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President's Column

Jeanne Craft, MD, FAAP
President
New Jersey Chapter, American Academy of Pediatrics

Supporting Children, Supporting Each Other

Autumn has come and the COVID-19 pandemic continues putting new demands on the way we conduct our daily lives.

Our Children’s Ball, originally slated to coincide with Earth Day in April was postponed to September 16th as the planning committee and NJAAP staff transformed the event into a virtual gala. We honored individuals and organizations that are doing remarkable work to support the well-being of children in New Jersey. We thank all of the attendees, award nominees and winners, our sponsors, auction bidders and donors who supported our mission of ensuring that each and every child in New Jersey has the opportunity to thrive. Our work at NJAAP depends on the time, talent and financial contributions of our members, friends, supporters and partners. Thank you. Our School Health Conference on October 14th and Annual Meeting on November 18th will also be virtual experiences. Registration for both of these is now open.

The return to school has been challenging for children, families and educators. To meet the needs of students, Pediatricians across the state have risen to the challenge by creating new office visit workflows to ensure that children receive vaccines and are screened for physical and mental health conditions that may influence their ability to learn or participate in sports. Pediatricians have also been a familiar, supporting port in the storm for children and families navigating challenging times. Anxiety and Depression are of particular concern, as the incidence in children and adolescents has risen during the pandemic. The New Jersey Child Collaborative Mental Health Program, despite temporary funding cuts, continues to be a critical resource for pediatricians as they continue to treat and support children in their practices. If you have not joined this statewide Collaborative, please consider doing so.

Flu vaccine is now available. Unless medically contraindicated, everyone over the age of 6 months can benefit from vaccination and should be vaccinated.

Voting is a privilege, and a way to influence the communities, small and large, that we live in. Whether you are voting by mail or in person, I ask you consider the health and well-being of children this November when you exercise your right vote. Access to equitable, high quality health care matters. A healthy environment matters. A robust vaccination program matters. Safety at home, in school, at work and at play matters. Insist that those we send to represent us locally, at the state level and at the federal level are committed to serving our communities and the children who live in them. If you vote in person, remember that wearing a mask, keeping your distance and hand hygiene matter. Vote by mail if you are worried about voting in person. And if you are running for office, good luck and keep children's health and well-being in mind after the results are in and you start your term.

Links to resources can be found on our website https://www.njaap.org.

If you are interested in serving on one of our committees, or participating in one of our grant-funded programs, more information is available on our website, including contact information for specific programs and committees.

Flu Vaccine in New Jersey Pediatricians

Flu vaccination is important in providing the healthiest start to the school year.
Onward and Upward: The new normal

As we reflect on 2020, we find ourselves wondering if we will ever go back to normal. With so much uncertainty, normal seems far beyond our reach. The fallout of the pandemic and social unrest throughout the country has left us with no choice but to move forward with courage and a keen focus on building from this point forward. As pediatric providers, you are at the crux of serving children and families as they attempt to obtain some sense of normalcy. As you care for patients, we would like you to be equipped with the resources and knowledge to ensure the best possible outcomes for children. As we enter the fall season, we ask that you call on NJAAP for assistance and resources. We have forged stronger relationships with the Department of Health throughout the year, with the hopes of providing bi-directional communication between pediatricians and the state department on key issues impacting the delivery of care. We will continue to improve the dialogue and invite you to participate in our upcoming events.

Vote

As the election season commences, we encourage you and all of your families to vote on November 3rd. This election is one of the most important events of our lifetime. Please be sure to get involved. AAP National has partnered with VotER, a non-profit, non-partisan organization, to encourage individuals to register to vote or request their vote from home ballot. Learn more and get involved at https://services.aap.org/en/advocacy/election-vote-kids/.

Upcoming Virtual Events

As part of your ongoing professional development, be sure to register for our virtual school health conference on October 14, 2020 featuring key issues impacting school this fall. Hear from our subject matter experts on the impact of COVID on schools and families, lessons learned from the pandemic and more. You don’t want to miss the premiere school health event of the year. If you have not yet registered, please register at https://njaap.org/events/shc/.

NJAAP’s Annual Meeting will also be held virtually on Wednesday, November 18. Featured topics include infectious disease updates, scoliosis, gun safety, vaping and more. Sign up for our quality workshops conducted by renowned speakers on topics such as atopic dermatitis, child safety, recurrent abdominal pain, breastfeeding strategies and more at https://njaap.org/events/ac/. Earn up to 7 MOC part 2 points by attending the annual meeting.

Donate to the NJAAP Kids Fund

If you have not yet donated to the NJAAP’s Kids Fund, please consider making your contribution today. This fund was created to help continue to build resources and programs needed to continue to sustain the quality work in child health. NJAAP requires funds beyond your annual membership dues to continue these programs. Now is your opportunity to make a difference to ensure New Jersey children have expanded access to the services and programs that contribute to healthy outcomes. If you care about the continuation and expansion of quality child health programs, please consider making a donation today. Visit www.njaap.org and click on the donate button.
Medical Director’s Column

Steven Kairys, MD, MPH, FAAP
Founding Chair of Pediatrics, Hackensack Meridian School of Medicine
K. Hovnanian Children’s Hospital, Jersey Shore University Medical Center, Hackensack-Meridian Health

A Perfect Storm

That is the way it feels as the COVID 19 virus continues to play havoc with our lives and the lives of our families; as the resultant huge state deficit threatens to eliminate essential programs for children and essential funding for NJAAP; as climate warming adds to the hurricane and heat index; and as the Washington leadership continues paralyzed and unable to provide any meaningful supports.

These are once in a hundred years catastrophes and so our generation is bearing the burden; but it is the next generation that will mostly be long term impacted.

We are fortunate that New Jersey is working to diminish the impact on children. NJAAP has been fully engaged and, in particular, the letter writing by pediatricians in support of the New Jersey Child Collaborative Mental Health Program has made a significant difference in partially restoring the funding. But many other family and child supports are still in danger of being eliminated. Please continue to monitor the emails coming from NJAAP for updates on the State’s budget, in particular programs in jeopardy and calls for advocacy.

Budgets for at least the next two years are in jeopardy. I have no issue with programs for the geriatric population remaining, but geriatrics has large and vocal advocates. NJAAP has by necessity been much more engaged and government does listen

We all fear for increasing fallout to children. Many children can not learn virtually, many are forced into staying in dysfunctional households 24/7, many who are socially isolated or who can not get out, develop anxiety and depression. More families appear supportive of in person visits and for these issues, in person visits add so much.

For pediatricians, those in private practice are still trying to recover, volumes slowly returning, and personal safety measures very much in place. National AAP has been working to keep Medicaid and CHIP at current or increasing levels and there is still a push to have Medicaid rates at Medicare levels.

For all of these reasons and more, a vibrant and active NJAAP is essential to monitor the status, advocate at the governor and legislative levels, and to work to improve the state and managed care processes of care. We need more of a presence of the private community pediatrician at NJAAP meetings since your needs are similar in some respects but far different in other respects from pediatricians salaried at the hospital or large system level.

Let us hope that 2021 brings rays of light to children and families and to clinicians. There is still so much to do.
Abstract

Introduction

COVID-19 is thought to spread between individuals in close contact, primarily through respiratory droplets. Consequently, aerosol-generating procedures increase the risk of transmission to healthcare providers. Due to proximity to patients during the workday, dentists are at a potential greater risk of exposure to COVID-19. CDC guidelines include using an N95 or higher level respirator when performing any aerosol-generating procedure on adult and pediatric patients with or without suspected or confirmed COVID-19, and suggests considering implementing pre-procedure testing, based on state and local guidance, testing availability, and speed of results. The rate of infection in asymptomatic patients in an area of mild to moderate community transmission is unknown.

Method

Since June, Zufall Health Center and The Center for Health Education, Medicine and Dentistry (CHEMED) have implemented pre-procedure COVID testing in dental facilities to protect patients and staff from infection, relieve anxiety, and encourage patient follow-through on needed and preventive dental care. One health center deployed the Quidel rapid response test and the other used the PCR test. Both centers tracked results electronically.

Results

There was parity between the two testing methods across the centers: the results were similar, indicating very few asymptomatic patients tested positive. One-third to one-half of positive results were in asymptomatic children. Staff who treated untested patients who were later determined positives were not infected.

Conclusions

In an area of mild to moderate transmission, providers can feel confident in current CDC guidelines and safe in providing dental services (including aerosol-generating procedures). Stringent adherence to recommended COVID precautions is a viable way to safeguard staff and patients. While not necessary, testing can be beneficial in assuaging staff and patient anxiety and an important public health tool.

Learning Objectives

After reading this article, providers will be able to:

1. Interpret findings from pre-procedure testing protocols implemented at two health centers and extrapolate them to their own clinics and facilities,
2. Identify tactics to safeguard staff and patients and effectively manage anxiety and stress while providing needed aerosol-generating procedures,
3. Create a course of action and procedures for COVID safety measures in their facility, and
4. Demonstrate COVID safe practices and evaluate outcomes.

KEYWORDS: Aerosol-generating procedure, COVID-19, Dental service, Manage anxiety, Pre-testing, Safety measure

Introduction

The everyday task of delivering important needed and regular preventive care to patients has become more complicated since March due to COVID-19. Providers are faced with a daunting challenge that is infinitely more complex and even dangerous during a pandemic, with attrition of both patients and staff due to closures, fear, illness, quarantine, and death. That challenge was compounded with the slow formulation of state and federal recommendations, which were constantly shifting. It was often difficult to determine the best, safest course of action. Add to that balancing the fear and anxiety of front-line providers and the people they are dedicated to serving with providing a reasonable level of services safely...not an easy task in a hot spot and with a dearth of guidance.

Early in the pandemic (Spring, 2020), northeastern states were severely affected by coronavirus, leading the US with high transmission rates. Stringent lockdown measures drove infection rates down. Zufall Health Center and The Center for Health Education, Medicine and Dentistry (CHEMED), both federally qualified health centers (FHQCs) serving areas of New Jersey severely impacted by COVID, initially reopened their dental departments with a skeleton staff providing emergency services only, with no aerosol-generating procedures. The intent was to keep adult and pediatric dental patients out of area hospital emergency departments. But as infection rates began to level out, the centers expanded services to include regular preventive dental care. Oral health is vital to overall health. Poor dental health is connected to heart disease and diabetes, and can lead to poor health outcomes for moms and babies. With a pandemic, it is vital to prevent and address dental infections, which can become life-threatening. Now both facilities are in catch-up mode, providing preventive care, fluoride varnish, sealants, and other procedures to current patients.
Procedures in a Safe Environment During COVID

In June 2020, both centers chose to go above and beyond official guidance on prevention best practices and added COVID testing of asymptomatic adult and pediatric patients prior to dental and other procedures that generate aerosols. The goals were to assuage fears and improve staff and patient comfort levels with providing expanded dental care services (especially high risk individuals, due to age or comorbidities); determine the true level of COVID infection in the centers’ patients and prevent virus transmission; quantify the viability of adding pre-procedure testing to existing COVID protocols; assess the impacts of testing on the health and well-being of staff and patients; and predict the safety of reopening clinics in areas of mild to moderate virus transmission.

About Zufall Health Center

Zufall Health Center is an FQHC founded in 1990. In 2019, Zufall served 39,763 patients in northwest and central New Jersey with 145,000 visits across nine sites, including two mobile units. There are seven dental offices. The health center serves a low-income, medically underserved population, with a special focus on homeless individuals, public housing residents, and farm workers: 83 percent of patients are below 200 percent of the federal poverty level, 52 percent of patients are uninsured, 67 percent of patients are Hispanic, and 61 percent of patients are best served in a language other than English. After the early pandemic closures and limited opening for emergency care only, services have been steadily increasing, with more preventive care and procedures on more patients, although we predict we will not be back at 100% until 2021.

