

# Activa Tremor Control Therapy

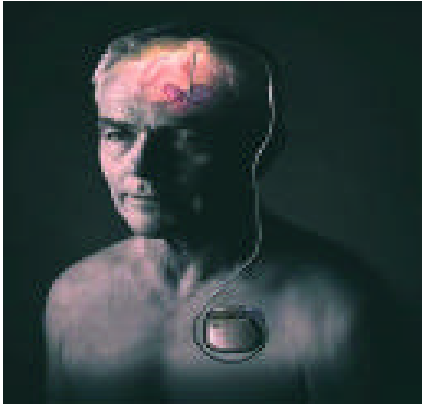
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## **Purpose:**

Activa Tremor Control Therapy is the first completely new treatment approach to controlling tremor in 30 years. Activa Therapy is delivered by an implanted medical device, similar to a cardiac pacemaker, that uses mild electrical stimulation to block the brain signals that cause tremor. In the United States, Activa Tremor Control Therapy is indicated for people whose drugs are ineffective for controlling their disabling tremor due to Essential Tremor or Parkinson's disease. Parkinson's disease, a movement disorder, is a progressive and degenerative disease with four primary symptoms: stiffness of the limbs and joints; involuntary, regular, rhythmic shaking of a limb, the head, the mouth, the tongue, or the entire body; and impaired balance and coordination. The Activa Tremor Control System stimulates targeted cells in the thalamus - the brain's message relay center-with electrodes that are surgically implanted in the brain and connected to a neurostimulator implanted near the collarbone. The electrical stimulation can be non-invasively adjusted to meet each patient's needs.

## **The Device:**

The Activa System consists of three implantable components: 1) DBS™ lead - A thin, insulated wire lead with four electrodes at the tip. Using standard clinical imaging techniques and stereotactic equipment, the neurosurgeon positions the electrodes of the lead in the brain's thalamus, and the lead is anchored to the skull. 2) Itrel® II neurostimulator - This device, which contains a battery and microelectric circuitry, is implanted under the skin near the collarbone. It measures 2-1/4" long, 2-1/4" wide, 3/8" thick and weighs 1.72 oz. 3) Extension - An insulated wire that is surgically passed under the skin of the head, neck, and shoulder to connect the lead to the implanted neurostimulator. External components of the system include a console programmer and the patient's hand-held magnet. The neurostimulator generates mild electrical pulses that are delivered by the extension and lead to targeted cells in the thalamus of the brain. These pulses can be non-invasively adjusted by a clinician using a console programmer and transmitted painlessly via radio telemetry to the implanted neurostimulator. Physician researchers have found that the electrical pulses block faulty brain signals that cause tremor.

## **Present Status:**

In clinical research on Tremor Control Therapy, tremor was usually suppressed entirely or significantly reduced. Patients in clinical studies have resumed daily life activities that were previously difficult or impossible. Unlike lesioning, Activa Therapy preserves a patient's option for future treatment since brain tissue is not destroyed.