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Epilepsy Facts and Figures

What is epilepsy?
Epilepsy is a common chronic neurological condition that is characterized by recurrent seizures, which result from disturbances in the normal electrical function of the brain. Many illnesses or severe injuries can affect the brain enough to produce a single seizure. When seizures continue to occur for unknown reasons or because of an underlying problem that cannot be corrected, the condition is known as epilepsy.

In about six out of 10 people with epilepsy, no cause can be found. Among the rest, the cause may be any one of a number of things that can make a difference in the way the brain works. For example, head injuries or lack of oxygen during birth may damage the delicate electrical system in the brain. Other causes include problems in development of the brain before birth, infections like meningitis or encephalitis, genetic conditions (such as tuberous sclerosis), exposure to toxic agents, strokes, or brain tumors.

What is the prevalence?
Approximately 65 million people worldwide have epilepsy, including nearly 3 million Americans. Epilepsy is the fourth most common neurological disorder in the country, and an estimated 200,000 new cases of epilepsy are diagnosed every year. There are as many people with epilepsy as with autism spectrum disorders, Parkinson's disease, and multiple sclerosis combined.

What is the impact of epilepsy?
The impact of epilepsy is broad and largely dependent on whether the seizures can be managed. People who can tolerate medication and whose seizures are completely controlled usually lead a normal life. However, the disease can be devastating for the 30-40 percent of people who are severely affected and experience uncontrolled seizures. These people may suffer from emotional and learning problems in addition to discrimination. In severe cases, someone may lose much of their independence because they cannot drive or be employed. Epilepsy also has a strong association with depression.

In the U.S., epilepsy costs an estimated $17.6 billion in associated health care costs and losses in employment, wages, and productivity.

How is epilepsy treated?
Currently there is no cure for epilepsy. The condition may be treated with medications, special diets, brain surgery, or an implanted device programmed to control seizures. Of these treatments, medication therapy is by far the most common, and is usually the first treatment prescribed. When antiepileptic or anticonvulsant drugs are ineffective or cause intolerable side effects, surgery may be an option. Brain surgery to treat epilepsy involves removal of seizure-producing areas of the brain. However, depending on where the seizure originates in the brain and other factors, not all people with uncontrolled epilepsy are good candidates for surgery. Additionally, many people do not desire epilepsy surgery due to the risk of neurological

morbidity (loss of memory, language, or other functions). Another therapy involves sending regular small pulses of electrical energy to the brain via the vagus nerve, a large nerve in the neck, with an implanted device. This treatment is referred to as vagus nerve stimulation (VNS).

Given the large percentage of people with epilepsy who have uncontrolled seizures or suffer from serious side effects from medications, efforts have been underway to find other therapies. Uncontrolled seizures can cause tremendous frustration and difficulty – keeping many people from working or driving.

Recently, the U.S. Food and Drug Administration granted premarket approval for the NeuroPace® RNS® System, a treatment for adults with partial onset seizures that have not been controlled with two or more antiepileptic drugs[*]. The RNS System is a novel, implantable therapeutic device that delivers responsive neurostimulation, an advanced technology designed to continuously monitor brain electrical activity, detect abnormal electrical activity and respond by delivering imperceptible levels of electrical stimulation to normalize that activity before an individual experiences seizures. The RNS System is the first closed-loop responsive brain stimulation system.

Sources:
Epilepsy Foundation, www.epilepsyfoundation.org

[*] For Indications for Use, Contraindications, Warnings and Precautions please see Brief Statement for the RNS® System provided in this media kit. Refer to the product labeling for detailed disclosure of specific indications, contraindications, warnings, precautions and adverse events.