About CHEMED

CHEMED, an FQHC, provides comprehensive health, medical, and dental services to private, uninsured, and underinsured patients in Lakewood, New Jersey. The mission is to increase access to care and to improve the health status of underserved and vulnerable populations through outreach, disease prevention, and patient education activities. Since opening in 2009, the center has seen more than 94,500 unique patients (32,000 dental patients), with a total of 1,160,833 visits, including more than 10,000 children. Pre-COVID, CHEMED logged approximately 3000 patient visits per month. Since COVID, there were 430 visits in June, 1563 visits in July, and 2374 visits in August. CHEMED is not seeing new patients except for emergencies.

Materials and Methods

After reviewing state and national guidelines, both centers instituted standard COVID safety protocols: reduced patient scheduling; air/HEPA filtration and building modifications; PPE (including N95 masks); more stringent cleaning procedures; workflow flexibility; masking, distancing, and frequent hand-washing/sanitizing; and reconfiguration of entries, exits, and waiting rooms. Both added full-time employees to perform daily screening of patients and staff for symptoms and COVID exposure, including a temperature check. Both centers ensured respirator mask fit-testing of employees and augmented masks with head and face shields. And, both responded to staff fears of infection with their own additional safety precaution: implementing pre-procedure COVID testing for dental cases.

Zufall opted for Quidel Rapid Response antigen testing equipment, for its 15-minute results turn-around. With an estimated sensitivity of 80 percent, staff tested patients before they moved to the dental chair, effectively reducing exposure to asymptomatic patients. Due to limited access to test kits, testing was reserved for pre-procedure patients; all others underwent the standard PCR test, with its two- to seven-day response rate, depending on infection rates and lab workload. Patients who tested positive were sent home to quarantine, and the data was loaded into Zufall’s and the state’s systems to launch the contact tracing process. Zufall also followed up to connect the patient with a medical provider.

CHEMED required a PCR-negative test (polymerase chain reaction technology) within 30 days of the patient’s appointment, and no later than two days prior to procedure services, to ensure results were on file before arrival. On average, results were received within two days. CHEMED did not accept rapid test results. Approximately 50 percent of patients were tested at the center and 50 percent at other facilities. CHEMED patients who arrived for appointments and had not been tested were accommodated on an emergency basis only and received procedures that did not generate aerosol (cleaning, x-rays, etc.). The visits of patients who tested positive were canceled. Patients thought to be COVID-positive were directed to the correct workflow.

Staff engagement was critical to the new ways of working. Both centers instituted regular meetings for open discussion, sharing, and feedback, as well as ongoing, in-house training on evolving facility changes, testing, and new precautionary procedures, based on infection rates.

continued on page 8
Barriers and Challenges

Rising to the challenge of providing needed dental care during a pandemic comes with its own unique barriers. Trying to find the balance between fear and reality, reasonable measures vs. appropriate measures, was a constant conversation. The biggest hurdle facing both centers was the legitimate anxiety of staff and patients, and the ensuing attrition due to fear, infection, and self-isolation. Zufall experienced a shortage of PPE–masks, gowns, wipes, test swabs, and gloves; CHEMED did not experience an easy flow of supplies.

Other roadblocks included limited access to the test kits; turn-around time for PCR testing (as long as 10 days during peak infection); the discomfort of long-term N95 masking; staff shortage, particularly dental assistants; a fully booked schedule for fewer staff; training of new hires; lack of childcare (including school); a high cancellation rate due to patient lack of knowledge about testing requirements; and the financial impact of the loss of income that comes with fewer patients, coupled with the significant investment of capital in equipment, supplies, facility retrofits, cleaning processes, and new screening staff.

Both centers experienced the challenge of vigilance...again. As they succeeded in implementing protective measures to create safe environments, COVID fatigue set in. Rigorous testing created a false sense of security at Zufall and the center responded by redoubling efforts with messaging on strict observance of policies and procedures. At CHEMED, patients expressed frustration over the inconvenience of current stringent COVID precautions in a time of mild to moderate transmission. Other dentists in the community were seeing patients in a normal environment, without the extra step of COVID testing. And they balked at having to repeat testing over the course of multiple visits and procedures. CHEMED responded by easing its testing parameters to 30 days before appointments, but reevaluates with upticks in positive cases in the community.

Measuring Efforts, Quantifying Results

Zufall created a simple, digital dashboard that updates daily with the number of patients tested and the number of positive results, to facilitate swift response: sending the patient home to quarantine and uploading results to the state system database for measurement and contact tracing. Follow-up includes connecting positive patients with a medical provider.

CHEMED created a digital tracker for staff to input data on COVID-positive patients. Metrics were assessed in the community and surrounding areas on a weekly basis so that when infection rates rose, the workflow and number of patients visiting the center could be quickly adjusted. Staff completes contact tracing, working with other practices to educate patients and ensure quarantine.

Results

Since June, Zufall has seen six positive tests out of 404 patients (1.5 percent): one-third (2) were asymptomatic children, ages seven and twelve, non-related. (Table 1) Staff uploaded all results to the state system for contact tracing and followed up with patients to connect them with a medical provider. Staff that treated untested patients who indeed were COVID-positive were not infected. No dental staff have been infected from an exposure during aerosol-generating procedures since mid-April.

Since June 8, CHEMED has in-house PCR tested 2055 visits, with more tested at other facilities (approximately 50%). Of those tested in-house, two were positive (0.097 percent). (Table 1 below) The adult patient was seen because it was 10 days after the positive test result and had been asymptomatic for three days, per CDC guidelines at that time. The other patient’s appointment (a child) was canceled. Over this time period and 5000 visits, no dental staff were infected due to aerosol-generating procedures.

There was parity between the centers’ testing outcomes: the range of positives was comparable between the Quidel rapid response test and the PCR test.

Table 1: Total pre-procedure testing performed between 6/8/2020 and 9/10/2020 on children 0 to 17 years old and adults 18 years and older.

<table>
<thead>
<tr>
<th>Center</th>
<th>Type of Test</th>
<th>No. of Children Tested</th>
<th>No. of Covid-19 Positive Children</th>
<th>No. of Adults Tested</th>
<th>No. of Covid-19 Positive Adults</th>
<th>Total No. of Patients Tested</th>
<th>Total No. of Covid-19 Positive Patients</th>
<th>Positive Asymptomatic Pre-procedure Test Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zufall</td>
<td>Antigen</td>
<td>34</td>
<td>2</td>
<td>370</td>
<td>4</td>
<td>404</td>
<td>6</td>
<td>1.5%</td>
</tr>
<tr>
<td>CHEMED</td>
<td>PCR</td>
<td>925</td>
<td>1</td>
<td>1130</td>
<td>1</td>
<td>2055</td>
<td>2</td>
<td>0.097%</td>
</tr>
</tbody>
</table>
Summary

As of mid-September, the COVID-19 infection rate observed in screened asymptomatic patients tested prior to a dental procedure in two centers located in areas of New Jersey experiencing community spread of one to nine positive cases per 100,000 was determined to be low: ranging from 0.097 percent to 1.5 percent. (Table 1)

Discussion and Conclusion

The results of testing improved our confidence in the accuracy and applicability of CDC guidelines and the ever-changing conventional wisdom at a time that is anything but conventional. We believe the current guidelines are protecting adult and pediatric patients and staff.

Based on early observations, June till mid-September, a negligible percentage of patients came in with positive COVID. With proper PPE and other standard protocols, we believe the risk of transmission is low to nonexistent – even in the absence of testing.

COVID testing in dental settings is a public health benefit: identifying and educating infected asymptomatic patients (particularly parents of infected children); helping reduce community transmission; and assuaging staff and patient anxiety, so everyone feels comfortable with the process of dental services. But we question the value of pre-procedure testing in day-to-day operations. Screening, PPE, travel restrictions, and limited exposure are vital to creating a safe environment. Our preliminary data shows testing is not necessary in periods of mild to moderate transmission, but there is enormous value in reassuring staff and relieving fear.

There have been no staff positives from exposure during aerosol-generating procedures at the health centers since June. Staff are important to the continuum of care during a pandemic. Fear must be addressed and communication must be open and constant to maintain peak performance and prevent burn-out.

We found COVID testing is not critical to a safe and healthy reopening and delivery of services in a dental facility using proper PPE and other standard precautions. Based on our experiences in geographic areas of mild to moderate transition, it is safe to reopen and provide care, without testing.

Acknowledgments

Melanie Raskin, Medical Writer

References


CME Quiz on page 10
CME Quiz

1. Based on state and national guidelines, both centers in this article instituted the following standard COVID safety protocols except:
   a. Using an N95 mask or higher-level respirator for aerosol-generating procedures
   b. Reduced patient scheduling
   c. Screening of patients for symptoms and COVID exposure, including temperature checks
   d. Augmented masks with head and face shields
   e. Increasing same-day walk-in patient appointments

2. Implementing pre-procedure testing prior to aerosol-generating procedures may have all the following outcomes except:
   a. Testing results might inform decisions about rescheduling elective procedures
   b. Testing results might inform decisions about PPE usage
   c. Testing will result in reduced costs per visit and a more efficient workflow
   d. Assuage fears of high-risk individuals anxious due to age or comorbidities

3. New Jersey’s Federally Qualified Health Centers provide care predominantly to underserved and medically vulnerable populations.
   a. False    b. True

4. Clinical limitations of using pre-admission or pre-procedure diagnostic testing with authorized nucleic acid or antigen detection assays for SARS-CoV-2 include:
   a. Obtaining negative results in patients during their incubation period
   b. False negative test results
   c. False positive test results
   d. All the above

5. The authors believe that stringent adherence to recommended COVID precautions is not adequate and that pre-admission or pre-procedure testing is critical to safeguard staff and patients prior to aerosol-generating procedures in an area of low to moderate COVID-19 community spread.
   a. True    b. False

6. Barriers faced by the two centers in this article during the implementation of pre-procedure COVID-19 testing included:
   a. Limited access to the test kits
   b. Limited access to PPE
   c. Slow turn-around time for PCR testing during peak infection
   d. All the above

7. Based on initial data from Zufall and CHEMED, the pre-procedure rate of COVID-19 positive results observed in asymptomatic patients who were screened in accordance with the CDC guidelines and who had their temperature checked prior to their dental visit was:
   a. 40 percent to 50 percent
   b. 25 percent to 35 percent
   c. 0.1 percent to 1.5 percent
   d. 10 percent to 15 percent

8. Healthcare providers are facing all the following challenges during the COVID-19 pandemic except:
   a. Adequate access to supplies including PPE and disinfecting wipes
   b. Attrition of staff due to childcare
   c. Fear and anxiety among staff and patients
   d. Inadequate access to supplies including PPE and disinfecting wipes

9. Poor oral health is connected to all the following except:
   a. Premature delivery and low birth weight
   b. Diabetes
   c. Cardiovascular disease
   d. Pseudofolliculitis

10. Engineering controls to consider when performing aerosol-generating procedures on patients without suspected or confirmed SARS-CoV-2 infections include all the following except:
    a. The use of portable high-efficiency particulate air (HEPA) air filtration units
    b. Reduce patient volume to allow time for implementation of additional safety protocols
    c. Distancing and physical barriers placed between patients when treatment can’t be provided in individual patient rooms
    d. None of the above

CME Instructions

Read the CME-designated article and answer the Fall issue, quiz questions above. 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

NAME ______________________________ PHONE ______________________________

EMAIL ______________________________

Submitter must answer 8 of the 10 questions correctly to qualify for CME credit

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GREEN TIPS

NJ Pediatricians Are Stepping up to Promote Children’s Environmental Health

If we were to create a “problem list” for our planet, where would we begin? Extreme weather events are becoming commonplace, from record-breaking hurricanes to wildfires that can barely be contained. Sea levels are rising as global temperature increases and icecaps melt. Pollution is increasing in both air and the waterways. The bee population - a critical link in our food system - has dropped by nearly a third in the past decade. The health of our planet has never been worse in recorded history, and it is directly linked to the health of our patients.

