

Butler and Rhode Island hospitals to test 'brain pacemaker' for Alzheimer's disease

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Together, Butler Hospital and Rhode Island Hospital are participating in The ADvance Study, a clinical trial investigating the use of deep brain stimulation (DBS) as a treatment for patients with Alzheimer's disease. The collaborative study between the two hospitals is part of a multisite clinical trial investigating the safety and efficacy of DBS in slowing the loss of memory and cognition in patients with Alzheimer's disease, a disease which currently afflicts more than 5 million people in the US and for which there is no cure.

A device currently used to treat other brain-related conditions, DBS is often described as a 'pacemaker for the brain,' as it uses an implanted device to electronically stimulate the brain. In the ADvance Study, a pacemaker-like device is implanted beneath the skin in the patient's chest to deliver [electrical pulses](#) directly to the fornix- a part of the brain that plays a central role in memory. DBS is currently FDA approved to treat Parkinson's disease, Tourette's syndrome and resistant [Obsessive Compulsive Disorder](#).

"Alzheimer's researchers from around the world, including those at Butler and Rhode Island Hospital, are committed to developing safe and effective treatments for Alzheimer's disease," said Stephen Salloway, MD, principal investigator for the study and director of the Memory and Aging Program at Butler Hospital. "DBS has helped transform the treatment of Parkinson's disease and we hope that stimulation of [memory circuits](#) can have a similar benefit in treating Alzheimer's disease." Salloway notes that the approach in this study differs from

medications and vaccines that are being investigated for Alzheimer's disease. DBS uses a device that has already been safety-checked and [FDA](#) approved for treating other conditions and has been shown to be safe in early studies with Alzheimer's [patients](#).

This clinical trial stems from a preliminary DBS study in six patients with Alzheimer's disease in Canada. That study found that patients with mild forms of the disease showed sustained increases in glucose metabolism, an indicator of neuronal activity, over a 13-month period. Most patients with Alzheimer's disease show decreases in glucose metabolism over the same time period.

In the double-blind clinical trial being conducted at Butler and Rhode Island Hospital, all participants will have the device implanted. Half of the participants will have the device activated in the first year, and all participants will receive active stimulation in the second year of the study. Following an initial evaluation at Butler, participants will have the device implanted at Rhode Island Hospital under the direction of Garth Rees Cosgrove, MD, chief of neurosurgery at Rhode Island Hospital, Chairman of the Department of Neurosurgery at Warren Alpert Medical School of Brown University, and Director of the Norman Prince Neuroscience Institute at Rhode Island Hospital.

"The results of the preliminary trial are very encouraging," said Dr. Cosgrove. "We have seen tremendous success in using [deep brain stimulation](#) on many of our patients with other neurological illnesses such as Parkinson's disease, and it has truly been a life-changing treatment. If we can achieve a similar response with our Alzheimer's patients then we will have the opportunity to improve millions of lives."

After the device is implanted, participants will visit Butler to have the device programmed by Victoria Chang, MD, a neurologist with expertise in DBS programming. Researchers at Butler will monitor safety

outcomes and changes in memory, cognition and daily functioning with brain scans performed at Rhode Island Hospital. "This study is an example of a true collaborative effort between our two hospitals and health care systems to make progress against a devastating illness," said Dr. Salloway.

Provided by Lifespan

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