

## New Treatment Option on the Horizon for Treatment-resistant Depression (TRD)

Major depression is one of the most common mental illnesses in the United States: more than 15 million American adults, or roughly 5 to 8 percent of the adult population, suffer some form of depression each year.<sup>1</sup> While depression is highly treatable and responds to a variety of treatment options, many people experience depression that continues or frequently recurs despite treatment with medications, psychotherapy or more intensive therapies (such as electroconvulsive therapy [ECT]). Treatment-resistant depression, or TRD, is generally defined as the continuation of depressive symptoms despite adequate antidepressant treatment.<sup>2,3</sup>

Those who suffer from TRD may soon have a new treatment option. Deep Brain Stimulation, commonly referred to as DBS, involves a surgical procedure that has proven beneficial in the treatment of medication-resistant Parkinson's disease, essential tremor and dystonia. In patients who opt for DBS, doctors implant small electrodes, approximately one millimeter thick, in the areas of the brain believed to be involved in the neurological or psychiatric disease. These electrodes deliver small, steady pulses of electricity that have been shown to modulate activity in these and connected brain regions such that more normal brain function is achieved. The technique is comparable to implanting an artificial pacemaker in the heart.<sup>4</sup>

DBS is currently being tested as a potential treatment for severe, treatment-resistant depression at Emory (funded through several foundation grants; contact [dbs@emory.edu](mailto:dbs@emory.edu) for more details) and in two large, industry-sponsored multi-center trials (St. Jude Medical and Medtronic; see [clinicaltrials.gov](http://clinicaltrials.gov)).<sup>5</sup> Scientists believe that this and other forms of brain stimulation modulate the areas of the brain responsible for mood regulation, exerting antidepressant effects. Initial clinical trials found that DBS improved many of the symptoms associated with treatment-resistant depression. Improvements were noticed within a month of beginning treatment and lasted for at least one year. Additionally, DBS is adjustable and reversible, features that offer increased safety and may contribute to the efficacy of the technique.<sup>6</sup>

While DBS has offered patients with Parkinson's disease and other movement disorders new hope for symptom relief, scientists now believe that the technique may hold promise for other debilitating neuropsychiatric conditions. In addition to treatment-resistant depression studies, researchers are conducting DBS trials for epilepsy, chronic pain and Tourette's syndrome. The U.S. Food and Drug Administration recently approved DBS for the treatment of treatment-refractory obsessive-compulsive disorders (OCD).

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### Sources

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