The most obvious to us, as pediatricians, may be the impact on children with asthma. More frequent asthma exacerbations are linked to a longer pollen and allergy season, as well as increased particle and smog pollution. Insect activity patterns are also changing, presenting more exposure to vector-borne diseases through ticks and mosquitoes. Recent studies show neonatal complications such as prematurity and low birth weights to be associated with increased weather temperature and air pollution.

As New Jersey residents, we also see our sea levels rising at nearly twice the global average, accelerating over the last decade. Our forests are also at risk; the Pine Barrens are afflicted by an influx of southern pine beetles, which infest and kill trees, thereby making the forest more flammable. The Pine Barrens cover 1.1 million acres of land and contribute to a major aquifer in southern New Jersey.

The NJ AAP Committee on Climate Change has a new name to align with the national AAP council of the same title: we are now the Committee on Environmental Health and Climate Change. Our purpose is to provide pediatric health care teams with quality education on environmental health and climate change, to prevent and manage the negative climate and environmental impacts on the well-being of children. Our goals are to minimize and adapt to climate change and advocate for healthy environment solutions that protect children’s health, along with educating New Jersey pediatricians on the role of climate change on the pediatric population.

Look for Green Tips in NJ Pediatrics, where we will be sharing our success stories. What is working in your office? At home? In your community? What creative/innovative approaches are you using to build more resilient, less polluting communities, families, and children? Send us your own Green Tips so we can share them. Submit them to Bethany Kondavaty, bkondavaty@njaap.org with “Green Tip” in the subject line.
Case Study: Malnutrition Amidst Plenty: A Case Report of Pediatric Kwashiorkor in New Jersey

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Abstract

Kwashiorkor is a rare disease of edematous protein-energy malnutrition presenting in infants and children. In this case report, a pediatric patient in New Jersey was initially admitted in general pediatrics for nephrotic syndrome with findings of generalized edema, moon facies, and “eczematoid dermatoses.” A subsequent detailed review of her feeding history, physical exam, and laboratory findings pointed to kwashiorkor as the correct diagnosis. In the US, kwashiorkor can be a difficult diagnosis to make because of a low level of clinical suspicion and the lack of familiarity with the typical physical findings. The prognosis of kwashiorkor depends on the extent of growth failure, and the disease can result in permanent physical and mental problems if diagnosed at an advanced stage or left untreated.

Key Words: Malnutrition, Kwashiorkor, Generalized Edema, Flaky Paint Dermatoses

Introduction

The World Health Organization defines malnutrition as “the cellular imbalance between the supply of nutrients and energy and the body’s demand to ensure growth, maintenance, and specific functions.” In particular, protein-energy malnutrition (PEM) is the imbalance between protein energy requirements and intake during illness. The two main clinical syndromes of PEM are marasmus and kwashiorkor, with the presence of edema distinguishing kwashiorkor. Kwashiorkor was first introduced by the British pediatrician Cicely D. Williams in 1935 to describe a syndrome in African children characterized by muscle wasting and peripheral edema. The affected children were mostly between the ages of six months and four years. These children were breastfed by a malnourished or pregnant mother and weaned only on maize porridge. Today, kwashiorkor is most often seen in children of impoverished countries and areas of famine. Risk factors for the disease include poor nutrition, parental disadvantage and illness, poverty, and social inequity. In affluent countries such as the US, social nutritional programs help to ensure the availability of food, reducing the incidence of cases associated with poverty. As a result, most cases of kwashiorkor are overlooked due to a low level of clinical suspicion of the disease and physician unfamiliarity with the clinical features. While the incidence of kwashiorkor in the US is extremely low, we describe a 17-month-old Asian female with kwashiorkor in New Jersey.

Case Presentation

A 17-month-old Asian female presented to the emergency department of a community hospital for generalized edema. Her face was puffy with periorbital swelling and subcutaneous edema of the dorsum of the hands and feet. She had an upper respiratory infection two weeks prior to admission that consisted of mild cough, congestion, and low-grade fever which responded to supportive management. Review of systems was significant for weight gain, dry and lusterless hair that was reddish-yellow in color, dry and irregular reddish-brown rash over the nape of the neck, trunk, flexor surfaces of upper and lower extremities, and decreased urine output.

The patient was born FT, 3,200 grams, appropriate for gestational age (AGA), to a G1P1 mother by uncomplicated caesarian section. The mother is a nurse in a local hospital and the father works in the casino. Patient was the only child and lived with her parents. The family history was significant only for mother having childhood asthma.

Review of feeding history showed she had been breastfed for about 2 weeks from birth but developed episodes of vomiting and diarrhea. Mother discontinued breastfeeding and started her on Similac milk formula without much improvement. At 5½ weeks of age, she was admitted to the general pediatric unit of a community hospital for vomiting, diarrhea, and dehydration. She was given intravenous fluids and her symptoms improved with change of milk to Similac Alimentum (lactose-free, hypoallergenic milk formula prescribed for protein sensitivity). At 5 months of age, weaning foods were introduced but she was observed to be a “picky eater”. At around that time, she was diagnosed by her primary pediatrician with eczema (dry, erythematous skin on cheeks, nape, and flexor surfaces of the extremities) that responded minimally to topical Hydrocortisone cream (0.5%) and Aquaphor ointment. At 9 months of age, she was seen by an allergist for her eczematoid dermatoses not responding to the topical creams prescribed. An allergy skin test revealed sensitivity to eggs, beans, yogurt, regular milk, and cheese. Her diet at home consisted of rice cream (bought in local markets and labeled commercially as “Rice Dream”) in place of formula, rice, noodles, and pasta. Her mother further commented that she “rarely eats meat products and only in small amounts.”

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The patient was eventually admitted to the hospital’s general pediatric unit with the diagnosis of possible nephrotic syndrome. On admission, her weight was 9.47 kg (wet weight). She was afebrile with RR of 22, HR-120 and BP of 86/47. She was an irritable baby with an edematous-looking face. She had periorbital swelling and subcutaneous edema of the extremities. Her hair was dry, lusterless, reddish-yellow in color, and she had a protuberant abdomen. The liver edge was palpable about 2-3 cm below the right costal margin. Her skin was dry, with multiple patchy, irregular, and darkish dermatitis on the nape and on the flexor surfaces of both upper and lower extremities. Some areas on the neck and trunk also showed desquamated hypopigmented centers.

Diagnostic Focus and Assessment

Laboratory abnormalities included evidence of iron-deficiency anemia with elevated red cell distribution width (RDW), decreased total protein, albumin and pre-albumin levels, mildly elevated hepatic transaminase level, low C3, and mildly elevated C4 levels. Serum values of WBC, BSR, creatinine, sodium, potassium, chloride, bicarbonate, calcium, bilirubin, ALT, ESR, and TSH were within reference limits. The streptozyme test, which measures 5 different streptococcal antibodies, was negative. Her cholesterol was normal. The spot urine protein/creatinine ratio was <0.3 and urine analysis was unremarkable. The urine analysis showed a specific gravity of <=1.005 and was negative for proteinuria.

Laboratory parameters are shown in Table 1.

A renal-bladder ultrasound obtained on admission demonstrated normal-appearing kidneys and minimal amount of fluid within the bladder.

The initial diagnosis of possible Nephrotic Syndrome based on findings of anasarca (edematous face and extremities), hypoalbuminemia, and low C3 levels was ruled out when results of her urine analysis showed absence of proteinuria, normal serum levels of cholesterol and triglycerides.

Therapeutic Focus and Outcome

The presentation of a child with a history of feeding difficulty and a restricted diet, findings of anasarca, the associated rash—the so-called “flaky paint sign,” and the supporting laboratory parameters (microcytic anemia, low total protein, serum albumin and pre-albumin levels) met criteria for a diagnosis of kwashiorkor.
On admission, she was given some intravenous fluids because of her decreased appetite, nausea, history of decreased frequency in urination, BP of 86/47 and borderline tachycardia (120). Intravenous ceftriaxone was empirically started, and ondansetron was given for symptoms of nausea. Hydroxyzine and moisturizers (Aquaphor) were given for her eczema. Ceftriaxone was discontinued after 48 hours of negative cultures. A nutritionist was put on board and the patient was started on total parenteral nutrition (TPN). Her diet initially was given by gavage feeding consisting of Elecare (an amino-acid based formula for infants who cannot tolerate intact or hydrolyzed protein) with an intake of 100-120 cal/kg/day initially (with a diet goal to approach 175 kcal/kg and 3-4 g/kg of protein) as supervised by the hospital nutritionist. By day 3 of hospitalization, her appetite improved, and the patient’s generalized edema had decreased. Gavage feeding was discontinued and by day 6, her pre-albumin levels had risen to 12.9 mg/dL (<5 mg/dL on admission, reference range: 17-40 mg/dL). By day 8 of hospitalization, she was playful and interactive, and the flaky dermatoses were starting to peel off. The nutritionist added that she was taking chicken and pork with her meals. The patient was discharged in good physical condition on day 12 with instructions to follow-up with a pediatric gastroenterologist, nutritionist, and her general pediatrician. At discharge, the patient’s weight had increased to 9.660 kg (from the admitting weight of 9.415 kg). Subsequent review of her growth charts with her primary pediatrician showed that her weight began to trend upwards post discharge. At diagnosis, the patient was at the 15th percentile in weight. After adhering to the post-diagnosis treatment regimen, she reached the 30th percentile at 2 years of age. The patient continued to grow well, reaching 50th percentile in weight and 55th percentile in height by 5 years of age.

Discussion

Kwashiorkor is a type of edematous protein-energy malnutrition. The disease tends to occur in infants and young children in poverty-stricken regions worldwide. The etiology of the disease is debated but the most accepted theory is that kwashiorkor results from a diet with inadequate protein in the setting of sufficient calorie intake. In the US, malnutrition was a significant children’s health issue in the twentieth century. Public health authorities focused their efforts on implementing policies to ensure food security for children. Consequently, cases of kwashiorkor in the US have been rare and have been reported due to nutritional ignorance rather than food deprivation. Liu et al. in 2001 described a case series of 12 infants presenting with kwashiorkor. The patients ranged in age from 1 to 22 months (mean age of 7.5 months). One patient was born prematurely at 27 weeks and had a history of asthma and developmental delay, two patients had a past medical history of atopic dermatitis, and none of the patients had any history of serious chronic illness. Half of the cases resulted from a perceived intolerance of formula or milk and subsequent deviation from a standard diet. Other contributing factors included financial and social stressors, parental nutritional ignorance, and poor feeding skills. Our patient presented with vomiting and diarrhea that was perceived to be a manifestation of cow’s milk protein sensitivity. The patient tolerated Alimentum, a hypoallergenic formula in which milk proteins are broken down (predigested proteins). However, the patient was subsequently diagnosed with an allergy to cow’s milk, eggs, beans, yogurt, and cheese and was placed on a diet of rice cream and simple carbohydrates such as rice, noodles, and pasta. Furthermore, the mother commented that the patient rarely ate meat products. These substitute diets deficient in protein most likely contributed to the development of kwashiorkor in this patient.

