Parkinson’s disease is a neuro-degenerative disorder of the central nervous system. It is usually characterized by tremor, impaired muscular coordination, mood and behavior problems, and slowing of motor movements. Parkinson’s occurs in patients due to a lack of dopamine being produced in the brain which stimulates brain nerves to perform motor functions properly. The specific area of the brain that Parkinson’s affects is the basal ganglia, specifically the substantia nigra. In this part of the brain, the cells there die off and stop the production of dopamine which allows for neurotransmitters to take in the five forms of dopamine needed for normal motor control and brain activity.

Deep Brain Stimulation is a neuro-surgical procedure in which a pace-maker like device is placed onto the brain of a person with parkinson’s disease. The pace-maker delivers a constant charge and its electrical stimulation mimics the effect of normal brain activity causing the brain to release dopamine. It is placed on the subthalamic nucleus or the globus pallidus interna. Not to be mistaken for a cure for parkinson’s disease, deep brain stimulation is merely a way to control the symptoms of parkinson’s. It is a way to control tremors, shaking, and a patient’s mood and behavior problems. Deep Brain Stimulation is an outlet through which parkinson’s patients can remove themselves from a medication regimen or become more independent from their regimen. Also, as with any brain operation, the initial procedures involving the implantation of Deep Brain Stimulators pose many health risks to its patients if anything were to go wrong. However, unlike most procedures which involve lesions to the brain, DBS is a completely reversible procedure.

Early treatment for Parkinson’s disease began in 1909. The earliest surgery to cure parkinson’s disease involved lesions to the motor cortex. From 1909 to 1940 there were various numbers of methods that were experimented with but all were discarded due to their ineffectiveness. By 1947, scientist duo Speigal and Wycis developed the stereoecephalotome which combined with thermal lesions was a large step towards the development of the DBS. Soon by the 1960s and 1970s scientists made improvements in technology that focused on VIM stimulation. VIM stimulation is currently still used in modern DBS technology.

The most modern development being made in Deep Brain Stimulation Technology is its use in treating those with Restless Leg Syndrome (RLS). Also, DBS technology has also been linked to curing those with sleep abnormalities.

Although DBS solves the problems revolving around Parkinson’s Disease’s symptoms, it doesn’t however, represent a cure-all for Parkinson’s. DBS is limited because when it comes down to it, DBS is not replacing the brain. Ideally, I feel as though the true cure for Parkinson’s lies in the hope that one day engineers will be able to regenerate the cells destroyed in the substantia nigra.

2. New England Journal of Medicine, Levodopa and the Progression of Parkinson’s Disease, volume 1, page 24, 2004
5. L.M Chahine, Article in Press, Effects of STN DBS for Parkinson’s Disease, volume 1, 2010