2% documented three additional screenings, and 1% documented four additional screenings. In total, no patient identified through the chart selection criteria received screenings for the 11 common symptoms associated with cSLE. The maximum screenings documented was five including the criteria used to pull the chart. The majority of physicians provided no documentation of additional screening.

Early Identification of cSLE: As part of the chart review process, providers were asked if cSLE was considered as a potential diagnosis for the patient. More than half of charts (59 of 106 or 55%) had documentation of cSLE being considered. Nearly one-third (30%) reported symptoms being explained by etiologies other than cSLE. Finally, 16% of charts reported cSLE diagnosis not considered with no explanation documented in the chart.

Follow-up and Referral: Overall, 13 patients were referred to a rheumatologist, of those 4 had 1 symptom, 7 had two symptoms, and 2 had three symptoms.

Providers were asked about follow-up planning for patients that came in with any of the common symptoms of cSLE. Documentation of follow-up plans increased between cycle 1 and cycle 3, with a fairly large decline during cycle 4. Overall, this decline was not due to extremely small sample sizes, as the sample sizes remained relatively stable across cycles. The decline witnessed may be due to increases in referrals between cycle 3 and cycle 4.

As part of the evaluation, we also investigated follow-up and diagnostic testing over the course of the program. Results followed

a similar trend to follow-up generally. Slightly more than 80% of patients received a follow-up plan and/or diagnostic tests during cycle 1 and this percent increased to 93% by cycle 3. Again, we see a substantial decline between cycle 3 and cycle 4 that cannot be explained by small sample sizes. However, the decline may be due to provision of a referral in lieu of follow-up planning and/or diagnostic testing.

Finally, pediatricians were asked if they provided a referral to a specialist for patients who came in with one or more of the 11 common cSLE symptoms. Referrals increased slightly between cycle 1 and cycle 2; however, they experienced a decline in cycle 3. Between cycle 3 and cycle 4 pediatricians increased the rate of referrals to subspecialists dramatically, with nearly 2/3 of patients identified being referred to a specialist.

Missed Opportunities: Providers were asked if their patient exhibited four or more of the 11 common cSLE symptoms or if the patient had three symptoms including renal disease. These criteria were considered red flags for potential cSLE diagnosis. There were two patients that exhibited four of the 11 common cSLE symptoms, none of which received a referral to a rheumatologist or other subspecialist. The two patients with four or more symptoms had additional diagnostic tests ordered and a follow-up plan documented. One patient was asked to return in two weeks while the other was asked to return in four weeks. There were no patients identified that had three symptoms including a history of renal disease.

Providers showed slight improvements in knowledge and skill related to conducting quality improvement processes in their offices.

Overall, this study did not show any improvement in documentation of screening by the providers and slight improvements in documentation of follow-up planning and referrals to specialists.

DISCUSSION

As the PAL ABP MOC Part 4 QI program is the only current ABP-approved program in the nation addressing cSLE that awards participating pediatricians MOC Part 4 points upon completion, we developed a replication guide for other AAP Chapters who may be interested in implementing a similar program in their respective state Chapters. *Click here for a copy of the Guide on* http://bit.ly/2JGk8DU. Since cSLE is not very common, the numbers were small but nevertheless was an important MOC project.

LEGAL UPDATE

OUTSIDE VENDORS: IF IT IS TOO GOOD TO BE TRUE…

Guillermo J. Beades, Esq.

Pediatricians, like most providers in the State of New Jersey, have suffered significant harm due to the COVID-19 pandemic. In response to Governor Murphy's state-wide shut down by way of his early Executive Orders, many practices either temporarily ceased operations in March of 2020 or operated at a significant decreased capacity.

Those practices that served predominantly the Medicaid population were hit particularly hard as access to practices through public transportation, home schooling and the fear of contracting the coronavirus kept many children and families away from medical practices.

Even though the federal government rolled out programs to provide some relief to medical practices and businesses, such as the Paycheck Protection Program ("PPP") and SBA loans, these capital sources provided only the baseline for practices to keep their employees paid, the lights on, and the doors open. Many practices have drawn virtually no income this year, while costs and overhead increased due to additional sanitation and disinfection protocols that needed to be enacted.

Pediatricians have been admirably resilient this year, putting the children they treat over their financial and personal well-being. Until a viable vaccine is distributed broadly, it is unlikely that pediatric practices in New Jersey will see the type of patient volume they experienced prior to the pandemic.