In kwashiorkor, protein malnutrition leads to decreased synthesis of visceral proteins such as albumin. The hypoalbuminemia leads to a more maladaptive state characterized by edema. Edema was the salient feature seen in our patient. She presented with an edematous face and extremities, along with a protuberant abdomen. The protuberant abdomen is attributed to ascites from hypoalbuminemia and hepatomegaly from fatty liver infiltrates. Additional features of the disease observed in our patient were dull and brittle hair, skin with areas of hypopigmentation and an exfoliative rash described as “flaky paint dermatoses.” Laboratory abnormalities commonly noted with kwashiorkor and present in our patient included microcytic anemia, low total protein, serum albumin and pre-albumin levels.

The patient’s diagnosis was confirmed through a holistic review of the dietetic history indicating protein restrictions, clinical presentation of edema and characteristic dermatoses, and the laboratory studies showing hypoalbuminemia. Once the diagnosis was confirmed, our patient was treated with TPN and gavage feeding consisting of Elecare (a hypoallergenic amino acid-based formula). The key to re-alimentation as was done in the patient was the gradual introduction of feeds. Patients who are refed too rapidly may develop refeeding syndrome (features include fluid-balance abnormalities, abnormal glucose metabolism, and electrolyte disorders that mainly involve phosphate, potassium, and magnesium). While refeeding syndrome is correctable, it is associated with high morbidity and mortality. In our patient, the reintroduction of feeds began with an initial 100 kcal/kg/day, increased to the diet goal of 175 kcal/kg/day and 3-4 g/kg of protein. By day 6-8, our patient’s pre-albumin levels had normalized. Her flaky dermatoses started peeling off as well.

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The outlook for patients with kwashiorkor is dependent on the stage of the disease at the time of treatment. Treatment early in the course of the disease provides good recovery as was seen on this patient on follow-up with her primary pediatrician. Delays in treatment can lead to complications including endocrinopathies, immunodeficiencies, gastrointestinal tract atrophy, cardiovascular collapse, impaired respiratory drive, and neurodevelopmental delays. The disease can be fatal if left untreated and death results primarily from infection, sepsis, dehydration, electrolyte imbalances, and heart failure.9,15

Conclusion

Kwashiorkor is a critical disease most often associated with extreme poverty in developing countries. However, rare cases of kwashiorkor have been documented in the developed world, as evidenced by the case reported herein and our review of the literature. In the US, kwashiorkor should be considered, particularly in patients who were put on a restricted diet imposed by “well-intending” parents due to concern for adverse reactions to certain foods, milk formula intolerance, food allergies or food faddism.4 Furthermore, clinicians should take a thorough dietary history and familiarize themselves with the typical physical findings. Equally important, management of kwashiorkor relies on an interdisciplinary team of clinicians and dieticians who can educate the parents on the nutrient composition of food and beverages consumed by their children. Lastly, it is encouraged to follow-up with patients because recurrence can occur.

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References

As pediatricians, like all persons, we have many reasons for how we vote. We all have our views, biases, and priorities that will be reflected in our voting behavior. Undoubtedly, however, one of the primary motivators is our concern on how it will impact our patients and their families. We understand that children are our future and how we elect to administer our resources, broadly speaking, will have profound effects, not only on the children we help to care for now, but also their children, i.e. future generations. With this priority, one of the most important determinants of how we vote is our concern about the state of the environment we are leaving behind for our children. With all the talk of re-building our infrastructure, we need to remember that our environment is the “ultimate” infrastructure that sustains life.

Environmental issues are coming to the forefront rather quickly. We only have to look at the over 3 million scorched acres in the west coast, the erratic weather patterns, and of course, the ever record-breaking year after year increase in air and ocean temperatures. The problems arising out of these disturbances lie not just down the road in some vague, out of focus future, but NOW. We have a pandemic where we are told that it is safer to be outdoors, but ironically throughout parts of western US people are now being told to stay indoors due to the poor air quality.

Looking up today (September 16th) the sun appears more like the moon due to haze—in New Jersey—from the smoke that has crossed the continent. At Zoom meetings international colleagues from areas that never used air conditioning (Tokyo, London) are now complaining that they need it now.

Pediatricians are especially aware of the effects of air quality on asthma exacerbations. We understand that the increased surface area to mass ratio increases the effects of heat on young children. We are still learning about the long-term effects of toxic stress on the developing brain, some of which will occur from dislocations and loss of homes due to the far more frequent weather-related events. We know that these environmental-related problems are even more acute in certain locales; e.g., lead from old pipes and high PM 2.5 in inner cities. These issues preferentially affect persons of color or low income due to their location, the same population that is least able to buffer the ill effects due to disparities in healthcare.

In these politically distraught times, many of us are loath to speak to our neighbors, friends, or even our family members about voting choices. However, it should be possible to remind patients and families that their health is directly impacted by governmental policies, both at the state and federal levels. If nothing else, even a small sign in the waiting room, “Vote like your children’s lives depend on it” should not be considered out of bounds. People will often act out of concern for their children more than any other reason!
Let’s be healthy together

You’ve taken every precaution for your children, and so have we.

The Bristol-Myers Squibb Children’s Hospital at Robert Wood Johnson University Hospital
866.66.BMSCH

Children’s Hospital of New Jersey at Newark Beth Israel Medical Center
973.926.7280

Children’s Specialized Hospital
888.CHILDRENS

Matthew J. Morahan III Health Assessment Center for Athletes
973.322.7913

The Unterberg Children’s Hospital at Monmouth Medical Center
732.923.7250

rwjbh.org
As we write this article, the Legislature is about to pass a $32.7 billion nine-month state budget bill. The budget has a surplus of $2.5 billion and calls for $4.5 billion in borrowing, slightly more than the $4 million in borrowing the Governor sought.

NJAAP’s top priority in this budget was restoring funding for the New Jersey Child Collaborative Mental Health Care Pilot Program. This program was included in Governor Murphy’s revised budget at a reduced level of $2 million. NJAAP spearheaded an impressive grass roots effort to persuade the Legislature to restore the $1.765 million that is necessary to keep the program operating at last year’s level. We are pleased to report the success of that effort. The budget, as passed by the Legislature contains $3.75 million in funding for the Child Collaborative Mental Health Care Pilot Program. The Legislature also restored $15 million in funding for the School Linked Services Program which provides funding to school districts for mental health services for students, the After School Reading Initiative, the After School Start-Up Fund and School Health Clinics.

Governor Murphy is expected to sign the budget by October 1, 2020.

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 and now awaits Senate action. As amended, the bill provides that the screening is to be proctored and conducted electronically via a computer within a school building. All districts must utilize the same screening tool that has been validated to screen depression in adolescents as determined by the Department of Children and Families. The screenings must be conducted in a manner that permits real time evaluation of the results and same day intervention by a licensed mental health professional. A superintendent, or a superintendent’s designee must inform a parent or guardian of an abnormal depression screening result and advise the parent or guardian to seek the care of a health care professional to obtain further evaluation and diagnosis.

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, is expected to pass the Assembly. The bill provides that coverage may not be denied solely on the basis that the screening is provided in conjunction with another health care evaluation, treatment or service. Finally, the bill provides that the benefits are to be provided to the same extent as for any other condition under the contract or policy, except that the insurer may not impose any form of cost sharing, including, but not limited to copayments, deductibles or coinsurance.

Finally, we may see movement in October, on A4576 and S2907, sponsored by Assemblyman Conaway and Senator Vitale. 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.

Beginning with the 2020-2021 school year:

1) a principal, director, or other person in charge of a public or private school in this State will be prohibited from knowingly admitting or retaining in grades K through 12 a child whose parent or guardian has not submitted acceptable evidence, by December 31 of the relevant school year, showing that the child has received an annual vaccination for influenza;

2) an executive director, administrator, or other person in charge of a preschool or child care center will be prohibited from knowingly admitting or retaining in the preschool or child care center a child whose parent or guardian has not submitted acceptable evidence, by December 31 of the relevant school year, showing that the child has received an annual vaccination for influenza; and

3) an administrator or other person in charge of an institution of higher education in this State will be prohibited from knowingly admitting or retaining a student who has not submitted acceptable evidence, by December 31 of the relevant school year, showing that the student has received an annual vaccination for influenza.

Consistent with existing laws pertaining to the mandatory vaccination of children and students, the bill would provide that a child or student will be exempt from the bill’s vaccination requirements if:

1) a written statement is submitted to the K–12 school, preschool, child care center, or institution of higher education by a licensed physician indicating that the vaccine is medically contraindicated for a specific period of time and the reasons for the medical contraindication, which are to be valid medical reasons as determined by regulation of the commissioner. Such statement will exempt the child or student from the vaccination for the period of time stated therein; or

2) a written statement is submitted to the K–12 school, preschool, or child care center by the child’s or student’s parent or guardian, if the child or student is a minor, or by the student, if the student is 18 years of age or older, explaining how the administration of the vaccine conflicts with the bona fide religious tenets or practices of the child or student, or of the parent or guardian, as the case may be, except that a general philosophical or moral objection to the vaccination will not be sufficient for an exemption to be granted on religious grounds.
Pediatricians have seen document demands and audits increase drastically over the years from private payors and Medicaid Managed Care Organizations alike. It is therefore no surprise that the most frequently audited codes are those that are used most frequently and that reimburse the highest amount.

**Developmental Testing (CPT 96110)**

Pediatricians routinely conduct developmental testing as part of well-visits, a practice that is promoted by healthcare organizations and insurers alike as the benefits of early intervention are significant. While payors understand the value of developmental testing, they have also discovered through considerable audits of pediatricians in New Jersey that there are vulnerabilities in pediatricians’ medical records that leave them exposed to significant overpayment demands.

**A. Frequency of Testing**

Some payors, like Horizon New Jersey Health (“HNJH”) have policies available online that will detail the intervals/well-visits when they expect developmental testing to be carried out. If the developmental testing is performed at every well-visit, then carriers flag those providers as “outliers” and frequently conduct audits based on allegations of overuse of developmental testing.

Payors will frequently argue that there is a fundamental difference between a developmental test, which requires formal observation, testing, Q&A with the parent/child, etc. and a developmental screening, which is incorporated as part of the well-visit evaluation and management code.

**B. Denver Test**

Practices who use the Denver II Developmental Test are at a heightened risk of overpayment demands if audited. HNJH, the Medicaid Fraud Division, UnitedHealthcare and other carriers have expressed during audits that they consider the Denver II test to be obsolete. While its use will not result in a de facto overpayment demand, auditors have fine-tuned their attacks on the Denver II test and have identified multiple areas of weakness in the documentation of it.

The first step an auditor will take in reviewing a Denver II developmental test is to determine if the provider submitted the accompanying Denver II Form. Many providers have electronic medical records (“EMR”), some of which incorporate all of the questions and areas tested in the Denver II into the EMR. However, if the practice did not keep the actual form from the Denver II performed on the date of service (or scan it into the system), the service will be denied, and an overpayment demand generated.

Similarly, if the practice does not have a separate Denver II Form for each date of service it performs the test, some payors will state that it is an improper use of the form and attempt to seek recoupment based on same. Likewise, seemingly innocuous oversights like failure to date or sign the Denver II Form can lead to overpayment demands.

