Happy New Year!

We have one extra year in 2020 so make best use of it.

As we begin this new year, let me thank the leadership of the Florida Chapter for allowing us to continue to publish the Florida Pediatrician and supporting our efforts to get the journal indexed. Of course, none of this would be possible without the hard work of the Editorial Board members who volunteer their time to make this journal a great success. Last, but not least, thank you to FCAAP’s Membership & Communications Coordinator Melanie Range for her hard work in the background to keep us on target and to FCAAP’s Executive Director Alicia Adams for her supervision of the whole process.

As the new legislative session begins, we need to double up our efforts to assure access to highest quality of healthcare for children and make sure that we continue to advocate for increasing vaccination rates in Florida. Vaping continues to be the latest epidemic on top of the ongoing epidemics of obesity, mental health, and opioids, to name a few. We need more advocacy. For me, advocacy is the best thing I do and I pledge to increase my advocacy efforts.

Scope of practice will be a huge issue in the upcoming legislative session. Please stay tuned for messages from the Florida Chapter for need of your advocacy.

Another important issue we as pediatricians must focus in this New Year – our own wellness. We must take care of ourselves. A healthy pediatrician equates to a healthy child. If we do not take care of ourselves, we will not be able to give the best to our patients. Make work-life balance a priority. Time for yourself, your family, and your friends should be on your calendar as a priority. Go see your physician, go on a date with your significant other, take a vacation with your family, visit your parents, and go to that class reunion to see your friend. I have pledged to take a walk every day and call one friend a week.

Finally, let’s make a personal pledge to make diversity and inclusion part of your life. Reach out to someone who is different from you in race, religion, culture, language, skin color, country of origin, educational background, or something else. This will only enrich your life. I will try to have more meaningful contact with people different from me at least once a week. I will be posting this on Twitter.

May this New Year be better than the last year for you, your family, and kids all over the world.

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The Value in Inpatient Pediatrics Network Addresses Overuse

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“Good news. The blood culture is a contaminant,” you say to the discerningly relieved young mother sitting next to you. The unconcerned 8-month-old Stanley continues crawling on the blanket his parents placed on the hospital floor after accepting the futility of confining him to their laps or the crib. The young patient’s smile lights up the room as he searches for the next interesting object to explore. The father chimes in, “so he’s definitely not septic?” You have seen Stanley’s story, or a version of it, hundreds of times. A previously healthy little boy with a simple cold. The patient had no clinical signs of hypoxia and only mild tachypnea, yet overreliance on medical technology such as the pulse oximeter may result in unnecessary hospital admissions.4 Fever is a common symptom of bronchiolitis that may require treatment with acetaminophen at home for comfort, but detection in the medical setting may lead to painful procedures and tests that seem relatively harmless but can have deleterious and costly consequences – such as the extended hospital stay for Stanley’s false positive blood culture.

Despite calls to cut spending by cutting waste2, and to protect patients from the harms of overtreatment by “safely doing less”3, financial, legal, cultural and psychological forces continue to encourage low value care. Little federal effort has gone into addressing overuse. The main national strategies of public performance reporting and pay-for-performance show scant benefit and may paradoxically increase health disparities.4 Yet there is clearly enthusiasm for decreasing overuse in adult medicine with campaigns such as Choosing Wisely6 and several prominent journals (e.g. JAMA Internal Medicine, The Journal of Hospital Medicine) devoting sections to the topic. There is less enthusiasm in pediatrics. Ralston and Schroeder identify several drivers for this lack of enthusiasm over pediatric overuse – lower proportional medical expenditures (medical spending is more than 7 times greater per person for older adults compared to children), appropriate focus on underuse (e.g. vaccine refusal) and a limited evidence base to critically evaluate tests and treatments.2 They also argue, however, that medical overuse begins in childhood and establishes a pattern of expectations that leads to more overuse as adults. They also point out that harms experienced in childhood (e.g. radiation, alteration of the microbiome) may be amplified over time and contribute to chronic illness.5

With waste constituting up to one third of medical expenditures4 and lack of an effective national approach, quality improvement (QI) has been postulated as strategy to combat overuse. Pediatric inpatient care is an appropriate target for this type of QI given that healthcare spending for children is growing at a faster rate than any other age group and hospital care accounts for more than 40% of pediatric healthcare expenditures.1 While some large children’s hospitals have addressed overuse using QI methodologies, at least 70% of pediatric inpatients are hospitalized in non-children’s hospitals without dedicated resources for this work.6 In an effort to address overuse for all pediatric inpatients, the Value in Inpatient Pediatrics (VIP) Network was formed. The mission of the VIP network is to improve the value of care delivered to any pediatric patient in a hospital bed by helping providers implement clinical practice guidelines and other best practices focused on eliminating harm and waste caused by over-utilization. The VIP network is the only quality improvement network focused on overuse and de-implementation of evidence-based (abandonment of medical interventions).7 Almost all VIP metrics relate to overuse, where clinicians are asked not to do something. VIP terms these indicators “value metrics.”8 The network currently comprises 354 pediatric hospitals from over 200 hospitals.