COVID-19 is an unpredictable factor that has permeated through the entire working world. New Jersey is currently spiking for the second time this year, and further lockdowns will likely occur in the near future. At the same time, there are three (3) vaccines pending FDA emergency use approval that signal to the potential end to this crisis.

Although COVID-19 is unprecedented in modern times, practices have been impacted by recessions and economic downturns in the recent past, which offer valuable lessons we can learn from. One of the major catalysts to criminal liability, fraud investigations, audits, and overpayment demands for medical practices are business relationships with outside vendors.

Financial distress many times leads to predatory behavior by bad actors seeking to benefit from the desperation of someone in need. Early during the COVID-19 crisis, we heard of multiple scams being perpetrated against everyday citizens. Medical practices, during "normal" times, can be huge revenue generating sources, which in recent years has led to private equity and hospitals buying practices, and outside vendors seeking access to a practice's patients by way of a joint venture.

While outside vendors providing services to your patients, renting space from your practice, and/or paying you for consulting services is perfectly legal and acceptable, there are specific requirements that need to be met in order to avoid violating federal and state laws. For instance, if a laboratory testing company is offering you more than fair market value to rent space in your practice to draw blood, that will be considered a kickback and violation of both the federal Anti-Kickback Statute and New Jersey's Codey Law. This is not to suggest you cannot rent space to a vendor at your practice or in your building (if you own the property), it just has to be in writing (no verbal agreements), for fair market value and no other conditions may exists that would negate the "Safe Harbor" from the Anti-Kickback Statute and New Jersey's Codey Law.

COVID-19 has altered the way practices do business and its impact will be felt for years to come. While there are business ventures that can help pediatricians out of the hole this pandemic has put them in, be mindful of the old adage that "if it is too good to be true, it probably is."

If you are approached by an outside vendor, or currently have an outside vendor in your practice, please consult immediately with a healthcare attorney to ensure your practice is protected.

GREEN TIPS

Shannon Eccles, MD, FAAP

Try to cut down on single-use and disposable items in the office: keep silverware and a reusable water bottle or coffee mug in the break room, or bring them with your lunch!

Do you have a water cooler in the waiting room? Instead of stocking styrofoam or plastic cups, which will take centuries to break down, provide paper cups - even better if they are made of recycled paper!

FAMILY VOICES

HOW PEDIATRICIANS CAN HELP FAMILIES OF CHILDREN WITH SPECIAL NEEDS DURING COVID-19

Lauren Agoratus, M.A.

The SPAN Parent Advocacy Network (SPAN) has developed resources to assist families, including parents who have of children with disabilities and special healthcare needs, during the pandemic. These should be helpful to pediatricians working with parents.

COVID-19 Information Page

This is SPAN's "landing" page for all things COVID. It is a welcome to parents, with our warmline number (800)654-SPAN. It links with the information page and resources for families.

COVID-19 Resource Page

The resource page is probably the most helpful for pediatricians. The Overview Factsheet (see below) is found here as well as information on paid family leave, Medicaid changes, and a wellness/mental health checklist. There is also information on the provision of early intervention and special education services during the pandemic, and sample letters for families to use in obtaining necessary services. Information is available in Spanish as well. Lastly, there are recordings of SPAN COVID webinars:

- Early Intervention Services during COVID 19
- Extended School Year and COVID-19
- The IEP Process During the COVID-19 Crisis
- NJ DOE Presentation on Education Services during COVID-19
- Paid Leave and Unemployment During the COVID-19 Crisis
- Resources for Families During COVID-19
- SPAN Fact Sheet on Remote Learning
- Tracking Special Education Services during Remote Learning
- SPAN Fact Sheet – School At Home

COVID-19 Resources for Families

Here families will find a chart with live links to various resources. These include information from the Centers for Disease Control and Prevention (CDC), NJ and the U.S. Department of Health as well as the state/national Department of Education. Resources include hospital visitation policies, testing sites, grief, immigrant information, coping skills, social stories, and Medicaid, among others. Resources are available in multiple languages. Information is drilled down to the county level for families.