As pediatricians use developmental testing frequently, payors are focusing on this code and narrowing their sights on high volume users.

While frequent developmental testing is appropriate, and medically necessary many times, failure to properly document it can leave a practice with serious risk.

**HNJH New Policy on Allergy Testing**

On March 15, 2020, HNJH updated its Allergy Services policy with an effective date of May 1, 2020 – although the effective date has been pushed back due to the timing with COVID-19. Although not official yet, it is anticipated that Horizon Blue Cross and Blue Shield of New Jersey (“HBCBS”) will employ a similar policy in the near future as well.

The new policy states, in part:

**Allergy Testing Limitations: CPT 95004 is only eligible for reimbursement … when performed by Allergists, Immunologists or Otolaryngologists or their nurse practitioners or physician assistants …**

Based on the foregoing, pediatricians can no longer bill for allergy testing to HNJH, unless also a specialist in the areas of Allergy, Immunology, or Otolaryngology. Continued billing of allergy testing, considering this policy, will not only lead to no reimbursements but also likely flag your practice for an audit.

Please note this policy is not retrospective, so if you are audited for allergy testing services provided prior to the effective date of the policy, contact your healthcare attorney or medical malpractice company immediately to defend against the audit.
Our vision for the future of New Jersey is one where we use less energy and the energy is cleaner, more reliable, more resilient and affordable.
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We make things work for you.

PSEG
We make things work for you.

Our vision for the future of New Jersey is one where we use less energy and the energy is cleaner, more reliable, more resilient and affordable.

POWERING PROGRESS
EMPOWERING PEOPLE > POWERING LIFE
Addressing Racism and Implicit Bias in the Pediatric Practice

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Abstract:

Both systemic racism and individual acts of racial discrimination significantly affect the health of children and adolescents in the United States. Racism is an adverse childhood experience and, independent of other factors, has been associated with both short and long term negative health sequelae. Racism and bias can affect pediatric medical management and outcomes, as healthcare is a microcosm of larger society. Medical providers have demonstrated implicit bias in practice, despite best efforts to practice medicine without prejudice. Addressing these issues will require us all to examine our own implicit biases in a sustained and thorough manner. Implementing programs for students and trainees is necessary to address racism in medicine. Further, advocacy on the state and federal level is of paramount importance. Through screening, intervention, and education, pediatric providers can support patients and affect change in the face of individual and systemic racism.

Definition of the problem:

Racism can be found in all facets of American society, with significant and devastating effects on children and adolescents of all races, ethnicities, and identities. According to the American Public Health Association, “Racism structures opportunity and assigns value based on how a person looks.”\(^1\) It is associated with health inequities and has profound effects on the physical and psychological health of children and adolescents. Furthermore, racism harms all children—those who experience prejudice and those who participate in or witness racist acts. It also negatively affects those who benefit from systemic and implicit racism.\(^2\) Systemic racism or institutional racism is a form of racism that is embedded as normal practice within a society or organization. Pediatricians play a vital role in recognizing and mitigating the effects of racism. It is imperative that we aim to identify and uproot the beliefs and practices that lead to widespread racial inequities in medicine.

Although not included in initial studies about adverse childhood experiences (ACEs), racism has been shown to be an ACE in multiple subsequent studies.\(^2-4\) It is well known that ACEs affect neuroanatomy and cause sustained activation of the stress response system, which in turn affect learning, behavior, and overall health both in the short and long term.\(^5,6\) There are multiple examples of how racism affects the health of pediatric patients. For instance, racial bias has been shown to affect birth weight outcomes in black infants, independent of other factors.\(^7\) Racism has also been linked to negative health outcomes, including behavioral and mental health sequelae.\(^8-11\) To mitigate these effects, we need to include ACEs education in medical school and residency and continue to identify effective interventions to promote resilience to children who experience ACEs. Health Outcomes of Positive Experience (HOPE), a framework put forth to promote childhood resilience, is an example of an effort to use empirical data to counteract the effects of ACEs with a variety of strategies that promote resilience in children.\(^12\)

Why now?

Recent events have forced us to examine the presence of racism in various systems. For example, racial bias in the criminal justice system—specifically with police violence and incarceration of black youth—is a pressing public health issue.\(^13-15\) Inequities in education—a system vital to the development, learning, and growth of children must also be examined for sources of and solutions to institutional and individual racism. For example, black students are far more likely to be suspended than their white and Hispanic counterparts, as early as in preschool and kindergarten.\(^2\) Although the drivers for these disparities are complex and not limited to racial bias, inequality needs to be addressed and ameliorated. Each system must be examined to identify and acknowledge these issues and take bold steps to make individual and systemic changes.
Racism and the medical system:

Similarly, we must look at the medical system to identify and root out sources of systemic racism that may affect the health and well-being of our patients. Every individual has a set of implicit biases, defined as attitudes or stereotypes that impact understanding, actions, and decisions in an unconscious manner. These biases at times can be involuntary, formed early in life and are often so engrained that we fail to notice them unless we actively look for them. However, these biases are very real and have wide-ranging effects.

In medical school, we are taught about genomic medicine and epigenetics; we learn how individuals with different racial, ethnic, and sex identities have myriad disease profiles and reactions to medications, dependent on their genetics. We are also taught that specific diseases have higher incidences in particular populations, including those defined by race and ethnicity. Identifying individuals and their risk factors is part of the practice of medicine. For instance, it is commonly understood that sickle cell anemia and sarcoidosis have higher incidences in African-American populations while cystic fibrosis is higher in Caucasians. However, implicit bias can affect our ability to accurately identify risk factors for certain disease states or social behavior with specific populations in mind.

A systematic review by FitzGerald and Hurst noted that healthcare providers exhibit the same levels of implicit biases as the general populations. For instance, a 2014 study demonstrated that medical providers were less likely to identify black patients as being “medically cooperative” as opposed to their white counterparts. Another study demonstrated that physicians were more likely to associate African American identity with substance use disorders. The preconceived notions that we have toward our patients have the potential to negatively impact our interactions and treatment decisions, and often do. FitzGerald and Hurst found that all studies that investigated correlations found a significant relationship between level of implicit bias and lower quality of care.

Racial bias and health disparities in pediatrics:

Studies have shown that pediatric providers are not immune to implicit bias. The Implicit Association Test (IAT) is a tool which has been validated and used in numerous studies to measure implicit racial bias. This tool measures the strength of associations between concepts (for instance, race) and evaluations (good vs. bad). Using this tool, research has shown that the general American population has an implicit anti-black bias. These studies not only demonstrate the similarity between the biases of the general population and medical providers, but also that pediatricians are among those who have implicit racial bias. Further, a 2018 study demonstrated that black children experience racial bias at the same level as black adults.

There is a growing body of evidence demonstrating the existence of racial disparities in medical management and outcomes in pediatrics. A 2014 study demonstrated there were marked disparities in the type of insulin treatment methods used between black, Hispanic, and white children with black children having significantly decreased use of insulin pumps and having higher mean hemoglobin A1c. Another study demonstrated that black children presenting with long bone fractures were less likely than white children to receive opioid analgesics or achieve optimal pain reduction. A third study demonstrated that, without use of an electronic medical record alert system, black children were less likely to be treated for sepsis. While there may be several factors to consider to explain these inequities, the role of implicit racial bias cannot be ignored.

Highlighting disparities in both the medical and legal systems, black families are more likely to be investigated and reported to Child Protective Services. A 1985 study by Hampton and Newberger which examined hospitals’ child maltreatment reporting practices found that hospital personnel were more likely to make a report when the children were African American. More recent studies have shown that minority children are more likely to be evaluated and reported for suspected abuse when undergoing treatment for fractures or traumatic brain injury. Racial bias has been shown to affect the evaluation for and diagnosis of abusive head trauma. Further, socioeconomic status similarly influences the diagnosis of abusive head trauma. In California, a 6 year longitudinal study demonstrated that African American children reported to CPS and removed from their homes were less likely to be reunited with their families or to be adopted.

Racial bias and health disparities, present in pediatric medicine in myriad ways, affect the health and wellbeing of children and their families. It is important that we directly and proactively address these issues.

Recommendations for change:

There are many starting points for pediatric providers to mitigate the effects of racial bias. One of the best is to examine our own unconscious biases and to consciously work against them. Many tools exist to help us identify where our biases lie and are readily available online, including the IAT. Additionally, we can hold each other accountable by incorporating open discussions and encouraging each other to examine our own biases into formal medical education, our clinical offices, and home environments.

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Creating welcoming and proactively culturally empowering offices is of paramount importance. Offices should have books and toys featuring an array of characters with varying races, ethnicities, skin tones, gender identities, sexual orientations, and abilities. Often, the toys and books identified as “diverse” by mainstream society focus only on pivotal historical events (for example, slavery or the civil rights movement) or people (such as Rosa Parks or Harriet Tubman). Although this is important, children need to be able to recognize themselves in everyday, mundane books and toys. Our waiting rooms can set the stage to let patients know that they are welcomed and respected.

In the examination room, we must be ready to discuss the effects of racism with our families. We encounter children who have experienced racism every day, and we have the opportunity to screen for and to provide anticipatory guidance which acknowledges and supports those who are experiencing racism. We can acknowledge all forms of racism and differentiate it from other forms of unfair treatment.

Additionally, our offices can engage in anti-racist policies. We should support staff members and ensure that there are appropriate structures in place to enable professional advancement and leadership. It is important that we support the development of a diverse pediatric workforce—this entails examining our own individual biases, considering the cost of medical training, and specifically supporting medical students of color as they ascend the stratifications in medical education. The general pediatrician, the subspecialist, and the academician must work together to identify barriers to accessing medical and mental health services for all pediatric patients and especially for children of color and their families. Pediatricians need to be part of specific multidisciplinary teams in our office and hospital settings that focus on decreasing health disparities, increasing equity in medicine, and recognizing and mitigating bias in medicine.

As advocates for our pediatric patients and their families, it is up to us to stand against institutionalized racism, which make it difficult for children to thrive. We should advocate for and support policy changes which combat educational inequality and wage disparities, promote housing opportunities, and address issues of poverty and food insecurity. As medical providers, we see first-hand the implications of health disparities and the effects on the children who will shape our future. Let us not be part of the problem, but instead part of the solution by examining ourselves, changing our immediate clinical environments and advocating for policy change.

**CITATIONS:**


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Cultural Sensitivities and Pediatric Asthma Health Beliefs

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ABSTRACT

INTRODUCTION: The effectiveness of asthma management in children is influenced by sociocultural factors, especially in minority populations.

METHODS: This study evaluated asthma health beliefs in South Asian (SA) and Hispanic families of children up to 18 years of age. A 50-item questionnaire assessing demographics and asthma knowledge was administered at 2 clinics.

RESULTS: Sixty-six participants were included in the analysis. Forty-three percent of participants reported using home remedies for asthma management, similar in SA (21.21%) and Hispanics (22.73%). Sixty-one percent of SA felt providers understood their home remedy use, unlike 16% among Hispanics (p = .001). Almost 39% of SA preferred home remedies instead of allopathic medications, in contrast to 4% of Hispanics (p = .02).

CONCLUSION: Use of home remedies is similarly prevalent in both SA and Hispanic families in this sample; however, only SA felt comfortable discussing it with their providers. Providers should exercise culturally sensitive approaches when interviewing asthmatics regarding their home remedy use.