In 2008 five pediatric hospitalists from the AAP Section on Hospital medicine (SOHM), meeting only via the Section listserv, conceived the network as an inclusive pediatric inpatient quality improvement collaborative, linking academic and community based hospitals. The founders hypothesized that group norming through benchmarking and public goal setting would decrease utilization of non-evidence-based practices. Bronchiolitis was the obvious choice for the initial disease process, given the procession of futile treatments over the years for this extremely common and generally self-resolving illness. This project, Benchmarking Bronchiolitis, comprised 31 sites and 17 sites submitted data for four consecutive years (2007-2010) and agreed to have their data reported in the network’s first publication. The aggregate data and all but two individual sites showed significant decreases in bronchodilator use and chest physiotherapy.9 Shands Hospital for Children at the University of Florida participated, and leads from that site have played an active role in the network ever since.

In 2011, the network joined the AAP. The AAP provided experienced staff, an online data repository, the quality improvement data aggregator (QIDA), and a small budget for project expert group meetings and QIDA user fees. With these tools, the network transformed into a true improvement and learning collaborative, running national QI projects complete with webinars, project listservs and multifaceted change packages including QI training, order sets, evidence reviews, and virtual coaching. QIDA’s ability to produce real time run charts allowed individual sites to obtain immediate feedback on their progress and compare themselves to the rest of the network. The basic approach followed the Institute for Healthcare Improvement’s model for improvement.5

The first AAP VIP project, A Quality Collaborative for Improving Hospital Compliance With the AAP Bronchiolitis Guideline (BQIG), comprised 21 hospitals contributing 1697 chart reviews. Utilization of bronchodilators, steroids, and chest radiography decreased as did length of stay. Readmissions were unchanged.10 Qualitative interviews from that project revealed an association between team engagement and success, and also demonstrated that sites highly valued partnering with the AAP. A subset of sites collected more data a year after the project and showed sustainability of improvements achieved during the intervention season and improvement in orders for intermittent (versus continuous) pulse oximetry.11
The second AAP VIP project, Improving Community-Acquired Pneumonia (ICAP) Management Project comprised 53 hospitals contributing 3,802 chart reviews. Project participants increased use of narrow spectrum antibiotics and decreased use of macrolides. The network helped bring the lead from an incredibly successful site in Pakistan to the annual Pediatric Hospital Medicine Conference. Over fifty network members listened attentively to his beautiful, ‘world-shrinking’ presentation detailing issues in Pakistan eerily similar to our own. The next project, Stewardship and Improvement in Bronchiolitis (SIB), revisited bronchiolitis but with an emphasis on improving care in the emergency department (ED), with equal representation of ED and hospitalist team leaders. Thirty-five hospitals contributed 9,467 chart reviews with decreased Bronchiolitis (SIB), revisited bronchiolitis but with an emphasis on improving care in the emergency department (ED), with asthma collaboratives. VIP leaders have produced eight published manuscripts with an additional four currently under reviews. The PIPA project is ongoing at the time of this writing.

The VIP network has been successful in its mission of de-implementation of non-evidence-based practices. The network has decreased in the ordering of voiding cystourethrograms. As project size and complexity increased so did the need for sustainable funding. Since grant funding for de-implementation is scarce, the network employed project participation fees. Fees are kept at a minimum given the limited financial resources of community hospitals with few pediatric beds (a primary target of the network). The two first projects to utilize this plan charged $750. Those two projects also employed a novel tool, a smartphone application, PedsGuide, developed in collaboration with the AAP and Children’s Mercy Hospital. PedsGuide is free and available to the public. Data analytics reveal robust uptake of the application within and outside of the projects. Reducing Excessive Variability in Infant Sepsis Evaluation (REVISE) aimed to standardize and improve management of well-appearing infants 7-60 days old presenting with fever without source. The largest project to date, 123 sites (many sites comprising multiple hospitals) participated and contributed over 20,000 chart reviews. The project allowed some infants to avoid hospitalization and shortened hospital length of stay for others. Several manuscripts are pending publication. Pathways for Improving Pediatric Asthma Care (PIPA) overlapped with REVISE, yet still enrolled 79 sites. PIPA employs a stepped wedge design, where all participants begin collecting data at the same time, but some groups delay implementing interventions. The stepped wedge design allows improvers to more definitively associate improvements with project interventions. The goal of PIPA is to decrease length of stay and non-evidence-based therapies for pediatric patients presenting to the ED or hospital with asthma. The PIPA project is ongoing at the time of this writing. Florida hospitals have participated in every AAP VIP project, averaging three hospitals per project.