Resource categories include:

- National/State/County Information
- Education Resources
- Health Resources
- Parenting Resources
- Activities for Children and Youth
- Self-Care Information
- Multilingual Resources

Factsheet

Finally, the COVID overview factsheet is a comprehensive one pager, "Coronavirus and Your Child with a Disability." Information from the CDC and Department of Health presents the health risks associated with coronavirus, as children with disabilities are at high risk of complications. Continuation of educational services is explained, particularly for provision of IEP (Individualized Education Program) instructional and related services such as physical, occupational, and speech therapy. Supports and services for parents and caregivers are provided as well as reducing anxiety in children related to disruption of their routines. Lastly, supports for working parents such as the federal Family Medical Leave Act, unemployment, NJ paid leave, and NJ paid sick days are provided.

Additional information can be found on the website of the National Center for Parent Information and Resources on their Coronavirus Suite landing page at https://www.parentcenterhub.org/coronavirus-resources/.

The lives of families of children with special needs have been severely disrupted. Many parents are working from home while simultaneously helping their children with remote learning. We hope these resources will help pediatricians assist the families they serve.

RESOURCES

1. COVID-19 information page
2. COVID-19 resource page
3. COVID-19 Resources for Families
4. Coronavirus and Your Child with a Disability

SPAN
Parent Advocacy Network

Lauren Agoratus, M.A. is the State Coordinator of Family Voices NJ, Central Coordinator for the NJ Family-to-Family Health Information Center, both housed at the SPAN Parent Advocacy Network at https://spanadvocacy.org/programs/f2f/.

LEGISLATIVE UPDATE

Joe Simonetta
Public Strategies Impact

Tracie DeSarno
Public Strategies Impact

As we write this article, in mid-November 2020, COVID cases are spiking in New Jersey and the Governor this week signed an Executive Order decreasing gathering limits to 10 people indoors and a maximum of 150 outdoors. While the order did not close schools, a number of districts are either continuing or returning to all remote learning. Indoor sporting competitions and practices will be permitted to exceed the 10-person limit only for individuals necessary for the practice or competition, such as players, coaches and referees, but may not exceed 150 individuals. For most indoor sports, this will mean that there can be no spectators. The order followed an Executive Order last week imposing additional measures including the prohibition of all interstate games and tournaments involving indoor sports up to and including the high school level.

New Jerseyans voted to amend the State Constitution to make marijuana available to be consumed legally in New Jersey by adults who are at least 21 years old. Oversight of the recreational marijuana industry will be delegated to the Cannabis Regulatory Commission, which was established last year and which also supervises the state's existing medical marijuana program. The Legislature must now pass implementing legislation and they are scheduled to do so this month. Dr. Steven Marcus and Dr. Jennifer Chuang provided testimony on behalf of AAP to committees in both the Assembly and Senate expressing the need to keep legalized cannabis safely out of the hands of children. AAP will continue to work with the Commission going forward.

Legislation has been introduced that would authorize pharmacists to administer vaccines against COVID 19. A4832 and S2889, as introduced would allow pharmacists, pharmacy externs, and pharmacy interns to administer injectable medications, biological products, or immunizations authorized by the United States Food and Drug Administration for the prevention or treatment of coronavirus disease 2019 (COVID-19), if the administration of the injectable medication, biological product, or immunization is either consistent with applicable rules, regulations, or guidelines established by the federal Centers for Disease Control and Prevention, or consistent with the United States Food and Drug Administration labeling for the injectable medication, biological product, or immunization. At the behest of the pharmacists, S2889 was amended to reflect the August 24, 2020 federal Department of Health and Human Services action, under the Public Readiness and Emergency Preparedness Act (PREP Act), "Third Amendment to [HHS'] Declaration under the PREP Act for Medical Countermeasures against COVID-19," which authorizes pharmacists and registered pharmacy interns to order and administer certain vaccines to children ages 3 to 18.

Under current New Jersey law, pharmacists may generally administer vaccines to patients 18 years of age or older pursuant to an individual prescription for the vaccine, a standing order for the vaccine issued by an authorized prescriber, or an immunization program that is not patient specific. Pharmacists may administer the influenza vaccine to any patient who is 10 years of age or older without a prescription; for patients younger than 18 years of age, the consent of the patient's parent is required, and for patients who are seven years of age or older but younger than 10, a prescription for the vaccine is required.

Representatives of AAP successfully argued that our statute should not be amended to reflect the HHS action. We will continue to closely monitor these bills going forward as we know that the pharmacists want to continue to expand their ability to vaccinate children.