Keywords: asthma, patient centered care, minority health, Complementary Alternative Medicine

Introduction

The United States demographics are evolving and cultural competency is an important part of providing appropriate care. Cultural care observes the health beliefs behind an illness and how that belief system impacts treatment and care. Asthma is a common pediatric illness with a heavy burden of disease that includes preventable mortality, hospitalizations and high financial cost. The effectiveness of asthma management in children is frequently influenced by social and cultural influences, asthma health beliefs and level of parental education. Both Hispanic and South Asian (SA) populations are a subset of pediatric asthma populations and have different cultural components that influence their asthma management. In addition, SA and Hispanic populations often employ the use of complementary or alternative medicine (CAM), specifically home remedies, to supplement their allopathic care. Research has shown 72% of Hispanic families with asthma use home remedies as a preventative measure. Children and adolescents are more likely to use CAM if they are also prescribed other medications, have a parent who uses CAM, or have a chronic disease. Examples of home remedies include diet restrictions, Ayurvedic and homeopathic medicines, breathing exercises, teas, ginger, honey, spices such as turmeric, and herbs such as oregano. Additionally, those who use home remedies show a reluctance to disclose this information with providers. Families that live in multigenerational homes might also use home remedies because of pressures from elders and in-laws. Families learn about CAM use through friends, relatives, the media, and sometimes physicians.

Conceptual Framework

Since cultural factors can impact health outcomes, it is important to acknowledge the use of home remedies in pediatric asthma care to effectively treat the populations that use them. It is also important to assess whether the use of home remedies is in conjunction with their prescribed asthma medications. Our hypothesis is that both Hispanic and SA children employ home remedies specifically for the treatment of their asthma. Our aim was to assess how similar home remedy use is in both populations and their willingness to disclose this information to providers. We also hypothesized that number of people living in the home is an effect measure modifier on the relationship between race and home remedy use. This is because the number of people living in the home was used as a proxy for multigenerational families, who could potentially influence asthma management.

METHODS

Participants/Data Collection

This study utilized a cross-sectional design to assess asthma health beliefs in Hispanic and SA families of children up to 18 years of age. Subjects were recruited at 2 clinics: a University based pulmonary clinic and a private allergy and immunology clinic, both in Middlesex County, New Jersey. Middlesex County has a population of 837,073 people with 24.1% Asian residents and 20.7% Hispanic residents with a median income of $82,375. The participants were parents of children with asthma who consented and completed a confidential questionnaire concerning asthma knowledge and demographic information in English or Spanish. Participants were asked to participate if they were of SA or Hispanic descent on their intake forms. Participants completed the questionnaire while waiting to complete pulmonary function tests prior to meeting their doctor.
Measures

The self-administered questionnaire consisted of 50 questions in true false or Likert scale format assessing asthma knowledge and home remedy use. Questions about home remedy use included the type of home remedies used, whether home remedies were used with or instead of asthma medications, and disclosure and understanding of home remedy use by their child’s physician. Demographic information included indirect SES information like zip code, parental occupation, parental level of education, and the number of people currently living in the home.

Analysis

The questionnaire responses were then coded and analyzed using a chi-square analysis using SAS on Demand software. We created a logistic regression model to assess the interaction term for number of people living in the home to assess if it is a true effect measure modifier of the home remedy and race relationship. We ran t-tests to determine if demographics differed between clinic sites and between populations. The Rutgers IRB approved the study and modifications.

Results

Sixty-eight participants completed the survey, but only 66 questionnaires (33 Hispanic and 33 SA) were included in the analysis. One was excluded because they did not completely answer the survey and the other was excluded because they believed their child did not have asthma. The participants were 60.7% female (n=40) and 39.3% male (n=26). The majority of participants recruited from the Allergy clinic were SA (19/20), while the majority from the University clinic were Hispanic participants (32/46). The age of SA subjects was 10.2± 4.3 years (mean± S.D.) and 8.5 ±4 in Hispanic children and the age of the parents ranged from 25-51. Median income was above the national average for SA versus below for Hispanics, with zip codes used as a surrogate for median income (t=4.56, p<.0001).

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Highest level of education achieved differed significantly between the two groups with SA mother and fathers reported as completed college versus completed high school for Hispanics (Maternal education F<sub>.50</sub>=39.39, p<.0001, Paternal education F<sub>.50</sub>=27.76, p<.0001 ). Occupation was reported as professional or unemployed for SA parents versus factory workers, small business employee or unemployed for Hispanic parents. Eighteen percent of parents also had a diagnosis of asthma; significantly higher rates were reported in Hispanics than SA (p=.001). Duration of asthma symptoms was reported as 1-2 years in subjects seen at the Allergy office versus 3-5 years in those seen at the University based clinic (t=1.93, p=.05). Duration of asthma was not shown to impact home remedy use (Wald X<sup>2</sup>=.23, df=1, p=.63). Forty-three percent of total participants reported using home remedies for asthma management with similar rates in SA (21.21%) and Hispanics (22.73%) (X<sup>2</sup>=.0615, df=1, p=.80). Twelve percent of participants used a combination of home remedies such as garlic and spices while other used herbal remedies (4%) or spices (4%) alone. Written-in answers for the other option included avoiding windy areas, cinnamon tea and one participant wrote in albuterol as a home remedy. Sixty-one percent of SA felt that their provider understood their home remedy use, which was significantly different from the 16% of Hispanics (p=.001). Sixty-one percent of SA would be willing to speak to their provider about their home remedy use versus 48% of Hispanics (X<sup>2</sup>=.9435 p=.33). Ninety-six percent of SA participants agreed that all of their asthma medications were essential versus 84% of Hispanic participants (p=.19). Thirty eight and a half percent of the SA participants believed that home remedies were better for their asthma than allopathic medicine as compared to 16% of Hispanic participants (p=.12). Almost 39% of SA preferred home remedies instead of their asthma medications, in contrast to 4% in Hispanic participants (p=.02). Finally, number of persons living in home ranged from 2-9 people but was not found to be a significant modifier of home remedy use and was not significantly different between groups (Wald X<sup>2</sup>=1.206, p=.27).

Table 1 below illustrates the study’s demographics.

Table 1. Demographics

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<th>Measures</th>
<th>Hispanic</th>
<th>South Asian</th>
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<th>University</th>
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<td>33</td>
<td></td>
<td>20</td>
<td>46</td>
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<td>Child Age M(SD)</td>
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<td>10.20 (4.32)</td>
<td>.10</td>
<td>10.28 (4.95)</td>
<td>8.94 (4.05)</td>
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<tr>
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<td>Professional</td>
<td></td>
<td>Professional</td>
<td>Unemployed</td>
<td></td>
</tr>
<tr>
<td>Father Occupation</td>
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<td>Professional</td>
<td></td>
<td>Professional</td>
<td>Other</td>
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<tr>
<td>Median Income</td>
<td>Below National Average</td>
<td>Above National Average</td>
<td>&lt;.0001</td>
<td>Above National Average</td>
<td>Below National Average</td>
<td>&lt;.0001</td>
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<tr>
<td>Mother Education</td>
<td>Completed High school</td>
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<td>&lt;.0001</td>
<td>Completed College</td>
<td>Completed High School</td>
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<tr>
<td>Father Education</td>
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<td>Completed College</td>
<td>&lt;.0001</td>
<td>Completed College</td>
<td>Completed High School</td>
<td></td>
</tr>
<tr>
<td>Duration of Asthma</td>
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<td>3-5 years</td>
<td>.11</td>
<td>1-2 years</td>
<td>3-5 years</td>
<td>.05</td>
</tr>
</tbody>
</table>

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Discussion

In this small cross sectional sample, we found that SA and Hispanic populations have similar usage of home remedies. Interestingly, SA participants were not only more likely to speak to their provider about home remedy use, but felt that their provider understood why they were using home remedies. This is confluent with research that the expectation of provider disapproval makes patients less likely to discuss CAM use with a provider.13 However, the researchers and providers were also SA, which may have influenced the comfort level of participants. Research has shown that Hispanics have lower patient-provider communication satisfaction, but that it may be due to English ability rather than race discordant providers.15,14 Although we did assess asthma knowledge, research has shown that low parental health literacy would lead to worse outcomes in children and not well controlled asthma.15 In our study, asking participants if they preferred home remedies instead of asthma medications indirectly assessed compliance. Although both populations used home remedies, SA families significantly preferred home remedies instead of their asthma medications, unlike Hispanic families. A UK study hypothesized that doctor/patient interaction and lack of involvement in self-management plans may contribute to the worse asthma outcomes experienced by SA.17 It is important for providers to understand their patients’ reluctance to use allopathic medicine and provide education concerning compliance with asthma medications. Our study found that difference in education level or occupation did not impact CAM use, which is consistent with previous research.10 Additionally, the number of people living in the home was not found to be an effect measure modifier of home remedy use. Number in home was used as a proxy for multigenerational families; we did not assess directly if families lived in multigenerational households. Although it was believed that external pressure from family members might influence CAM use, this study’s small population did not support that statement. This could also be because familial pressure does not occur only if they are living together. Future studies could assess the impact of multigenerational families on asthma management and also assess the impact of religion on home remedy use. A limitation of home remedy use research is that it is unclear what beliefs have an impact on morbidity.16 Interestingly, recent research has found that home remedy use has shown a decrease in hospitalizations for asthma patients, especially in Hispanic populations.4 Future research would need to look further into the implications of how home remedy use can decrease the high burden of disease in asthma. Future studies would also need to properly assess asthma morbidity specifically SA children, given that our study found a high percentage of families believe that home remedies should be used instead of allopathic asthma treatment. There are multiple limitations to this study, the primary being sample size. Additionally the survey was long, so participants may have felt fatigued while completing it. Another limitation is the questionnaire is a self-reported survey and participants may not have felt comfortable sharing this information at their doctor’s office, even though it remained a confidential questionnaire.

Conclusion

Our study found that while the use of home remedies is similar in both SA and Hispanic families, only SA felt comfortable discussing their use with providers. Providers should be comfortable talking to their asthma patients about home remedy use in ethnically diverse populations. Considering that a high percentage of SA families preferred home remedies instead of allopathic medicine, it is important for providers to assess their continued compliance with their asthma medications. Questions about home remedy use should be incorporated into a thorough health history during a patient encounter. It is important to be cognizant of cultural trends that exist, and each patient and family should have a conversation regarding medications and treatment that is unique to them.

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Cannabis Hyperemesis Syndrome in a Young Adult

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Introduction

Marijuana/Cannabis is the most commonly abused illicit drug by adolescents. Medical Marijuana is prescribed as an antiemetic to treat the nausea associated with chemotherapy and various diseases such as Amyotrophic Lateral Sclerosis, Anorexia Nervosa, Anxiety, Chronic Pain, Crohn’s Disease, Epilepsy, Intractable Seizures, and Multiple Sclerosis. Interestingly, chronic use of cannabis can cause paradoxical, persistent vomiting, Cannabinoid Hyperemesis Syndrome, which presents similarly to cyclic vomiting syndrome. Cannabinoid Hyperemesis Syndrome is under recognized and underdiagnosed in the United States. The following case serves to highlight the educational gap surrounding the increasing use of cannabis products among adolescents and the associated hyperemesis syndrome.

This is a case presentation of a 19-year old female with a history of recurrent vomiting and nausea. After evaluation in the ER and an in-depth history, a diagnosis of Cannabis Hyperemesis Syndrome was determined. Patient required IV fluids, management of nausea and vomiting, and abstinence from cannabis to abate the emesis.

This case is being presented to highlight the often overlooked symptoms attributed to other GI disorders and dehydration. The literature review shows that the incidence of CHS can be as high as 32% of young adults with history of frequent Cannabis use.