The VIP network has been successful in its mission of de-implementation of non-evidence-based practices. The network has developed some guiding principles (table 1) to inform project and metric selection, and to ensure spread of important results and create a pipeline of future implementers. In addition to the main mission of de-implementation, projects also contain some evidence-based implementation goals (e.g. screening and intervention for tobacco smoke exposure in the bronchiolitis and asthma collaboratives). VIP leaders have produced eight published manuscripts with an additional four currently under review and over 40 presentations. VIP projects have garnered awards from the AAP NCE, the Society of Hospital Medicine, the Pediatric Hospital Medicine Conference, and the American Board of Pediatrics.

VIP PRINCIPLES

• Metrics must have robust evidence (Level 1)
• Condition should be common (or costly)
• The provider has control over the intervention measured
• Overuse (value) metrics save money, promote convenience, and may prevent harm
• Target the places children are treated (community hospital)
• Facilitate spread by publishing results
• Mentor the next generation of implementers

Table 1

The network continues to evolve. The next project, Standardization of Fluids in Inpatient settings (SOFI), is the first VIP project specifically timed to the publication of an AAP clinical practice guideline (Clinical Practice Guideline: Maintenance Intravenous Fluids in Children). It is also the first non-condition specific project, an important innovation given the low numbers of patients with any particular disease at smaller hospitals. The network is also expanding in two other ways. The VIP network in collaboration with the community hospital subcommittee of the SOHM will host a pre-conference for the 2019 Pediatric Hospital Medicine Conference. Also in 2019 the network will launch a longitudinal benchmarking service. This new service resembles the first project, BenchmarkingBronchiolitis, but is much broader and contains more functionality. Groups will input data on a number of conditions into QIDA and have immediate access to run charts comparing themselves to past performance, the entire network’s performance, and subsets of the network based on hospital size, geography and teaching status. This project will serve as a pilot for the proposed AAP registry and contribute to an aspirational goal of the network, the adoption of VIP value metrics by federal agencies and payers.

The VIP network is one of the many ways that the AAP adds value for members and the children they care for. Although hospitalists run the network, projects have crossed silos into the ED and many subspecialists serve on expert panels. The network continues to search for a project that spans the care continuum, a collaboration among hospitalists, ED and primary care physicians. So far that goal has been elusive. Constipation anyone?

To join the VIP network, go to AAP.org and type VIP into the search bar.

REFERENCES

Healthcare Equity in an Urban Setting: The Impact of Determined Advocates

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One finds a very diverse population of patients and staff in the halls of today’s hospitals. It’s hard to imagine that, only a few decades ago, many hospitals maintained discriminatory practices against African Americans (AAs). Despite the 1954 Supreme Court ruling in Brown v. Board of Education, which ruled that segregation in public schools is unconstitutional, segregation still occurred in daily life. Nowhere was this more apparent, and detrimental, than in the nation’s healthcare facilities. In 1956, roughly 83% of northern hospitals and 6% of southern hospitals were integrated (Figure 1).1 Despite integration in the north, most institutions sequestered their AA patients in poorly equipped and unsanitary facilities, often located in the basement or attic.1 Among non-integrated southern hospitals, 33% did not admit any AA patients.1

<table>
<thead>
<tr>
<th>Area</th>
<th>No. of Cities</th>
<th>No. of General Hospitals</th>
<th>Integrated No. of Hospitals</th>
<th>Integrated Hospitals as a Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>23</td>
<td>256</td>
<td>211</td>
<td>82.5</td>
</tr>
<tr>
<td>South</td>
<td>8</td>
<td>69</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>325</td>
<td>215</td>
<td>66.2</td>
</tr>
</tbody>
</table>

Table 4—Number of General Hospitals with Integration of Patients

Figure 1
This blatant discrimination of AAs’ right to equal care was the result of de jure segregation practiced in the South (versus de facto segregation of the North) where states continued to practice Jim Crow laws, which legally enforced racial segregation. This “separate-but-equal” distinction subjugated AAs to inferior and underfunded healthcare facilities, which resulted in notably higher morbidity and mortality rates in the AA population. A 1927 publication reports that the AA citizens accounted for 20% of the population in Tampa, yet contributed to 47% of recorded stillbirths. It was in the Tampa Bay community that the efforts of two dedicated and determined healthcare workers, Clara Frye (Figure 2) and Philip Adler (Figure 3), significantly improved healthcare for AA citizens. Their efforts serve as a testament to the important role that healthcare workers can play in improving healthcare equity.