Two bills that we closely monitor have continued to move through the legislature although neither have reached the Governor's desk:

A970, Assemblyman Conaway's bill that requires a board of education to ensure that students in grades 7-12 annually receive a health screening for depression, passed the Assembly in July, has been released by two Senate Committees and now awaits Senate action.

A3548, Assemblywoman Lampitt's bill that requires insurance coverage for expenses incurred in screening adolescents between the ages of 12-18 for major depressive disorder, so long as such screenings continue to receive a rating of "A" or "B" from the United States Preventative Services Task Force, passed the Assembly and now awaits Senate Committee action.

Finally, although we thought we might see movement this fall on A4576 and S2907, sponsored by Assemblyman Conaway and Senator Vitale, neither bill has moved yet. This legislation requires students who attend a public or private K-12 school, preschool, childcare center, or institution of higher education to be annually vaccinated for influenza as a condition of enrollment and continued attendance at the school or center.

Katharine Clouser, MD, FAAP

The New Jersey Chapter of the American Academy of Pediatrics held its annual meeting on November 18, 2020. Although this year looked different than years prior, the adjustment to virtual in light of the ongoing SARS-CoV-2 pandemic was smooth and seamless. The availability of interactive smaller sessions, question and answer sessions, and speaker and participant videos allowed for connection during a time where many are looking forward to interacting with people out of their bubble.

This year, speakers were nationally known experts on scoliosis, E-Cigarettes and vaping, as well as gun safety and preventing injuries in our children. Local familiar faces spoke about abdominal pain, surgical emergencies, atopic dermatitis, slow weight gain, and visual diagnoses. Each session brought to pediatricians in New Jersey new tools for caring for our children and expanding the quality of care for pediatric providers in the state.

Our plenary speakers included Dr. Michael Faloon discussing new management of scoliosis. The discussion included highlights of new surgical techniques, as well as scoliometers and exam maneuvers that the pediatrician can complete in their office. Dr. Brian Jenssen spoke of the dangers of vaping in teens, cessation counseling, and screening and treatment of lung injury. This timely discussion included the increased recognition and continued need for education of our patients in the community. Our final plenary speaker was Dr. Benjamin Hoffman, who spoke about meeting parents and families where they are when discussing gun safety. Gun safes, cable locks, and encouragement of safe storage was discussed.

Breakout sessions brought together inpatient and outpatient physicians to discuss clinical pearls and things that we shouldn't miss. The sessions were interactive, including polling, videos and photos, and written and verbal Q&As. Our members gave an update on the current programs, discussed how to advocate for children in New Jersey, and attorneys discussed legal concerns for children.

Poster sessions were virtual, with recorded videos by our poster authors. This drew in a multidisciplinary group of presenters including practicing physicians, social workers, residents, students, speech pathologists, psychologists, and other researchers. It highlighted the strong and novel work being done throughout the state.

Though the event looked different and we could not gather in person, the chapter continues to attract nationally known speakers to the annual conference and produce a wonderful program full of educational content important to pediatrics. Our venue is changing, but the value to attendees remains unchanged.

CONGRATULATIONS TO THE 2020 AAP SPECIAL ACHIEVEMENT AWARD RECIPIENTS!

These awards are presented in recognition of members' distinguished service and dedication to the mission and goals of the AAP.

Dalya Chefitz, MD, FAAP

For dedicated efforts during a measles outbreak in Lakewood, vaccine educational outreach to pediatricians and the public.

Bert Mandelbaum, MD, FAAP

For his work as Chair of NJAAP's Task Force on Adolescent Sleep and School Start Times. His initiative and his advocacy efforts are leading change.

Susan Brill Goldberg, MD, FAAP

For her work as an Adolescent Committee Champion whose leadership resulted in securing Medical Home and STI Resources and QI Programs.

RESIDENT VOICE

MENTAL HEALTH SIDE EFFECTS OF THE COVID-19 PANDEMIC ON CHILDREN: A RESIDENT'S VOICE

Samantha Abend, D.O.
Pediatric PGY-3, Goryeb Children's Hospital
NJ AAP Resident Councilor

The COVID-19 pandemic has created unique challenges for children and families. For the first time, schools have transitioned to virtual learning platforms. Families have self-quarantined for months, leading to isolation and lack of social interaction. Tragically, they have lost loved ones, family members, and friends. Parents have lost their primary source of income or have been forced to cut hours at work, hindering their ability to provide for their families. As a pediatric resident, I have personally witnessed an increase in Emergency Department visits and hospital admissions for patients presenting with suicide attempts, eating disorders, depression, and panic attacks. Conversely in the outpatient setting, there has been an increase in obesity and anxiety. These trends are likely an effect of the new obstacles children are facing due to the ongoing COVID-19 pandemic.