Although marijuana is commonly associated with its antiemetic properties, it is now also recognized to produce paradoxical effects on the gastrointestinal tract and central nervous system through various proposed mechanisms. These speculative mechanisms include a down-regulation of brain CB1 receptors and overstimulation of gut CB1 receptors that may slow gastric emptying.

Case Description

A 19-year old female presented to the emergency room with complaint of vomiting. The patient began vomiting during a two-hour car ride the night before and continued vomiting throughout the night. Patient reported nausea and epigastric abdominal pain. She denied fever or sick contacts. Past medical and family history is insignificant. On initial presentation, patient denied alcohol or drug use. Upon review of systems patient reports nausea and vomiting, decreased stooling and urination. She denied weight loss, diarrhea, constipation, lightheadedness or dysuria.

Physical Exam: Vital signs consisted of heart rate of 56 bpm, respiratory rate of 16 breaths/minute, blood pressure of 110/70 mmHg, temperature of 98.7°F and oxygen saturation 98% on room air. Patient is an ill-appearing, uncomfortable female. Her heart and lung exams were unremarkable. Her abdomen was soft, non-distended with decreased bowel sounds and epigastric tenderness to palpation. She had a negative Rovings’ and McBurney’s sign. Her labs including CBC, CRP, BMP, lipase, and urinalysis were initially unremarkable. The patient’s blood work including potassium level was low by the 4th day of the disease course, consistent with dehydration and intractable vomiting. CT of the abdomen was normal.

The patient was admitted to the pediatrics unit for pain, intractable vomiting, hydration, and monitoring. The differential included Acute gastroenteritis, Vestibular neuritis, Nausea and vomiting of pregnancy, GERD, Gastric outlet obstruction, Eosinophilic gastroenteritis, Cyclic Vomiting Syndrome, Cannabinoid Hyperemesis Syndrome, and Rumination Syndrome. Gastroenteritis and pregnancy were eliminated by the absence of a fever and negative urine pregnancy test.

She was prescribed Famotidine 20 mg q 12h IV, Metoclopramide 10mg/2mL IV q6hr, Ondansetron 4mg/5mL IV q4hr, and 0.9% normal saline 97mL/hr IV. The patient refused Lorazepam and Benadryl and was prescribed Haloperidol 5mg IM q 1x a day at bedtime. Her conditioned failed to improve with the medications and the vomiting persisted. Patient became NPO and gastroenterology was consulted. Patient reported minor improvement of symptoms with a hot shower and the Haloperidol. By her 2nd day of no improvement as an inpatient, a diagnosis of Cyclic Vomiting Syndrome seemed possible.

Histories and physicals were repeated with each change of staff. Patient admitted to use of marijuana and cannabis products for over five years with a recent increase to daily use. Gastroenterology made a likely diagnosis of Cannabinoid Hyperemesis Syndrome.

Esophagogastroduodenoscopy showed mild gastritis consistent with days of persistent, intractably vomiting. Patient was monitored for seven days. Hot showers were the only source of relief from abdominal pain. Discharged was on day seven and she was counseled on the likely recurrence of vomiting with repeat use of cannabis.

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Discussion

Cannabinoid Hyperemesis Syndrome is underdiagnosed in the pediatric patient population as it presents similarly to Cyclic Vomiting Syndrome. The diagnosis is made by eliciting a history of chronic marijuana and cannabis use. Authors at the Mayo Clinic proposed that essential to the clinical diagnosis is long-term cannabis use. Our patient did not initially admit to marijuana use, highlighting the difficulty in making the diagnosis when patients, especially pediatric patients, are hesitant to provide an honest history. This patient insisted on having her parents present and her parents were reluctant to leave her side throughout the course of her stay. Unsurprisingly, patients may be hesitant to admit to drug and alcohol use in the presence of their parents thus, elucidating the importance of history taking without parents present in the adolescent population.

Interestingly, Cannabis is known to have antiemetic effects. Medical Marijuana is an antiemetic treatment used to relieve the nausea and vomiting associated with chemotherapy, post operatively and even for cyclic vomiting syndrome. The mechanism behind the antiemetic effect of cannabis is unknown. The main active chemical, delta-9-tetrahydrocannabinol (THC), is hypothesized to exert a neuro modulatory effect on the chemotactic and vomiting centers in the brain. There are Endocannabinoid receptors A and B located throughout the gut and the brain. Chronic, heavy cannabis use may downregulate the endocannabinoid receptors in the brain. This may lead the patient to increase their consumption of cannabis and cause the gut receptors to override the antiemetic effect of the endocannabinoid stimulation on the brain, thereby leading to paradoxical hyperemesis.

Our case findings are consistent with the limited literature and additional cases available. The patient recovered after seven days of abstaining from cannabis. A review of literature found that upon reuse of the drug, the vomiting returned. Full recovery requires the patient to permanently cease use of cannabis.

Conclusion

According to the American Academy of Pediatrics, substance use screening questions should be asked beginning at age 12. In order to diagnose Cannabinoid Hyperemesis Syndrome (CHS) the clinician must gather a full and complete history, including the uncomfortable questions about drug and alcohol use. This requires the clinician to ask the parent to leave the room so they may elicit an honest response. One of the largest literature reviews was conducted by searching PubMed for patients with CHS over the age of 18, which produced a report of 76 cases. However, the National Institute of Health (NIH) found in 2019 that 15.2% of 8th Graders, 34% of 10th Graders and 43.7% of 12th Graders have tried Marijuana. The NIH Teen Drug Abuse survey found that the 2018-2019 increase in THC vaping is the 2nd largest one-year jump for any substance in the 45-year survey history. Therefore, to prevent excessive, unnecessary diagnostic tests from being ordered on adolescent patients with intractable vomiting, the clinicians need to ask the patients about their cannabis use. Diagnostic tests (Ultrasounds, CT, esophagogastroduodenoscopy, colonoscopies, MRI, and labs) have consistently shown to provide minimal benefit to the patient and should be ordered judiciously. These investigations are costly and contribute to a diagnosis of exclusion. The intervention that improved the patient’s symptoms in 98% of cases was hot showers and bathing. Possibly, hot bathing can be a more cost effective and safe investigative measure.

Building a good rapport and creating a safe non-judgmental space help the patient open up to their pediatrician about their chronic cannabis use. The diagnosis of CHS is not limited to adults and is likely underdiagnosed in the pediatric population. Pediatricians and clinicians need to incorporate CHS into the differential of any patient over the age of 12 presenting with cyclic, intractable vomiting.

References

As we are all aware, the onset of Coronavirus Disease 2019, COVID-19, has necessitated myriad office changes in the pediatric medical home in order to ensure the health and safety needs of patients, their families and healthcare professionals. As the CDC and AAP continue to offer guidelines, each practice has been faced with the challenge of adopting these guidelines in the context of their particular patients’ needs. We, at Hackensack Meridian Medical Group, have been among the many practices to have made many of these changes, which we are happy to share with our colleagues in the spirit of collaboration.

Among the first changes made in our pediatric offices was the mandated use of face masks, along with the most appropriate—and available—PPE for staff. All members of the practice were trained on appropriate PPE use, donning and doffing equipment and disposal of possible contaminated PPE, staff was required to demonstrate proficiency in these measures. Staff was also taught to maintain appropriate physical distance and consistency in hand hygiene was reviewed and emphasized. The staff was trained on rigorous cleaning protocols using CDC approved disinfectants, and following established guidelines as set by the CDC, including the appropriate time intervals between patients in a room, particularly since not all practices have a negative pressure room.

Patient Screening and safety measures were introduced, beginning with initial screening questions presented to patients calling to arrange a sick or well visit appointment. Assessing patient and family risk factors was determined utilizing evidence-based COVID-19 screening questionnaires. Parents/guardians were also informed that only one caregiver would be physically allowed in the office, while others were permitted to participate via facetime. Siblings or other family members were also not allowed in the office unless special circumstances applied. Parents were instructed to call the office upon arrival in the parking lot. The front door was kept locked and the receptionist, while masked, would meet the parent/patient at the front door to take temperature scans, provide the parent and patient with face masks (if the patient was 2-year or older and able to safely wear a mask) and then escort the patient/parent directly into an exam room, which had already been prepped for them. The reception room was not used at all and there were designated well rooms and sick rooms. These were negative pressure if a practice had such a room, or a first room or physically separate room if one was available.

Among the biggest changes for our practice was the rapid initiation of telehealth for sick visits. IT at Hackensack Meridian quickly made the necessary changes to get the format up and running. Our institution selected a secure portal for telehealth visits and all staff were provided with training on the use of telehealth. The determination of whether a patient was to be assessed via telehealth or an in-office visit for sick visits was determined on a case by case basis by the physician. For those who were seen in the office for asthma, oral inhalers with spacers were ordered. Nebulizers were not used so as to prevent the possibility of aerosolizing any yet undiagnosed COVID19. For those not evaluated in the office, and for whom COVID-19 testing was necessary, designated local COVID 19 testing sites were arranged, which also did rapid strep and throat culture testing simultaneously. Hackensack Meridian sent out system wide text and telephone messages that informed patients and their families that we were still available for their medical needs and that telehealth was a new modality for their use and safety.

One of the greatest and earliest challenges faced by pediatric practices was to ensure that well visits and routine vaccinations continued for our patients, particularly for the most at risk infants and children 2-years old and under and among children with special healthcare needs followed later in older children and adolescents. The AAP was very clear from the onset that if well visits and vaccinations did not improve, in addition to COVID 19, we would be seeing the resurgence of vaccine preventable infections, missed or delayed diagnoses of problems in the fragile newborn period, missed or delayed diagnoses of developmental delays, and many other repercussions of not providing adequate preventative care to babies and children. Therefore, among the first changes we made was separating sick from well visits. We used mornings for well visits only, and first morning appointments for newborns. We did the majority of our sick visits via telehealth, and if the patient needed to be seen for a sick visit, they were scheduled in the afternoon only, separated from well visits temporally and spatially. Also, we increased the time period for each visit, and staggered visits between providers so that patients were not passing each other as they entered or left the practice.

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Some special considerations for well visits were also given additional attention. These included encouraging families to combine vaccinations rather than stagger them. Parents were informed that per AAP and CDC vaccine schedules, this strategy could limit the number of in-office visits required to keep their child’s vaccinations up to date. Special attention was also given to screening for social determinants since many patients and their families experienced food insecurity, and other additional stressors that could further imperil the health of children who were already at risk. Increased attention has also been given to weight and BMI percentiles along with appropriate counselling understanding that Covid19 restrictions often interfere with healthy exercise, and lead to an increase in screen time. Financial restrictions compound the challenge as it often leads to less healthy eating with decrease in fresh fruits and vegetables, which are more expensive than the cheaper carbohydrates. Furthermore, the importance of depression and anxiety screening and appropriate referrals and closer pediatric follow-up has become even more important in light of the significant increase in depression, anxiety and substance use in all ages and increases instances of child abuse during this COVID19 pandemic. The rapid institution of safe e-prescribing practices for controlled substances made in office visits non-essential for picking up prescription refills, further facilitating appropriate treatment for many patients.

Some useful links for information on COVID-19 from the NJ Department of Health, the CDC and the AAP.


https://covid19.nj.gov/


We are pleased to announce that State funding for the New Jersey Child Collaborative Mental Health Program (also known as the Pediatric Psychiatry Collaborative (PPC) and the Pediatric Collaborative, Essex HUB) has been restored and the program is saved!