Clara Frye was the mulatto daughter of an AA man and a teacher from London. She was born in Albany, NY and trained as a nurse before moving to Tampa. In 1908, Dr. John Scricens, a white physician who cared for Tampa’s minority population, encouraged Clara Frye to care for the local indigent patients who had no other access to healthcare. Seeing their desperate need, she began treating patients in her home. By 1923, with a $1,000 loan from Dr. Scricens, she was able to secure a 2-story building, named the Clara Frye Hospital (Figure 4). Here, she worked tirelessly to offer healthcare to people of all backgrounds.

While Clara Frye's efforts made a healthcare facility available to AAs, Dr. Philip Adler worked to integrate TGH. Although the hospital had begun to admit AAs by 1948, it was largely in cases of emergency, and those patients were usually transferred to the Clara Frye Memorial Hospital/Tampa Negro Hospital for long-term care. Raised and educated in the North, Dr. Adler, a child of 1st generation immigrants, developed a progressive mindset. As a child he lived in a racially mixed neighborhood, went to school with black students, and worked with black residents. These experiences, along with his personal values, equipped him with a strong sense of moral obligation to patients of all races. In 1958 he insisted on racial integration of the waiting rooms for the pediatric practice he had just joined in Tampa. Soon after, he joined the TGH staff, which was required to also serve at the Clara Frye Memorial Hospital. During a visit to the hospital’s nursery in 1964 he found 15 preterm AA infants who were jaundiced and cachectic; the nursery had only one isolette. Knowing TGH had recently opened a new NICU, Dr. Adler alerted TGH’s director of medical education of the situation, threatening media exposure if action was not taken. The infants were transported to the TGH NICU that day; half of them survived. His determined stance on healthcare equity led to the integration of TGH’s nursery, and by 1967 the hospital was fully integrated.

As the healthcare industry grows larger and more complex, vital healthcare policies are being made and implemented. The actions we take, or do not take, can have a ripple effect on a local, national, and global level. The role of individual healthcare providers is critical to the determination of those who practice before us. Such instances of leadership should serve to remind us of the role our singular, beginning and ending with each patient encounter; however, the road to healthcare equity is paved by the brave and determined efforts of those who practiced before us. Such instances of leadership should serve to remind us of the role our determined colleagues, current and future, play in the life of the individual patient, and the countless others they advocate for. The actions we take, or do not take, can have a ripple effect on a local, national, and global level.

ACKNOWLEDGEMENTS

The authors thank Dr. John Curran for his idea and support, Dr. Philip Adler for his interview.

REFERENCES


ABSTRACT

We report a 13-year-old female with no significant past medical history who presented with 9 months of intermittent headaches which increased in frequency over the past 2 to 3 weeks. Her Magnetic Resonance Imaging (MRI) showed a single ring-enhancing lesion in the left frontal lobe with significant vasogenic edema causing a midline shift. We highlight the unusual imaging and clinical presentation of our patient.

Key words: Neurocysticercosis, Ring enhancing lesion, Vasogenic edema, Magnetic Resonance Imaging

INTRODUCTION

Cysticercosis is a parasitic infection of humans caused by the larval stage of the pork tapeworm, *Taenia solium*.1 When the *T. solium* eggs are ingested they form tissue cysterci throughout the body; the location of the cysterci determine the type of cysticercosis. Cysterci in parenchymal or extraparenchymal tissue cause neurocysticercosis (NCC).1 Neurocysticercosis is the most common parasitic infection of the central nervous system and is considered one of the Neglected Parasitic Infections by the CDC.2 The most common form of cysticercosis is intraparenchymal NCC.1 Although most cases of intraparenchymal NCC are asymptomatic and are identified incidentally, it may present with seizures and headaches, typically years after incubation.3 Presence of symptoms depends on the location, number, and stage of development of cysterci as well as one's immune response.3

We report a case of suspected NCC in which imaging studies showed a single enhancing lesion with abnormal amounts of vasogenic edema and midline shift.
CASE REPORT

