MEDICAL BREAKTHROUGHS
RESEARCH SUMMARY

TOPIC: PING: BRAIN SURGERY, NO KNIFE NEEDED
REPORT: **MB #5097**

BACKGROUND: Epilepsy is a disorder of the brain characterized by repeated seizures. A seizure is usually defined as a sudden alteration of behavior due to a temporary change in the electrical functioning of the brain. Normally, the brain continuously generates tiny electrical impulses in an orderly pattern. These impulses travel along neurons — the network of nerve cells in the brain — and throughout the whole body via chemical messengers called neurotransmitters. According to the latest estimates, about 0.6 percent of children aged 0-17 years have active epilepsy. In a school with 1,000 students—this means about 6 of them could have epilepsy.
(Sources: https://www.aans.org/en/Patients/Neurosurgical-Conditions-and-Treatments/Epilepsy#:~:text=Epilepsy%20is%20a%20disorder%20of,impulses%20in%20an%20orderly%20pattern.
https://www.cdc.gov/epilepsy/about/fast-facts.htm#:~:text=This%20is%20about%203.4%20million,million%20adults%20and%20470%2C000%20children.&text=According%20to%20the%20latest%20estimates,17%20years%20have%20active%20epilepsy.&text=Think%20of%20a%20school%20with,of%20them%20could%20have%20epilepsy.)

DIAGNOSING: Seizure signs and symptoms include temporary loss of awareness or consciousness, uncontrolled muscle movements, muscle jerking, loss of muscle tone, blank stare or "staring into space" look, changes in hearing, vision, taste, smell, feelings of numbness or tingling, psychic symptoms, including fear, dread, anxiety or déjà vu, and faster heart rate and/or breathing. Technically, if you experience two or more seizures that weren't caused by a known medical condition — for example, from alcohol withdrawal or low blood sugar — you're considered to have epilepsy. Before making a diagnosis, your healthcare provider (or epilepsy specialist) will perform a physical exam, take your medical history, and may order blood work (to rule out other causes). They may ask about your symptoms during the seizure and conduct other tests, as well.
(Source: https://my.clevelandclinic.org/health/diseases/17636-epilepsy)

NEW TECHNOLOGY: Now, the Yale Comprehensive Epilepsy Center may have found one in a new generation of neurostimulation devices used for epilepsy. In 2018, the Food and Drug Administration (FDA) approved a deep brain stimulation (DBS) device, manufactured by Medtronic, that sends electrical pulses through the brain to reduce the frequency of seizures. (It works by stimulating an important relay station deep in the brain called the thalamus.) And in June 2020, the FDA approved the Percept PC, also from Medtronic. Facilitating more customized therapy, this modified version allows doctors to treat epilepsy and record electrical activity from deep in the brain.
(Source: https://www.yalemedicine.org/news/epilepsy-deep-brain-stimulation#:~:text=Now%20they%20may%20have%20found,reduce%20the%20frequency%20of%20seizures.)

FOR MORE INFORMATION ON THIS REPORT, PLEASE CONTACT:

Joshua Barney
1 (434) 906-8864
Jdb9a@hscmail.mcc.virginia.edu