Thanks to the emails that you and hundreds of other advocates sent to Governor Murphy and New Jersey State Legislators, the State has restored full funding to this critical program through June 2021.

We are so grateful for your support. Funding for the New Jersey Child Collaborative Mental Health Program is particularly important at a time when the COVID-19 pandemic is causing unprecedented stress on children that are at greater risk of anxiety, depression, and suicidal ideation.

Thank you for urging Governor Murphy and your State legislators to restore full funding to keep this program open!
“Environmental justice” (EJ) is a concept that gradually entered the public domain in the 1980s. By 1991, the First National People of Color Environmental Leadership Summit outlined “17 principles of environmental justice”, and in 1994 President Clinton issued Environmental Justice Executive Order #12898, establishing “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” This order mandated that “no group shall bear a disproportionate share of negative environmental consequences from industrial, government, or commercial policies,” and that people have the opportunity to participate in decisions, community concerns will be considered, and decision makers would seek out those potentially affected.

Like most issues of race in the US, those goals remain aspirational and substantially unfulfilled. And numerous studies have confirmed that minorities still suffer disproportionately from the health effects of climate change and environmental degradation.

A 2019 study in the journal Climate is a case in point. In the 1930s–40s, the Home Owner’s Loan Corporation (HOLC) created maps to aid banks in mortgage refinancing as an economic stimulus, focusing on urban areas across all regions of the US. The maps were color-coded as green (best), blue, yellow, or red (least desirable, hence the term “redlining”). Reference articles demonstrated that the racial distribution of those neighborhoods remains to this day. The authors of the 2019 Climate study cross-referenced those maps with satellite data to determine surface temperature, impervious surfaces (paved, more heat retention), and percentage of tree canopy of each respective area. The Landsat data confirmed that the “red” areas lag behind national averages, the “green” exceed them even today in all 3 parameters. The reasons are numerous and complex. The historically lower rating of the red areas/properties rendered them of poorer investment quality so their value underperformed, resulting in less wealth accumulation and lower tax base. The buildings tended to be built from cinderblock and other cheap, heat-retaining materials. Lower land value made it easier and cheaper to locate highway and factory projects in those neighborhoods. And, fewer tax receipts equaled less political clout, thus fewer green/tree projects dedicated to those areas.

So as that study demonstrates, the policies of the 1930s redound to the detriment of our society today. At present, Houston, Texas is now proposing new public works projects to address the risks to poorer neighborhoods, which were hit particularly hard by floods from Hurricane Harvey in 2017. Virtually all previous initiatives in Houston of this nature had gone to preserve more expensive property. On its face, that strategy makes sense—saving the more expensive buildings and land better salvages the city’s tax base, so “more bang for the buck” from a revenue standpoint. Of course, the poorer communities are largely minority and the more affluent ones are Whiter. So the problem repeats itself. Needless to say where issues of money (and race) are involved, debates and turf battles over these proposals are the rule rather than the exception.

CDC reports confirm much of this data—a disproportionate share of the 4% of US citizens living within 150 meters of a major highway are Black and Brown; 30–45% of urban dwellers live fewer than 500 meters from a highway and/or fewer than 100 meters from a major road. Researchers from the Universities of Montana and Michigan, reviewing longitudinal data in a similar way, determined that half of US inhabitants who live within 3 kilometers of hazardous waste sites are people of color. Other studies of the Texas populace found that, after controlling for population density, people of color were 1.3 times more likely than non-Hispanic Whites to live fewer than 5 kilometers from fracking facilities. Neighborhoods with greater than 80% minority composition were twice as likely to be situated near wastewater wells when compared to those with less than 20% minority composition.

However, the disparity goes deeper. The Proceedings of the National Academy of Sciences reported in 2019 on “pollution inequality” using spatially explicit economic input-output and consumption data for fine particulate matter < 2.5microns (“PM2.5”), comparing it to similar spatially explicit emissions and population health data. They determined that non-Hispanic Whites enjoy a 17% “pollution advantage”, while Blacks have a 56% and Hispanics a 63% “pollution disadvantage”. Whites live in communities that, by lifestyle, consume materials and disproportionately cause the pollution; while minorities reside in the communities that generate rather than consume those commodities. They further note that PM2.5 is responsible for 63% of environmental mortality and 3% of US deaths overall—100,000 Americans yearly.

Why does this matter? The adverse health effects to Black and Brown citizens from environmental toxins and climate change are extensive and pervasive, including:

continued on next page
1) Infant mortality—The rate for Blacks in US is 10.9 per 1,000 births, more than double the rate in Whites (4.9 per 1000). Among the established risk factors for SIDS is exposure to outdoor pollutants.

2) Low Birth Weight—Numerous studies associate low birth weight and decreasing head circumference to environmental contaminants like air pollution, pesticide exposure due to in-home vermin, and PM2.5. Recall the Flint Michigan lead crisis in 2017. State officials, trying to address revenue shortfalls for the cash-strapped city, changed the water source for the city, and we all witnessed the result. Flint is 57% Black, 37% White.

3) Asthma—Black children are twice as likely to be asthmatic compared to Whites; Black children under two years are 3 to 4 times more likely to be hospitalized for asthma than White children. Again, numerous studies tie many of the above agents as both root cause and exacerbation of the problem.

4) Neurodevelopment—the 2016 consensus statement by Project TENDR (Targeting Environmental Neuro-developmental Risks), an alliance of over 50 leading scientific, health professionals, and health advocates with expertise in chemicals and brain development, cites a long list of neurotoxins felt to play a significant role in this problem. The National Health Interview Survey indicates a higher prevalence of these disorders among Medicaid recipients and families with income below the poverty line.

5) Birth defects—The Journal of Environmental Research found a noticeable increase in a variety of cardiac and neural tube defects, as well as cleft lip/palate, among children of women living within 1,500 meters of a major highway in Massachusetts. Similar findings, confirmed by satellite data, were noted in California’s predominantly Latino San Joaquin valley. At the time of the writing of this article, the New York Times reported on a study noting that Hispanic women living within 5 kilometers of flares from oil and gas wells in South Texas had a 50% increased risk of premature and low birth weight infants. There were similar findings among inhabitants of the Marcellus Shale region in western Pennsylvania as well.

6) Preterm birth can have serious sequelae for the newborn including but not limited to significant morbidity and even death. Many studies suggest that environmental quality can directly influence birth outcomes including the length of gestation. The literature supports that there are many environmental factors that may cause or be associated with preterm birth, however, there are often more than one factor present in the environment that a pregnant person is exposed to as well as social demographics that can increase the risk of a premature birth.

7) Cardiovascular disease—the American Heart Association HeartSCORE study determined that increased exposure to PM2.5 is associated with essentially all components of heart disease. They reported that Blacks had a higher average exposure to fine particulates and black carbon air pollutants, and identified a 45% increased risk of cardiac events and death compared to Whites. They postulate that 25% of the phenomenon is directly attributable to increased exposure to PM2.5.

Given all of the above, what can we pediatricians do about this? Some recommendations from the New Jersey Climate Adaptation Alliance and the Pediatric Environmental Health chapter on Environmental Equity include:

- Build a network to hear about environmental concerns in your community.
- Become involved in medical-legal partnerships (http://medical-legalpartnerships.org) Familiarize yourself with the history of the problem.
- Consider local cultural practices that may increase the risk to members of minority communities. (example: greater consumption of fish—mercury—among Asian/Pacific Islanders).
- Ask about supplements/herbal remedies/imported spices and powders among minority/immigrant communities in your practice.
- Speak out on behalf of policies and practices locally, statewide, and nationally that help improve the environment for our patients:
  - Tighter enforcement of environmental regulations
  - Increase funding for education on climate change and EJ
  - Increase use of energy efficiency and renewable energy on personal, community, and national basis.
  - Advocate for locally sourced food system
  - Increase green infrastructure to address “heat island” effect.
  - Help improve communication between government/political/business/scientific authorities to develop new strategies to address the problem.
The EJ executive order was an important step in this effort. However, much effort will be needed at all levels of governance across public and private sectors to address the inequitable historic legacy exposures that continue to disproportionately burden minority communities. EJ is a multi-faceted, difficult problem. No single person can solve it, and it isn’t going away anytime soon. In taking as many of the above steps as possible, however, we can “move the ball forward”.

To continue the discussion on climate change, join NJAAP’s Committee on Environmental Health and Climate Change. Contact Bethany Kondavaty (bkondavaty@njaap.org) for more information.

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Understanding COVID Tests

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A bewildering array of commercially accessible tests are available to detect the COVID-19 virus. These tests can be grouped into one of three categories; PCR testing, antigen testing and detection of antibodies against SARS-CoV-2 virus.

The SARS-CoV-2 virus is a single stranded RNA virus which has a viral envelope consisting of spike (S) protein, Envelope (E) protein, Membrane (M) protein and a ribonucleoprotein core consisting of the RNA genome and nucleocapsid (N). Commercial tests are designed to detect viral proteins or RNA genomic sequences.

The gold standard for COVID-19 testing is the reverse transcriptase polymerase chain reaction (RT-PCR), which detects different sequence of viral genome. The RT-qPCR (quantitative) can detect as low as 4-8 copies and has a turnaround time of approximately 24 hours. This test can detect the viral RNA as early as day 1 of symptoms, but is not applicable after 3 weeks of symptoms. Depending on the commercial kits, the sensitivity and specificity ranges from 96–100%. The rapid tests or point of care (POC) tests are based on Nucleic acid amplification techniques (NAAT) and use isothermal amplification of PCR with a quicker turnaround time of 15–60 minutes. The sensitivity and specificity, although comparable to the RT-PCR tests, can be much lower in the clinical practice. False negative results can be seen if testing is done in the window period when patient’s body is mounting an immunological response while false positive tests can be seen due to infections from other corona virus strains. The antibody testing is useful for diagnosing post-viral immunological phenomenon such as multisystem inflammatory syndrome in children (MIS-C) or atypical presentations and complications following initial infection.

Antigen testing of COVID-19 virus (usually directed against S protein) is not widely used due to lower sensitivity (50-60%) compared to PCR testing. The specificity of these tests is good, ranging from 90-98%. ELISA and immunoassay techniques are used.

Antibody testing based on immunoassay or viral neutralization detects IgM and IgG antibodies. Immunoassay testing can be performed as enzyme linked immunosorbent assay (ELISA), lateral flow immunoassay (LFIA) and chemiluminescent assay (CLIA). Based on a recent systematic review and meta-analysis study, the LFIA used as POC testing has the lowest sensitivity at 66% while the ELISA and CLIA had a better sensitivity at 84.3% and 97.8% respectively. The sensitivity of antibody testing increases significantly 2 weeks after onset of illness. False negative results can be seen if testing is done in the window period when patient’s body is mounting an immunological response while false positive tests can be seen due to infections from other corona virus strains. The antibody testing is useful for diagnosing post-viral immunological phenomenon such as multisystem inflammatory syndrome in children (MIS-C) or atypical presentations and complications following initial infection.

Newer methods of testing currently being studied include: Clustered Regularly Inter Spaced Palindromic Repeats (CRISPR), use of gold nanoparticles, exhaled breath condensate, and digital PCR.

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References:

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Hackensack Meridian Children’s Health is again ranked a top provider of pediatric health care in the United States. Joseph M. Sanzari Children’s Hospital at Hackensack University Medical Center and K. Hovnanian Children’s Hospital at Jersey Shore University Medical Center both rank in the top 50 in the nation for cancer and Joseph M. Sanzari Children’s Hospital ranks among the top 50 in the nation for neurology and neurosurgery.

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