A 13-year-old previously healthy female was admitted to the inpatient general pediatrics unit with an abnormal MRI showing a single enhancing lesion. Her general pediatrician ordered an MRI after the patient presented with a 9-month history of intermittent headaches, which increased in severity and frequency in the 2 to 3 weeks prior to admission. Her headaches started occipitally and radiated to the bilateral temporal areas. She reported no relief with acetaminophen, but mild relief of pain when lying down. The headaches usually resolved in 6 to 8 hours and were irregularly associated with vomiting and seeing “purple shapes” when her eyes are closed. On the day of admission, her last headache was about a week prior and there was no report of dizziness, altered vision, photophobia, fever, neck pain, syncope, altered level of consciousness, seizures or any recent weight loss. There was history of occasional fatigue and not feeling rested after sleeping.

Of note, the patient had an episode of vomiting and diarrhea one month prior to presentation. During this episode, her mother found a worm in her stool. This illness resolved without treatment and without recurrence. There was no history of ingesting raw or undercooked pork or other meats. She spends much of her time outside in freshwater streams and soil. She drinks well water and has a pet dog. There was no history of ingesting raw or undercooked pork or other meats.

Physical examination with a focused neurological exam was initially unremarkable. Asymptomatic papilledema was present. Chest x-ray and MRI of the spine were normal. A brain MRI demonstrated a small enhancing lesion in the left frontal lobe with marked adjacent vasogenic edema and midline shift (see figure 1 and 2). CT brain without contrast demonstrated the lesion on MRI appeared consistent with parasitic infection; however, amount of edema was abnormal. Serologic tests for both *T. Solium* and *Paragonimus westermani* were done. *Taenia Solium* serology reported after discharge were reported negative. A PPD and HIV screen were non-reactive at 48 hours. No ova or parasites were detected in the stool. Treatment for probable neurocysticercosis was started with Decadron 7.2 mg orally once a day and then Albendazole 400 mg orally twice a day was added two days later for a planned 14-day course. Patient showed clinical improvement. At discharge patient was instructed to follow up with the Infectious Disease department for repeat imaging.

DISCUSSION

Single ring enhancing lesions on imaging are typically attributed to either NCC or tuberculosis. The two diseases are differentiated by radiographic features, assessment for tuberculosis (TB), and manifestations of TB elsewhere in the body.4 Our patient had a non-reactive TB skin test, a normal chest x-ray and spinal MRI, and no recent travel to areas endemic for TB. Our patient’s neuroimaging had characteristics of both NCC and tuberculosis. Vasogenic edema causing a midline shift favors the diagnosis of a tuberculoma.7 However, tuberculomas in children typically present infra-tentorial, at the base of the brain (posterior fossa), and with multiple lesions.7-8 The combination of low risk for TB based on travel history and TB skin test; negative imaging findings of TB manifestation in the lungs or spine; and location of the single ring enhancing lesion all make tuberculoma unlikely. NCC lesions are seen near the gray-white junction of the cortex and most patients in the United States present with a single ring enhancing lesion, both of which are seen in our patient.7 These lesions can cause significant edema however there are not quantitative standards for degree of edema seen in NCC. This edema can create a mass effect on surrounding structures, however, it is extremely rare for NCC to present with a midline shift. In fact, there are no reports of cases of NCC with a single ring-enhancing lesion involving a midline shift.

Although *T. Solium* serologic testing for our patient was negative, presumptive diagnosis of NCC was made. Many of the serologic tests available to diagnose NCC are unreliable especially when involving a single enhancing lesion.7 One study found only 17 to 25% positive test results in children with NCC.7 Even though our patient did not have recent travel to endemic areas, she could still develop NCC if exposed to tapeworm eggs.2-3 Our patient did not have seizures. NCC usually presents with new onset seizures.4 However, cysts may survive years with intermittent neurological symptoms or no symptoms at all. Furthermore, it is uncommon for children to present with signs of increased intracranial pressure as evidenced by vomiting and headaches. Patients with NCC may also present with headaches as an isolated symptom.4 The presentation of increased intracranial pressure, in this case manifested as a headache with papilledema, as well as the neuroimaging and exclusion of other possible disease processes in this patient made it likely that patient has NCC.

CONCLUSION

This is a case of a pediatric patient who presented for abnormal MRI findings concerning for NCC. However, due to an abundant amount of vasogenic edema and midline shift not typically identified in a patient with NCC it was necessary to exclude other causes of this lesion. After an evaluation it was determined that this is a case of probable NCC.
REFERENCES: