



Mill Etienne, MD, MPH, is the Director of the Epilepsy and EEG Laboratory at Good Samaritan Hospital.

# A Return to Normal

An innovative implant technique offers relief for a young man with epilepsy. **BY LISA ARCELLA**

Christmas Eve usually brings blissful dreams of abundant gifts under the tree, but for Warwick resident Daniel Dagnone, the night before Christmas in 2013 was a nightmare.

While visiting his mother and stepfather over the holidays, Dagnone, now 24, decided to take a nap. “When I woke up, I was in just crazy pain,” he recalls. “I was never in that much pain before. “I had somehow dislocated my shoulder, but I hadn’t fallen out of bed. It just happened.”

Dagnone was rushed to the emergency room and given a battery of tests. But the ER doctors, unable to find an immediate health threat, sent him home, telling him he probably just had joint issues and had slept on his shoulder in awkward position.

The fact is, Dagnone had experienced an epileptic seizure. After several subsequent trips to the ER, he was referred to a neurologist. Eventually, he was diagnosed with epilepsy, a disorder in which neurons in the brain misfire, leading to seizures. With no family history or risk factors for the disease, the diagnosis came as a surprise.

“Epilepsy and seizures affect 3,000,000 Americans of all ages,” explains Mill Etienne,

MD, MPH, Director of the Epilepsy and EEG Laboratory at Good Samaritan Regional Medical Center, a Member of the Westchester Medical Center Health Network. “So, it’s actually a pretty common disorder. Because the seizures may not be witnessed, there is often a delay in making the diagnosis.”

The cause of epilepsy remains unclear, although a history that includes severe traumatic brain injury, stroke, brain tumor or meningitis presents risk factors. Daniel, however, had experienced none of these.

Eventually, Dagnone was taking up to 4000 mg of anti-seizure medication daily, to try and control his symptoms. “Going to sleep at night was just the worst,” he says. One early morning before work, still groggy, he pushed open the bathroom door, only to regain consciousness on the floor, with a bloody face and a broken clavicle. This turning point prompted him to consult Dr. Etienne, to discuss surgical options.

Dr. Etienne says that surgery isn’t an option for all patients. “If the seizures are happening in a part of the brain that is important functionally — like your

speech center, for example — you cannot operate on that portion, because of the importance of that function. Some patients have seizures starting in the entire brain, all at once — those patients are not candidates for surgery either.

While brain surgery was not possible for Dagnone, another treatment offered hope: the implantation of a Vagus Nerve Stimulator, a device with the remarkable ability to sense and help prevent a seizure just before it happens (see sidebar).

According to Dr. Etienne, “Once I identify an appropriate candidate for this surgery, Dr. Mark Tobias, an experienced pediatric neurosurgeon from Westchester Medical Center, performs this procedure. This partnership offers our patients better outcomes.”

A key advantage of the implant is that it typically enables the patient to lower the doses of medicine they require. “Getting this implant was part of my decision to take less medication,” Dagnone says. “I’m sure it’s not good to take this much medication the rest of your life.”

With this new implant in place, Dagnone envisions a future in which epilepsy no longer dominates his life. “Everything over these past two years has been about epilepsy. I want ‘normal,” he explains. “I’m happy this implant was an option. I’m very grateful.” •

## THE TECHNOLOGY

Vagus nerve stimulation is an increasingly common technique used to treat epilepsy, according to Dr. Etienne. The device is similar to a pacemaker and is implanted inside the body, where it sends pulses of electricity to the brain.

“It’s an option for those who can’t have brain surgery and are not responding well to medication,” he says. “The device is placed on the chest wall, over the heart, and a wire is run from the stimulator to the vagus nerve, located in the neck. Most patients go home the same day after surgery is completed.”

The machine can detect the sudden increases in heart rate that typically occur before a seizure, quickly sending an electrical impulse to the brain, to “interrupt” the seizure before it has a chance to occur.