Transitioning to virtual or hybrid learning platforms continues to be necessary to ensure the health and safety of children and families during the COVID-19 pandemic. Families have faced financial and social pressure to ensure they have the technological capabilities and resources to be able to support their children's learning. Required tools for virtual learning include: a working WiFi network, an electronic device, and appropriate childcare. These needs are significant to low and middle-income families in a time when resources are already stretched to their limits.

Although virtual learning environments have provided safety for children, they have also resulted in poor screen and social media habits. The American Academy of Pediatrics (AAP) recommends no more than two hours of screen time per day for school-aged children. During these unprecedented times, there has been an increase in screen time for both educational and non-educational activities. This has led to a lack of in-person socialization and has placed children at a higher risk for cyber-bullying and exploitation. Lack of socialization has contributed to the rising cases of depression, anxiety, eating disorders, suicidal ideations, and suicide attempts. Recently, during one of my shifts in the Emergency Department, an adolescent patient stated that her suicide attempt was prompted by a classmate on social media telling her, "to kill herself." Another young patient presented following an attempt to commit suicide after an older man asked her to send explicit photos of herself, threatening murder if she did not comply. Due to the social implications of the COVID-19 pandemic, these are dangerous and horrifying realities of social media. We as physicians must recognize and address these dangers to protect all children.

Another adverse effect which has been considered secondary to increased screen time, is physical inactivity. While the AAP recommends at least sixty minutes of physical activity per day for children, there has been less emphasis on the importance of healthy exercise habits and fewer opportunities for children to partake in physical activity. With physical education class eliminated for most children both on the virtual platform and in-person environment, many children are not engaging in any physical activity during the day. Lack of physical exercise has led to significant upward trends in children's body mass indices. I have observed children in our outpatient clinic gain between 5 and 20 lbs over the course of the last 4-6 months, causing many of them to fall into the overweight or obese classifications. If the pandemic continues to impact physical activity, I fear that these children will be at an increased risk for developing early Type II Diabetes or Metabolic Syndrome as adults.

New challenges faced as a result of the COVID-19 pandemic present medical professionals with a sense of discouragement and fear for the future of children's health. As pediatric medical providers and pediatric trainees on the frontlines, what can we do?

I believe that we can obtain a better understanding of how the pandemic has affected each patient as an individual by focusing on the social and mental health components, including the HEADSS assessment, of our patient encounters. This is our opportunity as pediatric providers to check-in on our patients, to ensure they feel safe at home, and are able to cope with the increased stress caused by the pandemic. By screening children, we can target high-risk patients and provide them with the appropriate resources, such as the services provided by PerformCare or through the NJ Pediatric Mental Health Collaborative. Additionally, we should continue to ask parents during our encounters about parental stress and safety of the home environment. Parents should be encouraged to foster an open relationship with their children to encourage children to talk freely about concerns, fears, and stressors. Parents should be advised to closely monitor social media accounts and limit non-educational screen time.

As pediatric providers, we should promote healthy living amongst all family members by suggesting activities such as a daily family walk and family meals. While it is important to discuss weight gain, especially as it pertains to the pandemic, we must be cognizant of the fragile nature of this topic. A common barrier to discussing weight gain is that physicians will manifest an unhealthy relationship with food and physical activity, triggering poor self-esteem and a potential eating disorder.

How can we discuss our concerns about weight in an empathetic and non-judgmental fashion? We can change the terminology, phrases, and potential triggers in our encounters. For example, instead of using the term "diet," we can use "healthy lifestyle changes." Sensitive terminology shifts the conversation from losing weight to improving overall health and wellness. Parents should be encouraged to take action and set goals to promote healthy living for the entire family, while continuing to be conscious of using compassionate terminology.

Although the pandemic has brought new challenges to children and families, it has also made them stronger than ever before. Children have had to be resilient and develop new coping skills to deal with the ongoing individual and family stressors, changing school environments, and technology. As pediatric medical providers, we are all in this together. I believe we have the strength to unite and advocate for all children to ensure a positive and bright future.

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