

Improving Care Delivery Systems in Pediatric Epilepsy

Broad implementation of new measures may help curb high utilization rates of emergency departments and improve overall care.

With Anup D. Patel, MD

Despite significant therapeutic development in recent years, the pediatric epilepsy spectrum continues to have significant problems in terms of delivering optimal care. Specifically, parents of patients with seizures often feel as if they have little choice but to visit the emergency department (ED) for the appropriate clinical intervention when their child is seizing. However, many EDs are not equipped to manage these patients and offer little in the way of needed intervention. The reasons for high rates of ED utilization are multifactorial, as should be strategies to address it.

A study published in *Pediatrics* earlier this year outlines several measures that may potentially reduce ED visits and improve care delivery systems in pediatric epilepsy.¹ Ahead, the study's lead author, Anup D. Patel, MD, shares additional perspective on the study as well as possible paths forward.

Pediatric Epilepsy and Emergency Department Utilization

"More people have epilepsy in the US than have multiple sclerosis, amyotrophic lateral sclerosis, Parkinson's disease, and cerebral palsy combined," says Dr. Patel. "Specifically, the highest risk of developing epilepsy is in the first two years of life." According to Dr. Patel, several factors impact the frequency of ED utilization among this patient base. "It's scary for any parent to watch a child seize, and it's also likely that many parents may not remember what to do or what was said in a previous office visit."

Another factor in ED utilization is the common misunderstanding that seizures lead to very poor outcomes. Outcomes vary based on the care patients receive, which prompted Dr. Patel's research team to explore potentially more efficient care delivery systems. "There is not much that emergency department doctors need or can real-

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istically do for these patients. Meanwhile, families tend to experience long wait times and do not feel satisfied with the care they eventually receive," says Dr. Patel. "We undertook our study because we noticed a lot of kids that could be potentially better served in the outpatient clinic setting."

The study was the result of an initiative at Nationwide Children's Hospital, where Dr. Patel received extensive training in quality improvement and worked on pilot programs to decrease ED utilization. "Each division was given the task to transform the care of a disease within the specialty." This allowed Dr. Patel and his team of researchers to examine the full pediatric epilepsy population at Nationwide Children's Hospital and apply quality improvement methodology with a multidisciplinary team in an attempt to decrease utilization. "We wanted to apply this approach to decrease ED visits, which we felt would lead to higher family satisfaction, improved quality of life, and a reduction in health care expenses."

Factors Affecting Emergency Department Utilization

Lack of access to appropriate outpatient care is one of the most significant contributors to high ED utilization, Dr. Patel observes. “During a perceived crisis, many family members are not able to schedule an appointment with a neurologist quickly enough and subsequently feel that they don’t have anywhere to go.” EDs therefore become the default option for care. The first intervention that Dr. Patel and the team of investigators evaluated was the impact of an urgent epilepsy clinic. Designed as an “on-demand” unit, the clinic has a certain number of open slots allotted each day in which a nurse practitioner and social worker meet with patients for 90 minutes. Patients are also guaranteed an appointment within three days. “We found that families felt less fear when they knew a problem was going to be addressed in a timely way,” says Dr. Patel.

Another measure implemented was a color-coded seizure action plan similar to those used in the asthma community. According to Dr. Patel, these plans represent a great opportunity to keep track of families and the care patients receive during regularly scheduled clinic visits (as opposed to urgent clinic visits). Along the same lines, designing an alert system for both patients and providers can help ensure patients are kept on track regarding abortive seizure medication use. “Many patients who are high utilizers of ED services either do not have a prescription for an abortive seizure medicine or it was under-dosed.

“We created an alert system in our electronic health record to let providers know if patients are under-dosing the medication,” Dr. Patel explains. “For those that did not give the medication at all, we created teaching opportunities, posters, advertisements, as well as magnets with instructions on how to use the medicine in a home setting.” These magnets also cued providers to give patients a prescription, according to Dr. Patel.

Tying all of these elements together are social workers, who are essential to enacting improved treatment protocols, says Dr. Patel. “The social worker can link families to certain resources that they lack, whether it’s education,

transportation, and many different areas,” he notes. In addition to handling education and assessing psychosocial needs, social workers can help strengthen the bond between providers and patients that is so important to successful care, Dr. Patel states. “The relationship between the provider and the patient and their family is a vital piece of success for any kind of similar project. If a patient or family does not ‘buy in’ to that relationship, we felt they are more likely to utilize an anonymous resource like the ED versus trusting to call us.”

Quality Improvement Research: Shaping the Future of Epilepsy Care

Resource allocation is the greatest barrier toward further studying and implementing quality improvement initiatives, says Dr. Patel, but he is confident that the changing health care landscape will make overcoming these challenges more feasible. “A value-based care reimbursement model will lead to better assistance for resource allocation,” he says. But it’s going to require large hospital systems to think differently about both resource allocation and care delivery. “Administrations and clinical operations are going to seriously consider what will be needed to improve value and create cost savings in the process, and that’s where the shift may occur. As we prepare for MACRA and the quality payment program, these are things that can show value,” Dr. Patel notes. “We are going to need to demonstrate value as a field if we are going to be successful and extrapolate these results elsewhere.”

Dr. Patel is hopeful that further and broader study of quality improvement methodologies in adults as well as children will help decrease unnecessary ED visits and shift to improved outcomes and quality of life in patients and their families. In addition, he would like to see more administrations see the value in this kind of research. “These are not very high-tech, complicated interventions,” says Dr. Patel. “We need to look more specifically at detailed factors for why people use EDs in epilepsy care and ways we can drive utilization even further down.” Fortunately, some of this research is already underway. “We’re looking at predictive modeling and its potential to determine which patients are the highest utilizers of emergency departments, which may help us reduce these visits in the future.” ■

PRACTICAL POINTER

Alert systems can help ensure patients are keeping track with abortive seizure medication use. Physicians can create alerts within their EHR to address potential under-dosing of a medicine. For patients, magnets that include instructions for medication use in a home setting can be helpful.

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1. Patel AD, Wood EG, Cohen DM. Reduced emergency department utilization by patients with epilepsy using QI methodology. *Pediatrics*. 2017 Feb;139(2).