MIDWEST TREMOR CENTER

Comprehensive Movement Disorder Care
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PRE-AUTHORIZATION REQUEST

Deep Brain Stimulation for Essential Tremor

Request Information

Date Submitted: October 12, 2025

Procedure: Bilateral VIM Thalamic Deep Brain Stimulation

CPT Codes: 61863, 61868

Patient Demographics

Name: Sullivan, Brian Patrick

Date of Birth: September 3, 1962 (Age 63)

Gender: Male

MRN: MTC-338475

Insurance: Medicare Part B

Medicare ID: 8GH-TJ56-PL92

Diagnosis

Primary: G25.0 - Essential Tremor

Duration: 9 years

Clinical History

Mr. Sullivan is a 63-year-old right-handed male with a 9-year history of progressive essential tremor. Tremor onset was gradual beginning around 2016, initially affecting both hands with bilateral postural and action components. Over the past 9 years, tremor has progressively worsened and now severely impacts his ability to perform activities of daily living and professional functions.

Tremor Characteristics:

- Bilateral upper extremity tremor, symmetric
- Postural and kinetic (action) tremor
- Absent at rest
- Disappears during sleep
- No head, voice, or lower extremity tremor
- Worsens with stress, caffeine, fatigue

Family History: Father had hand tremor beginning in his 50s. Sister (age 59) also has mild hand tremor. Consistent with autosomal dominant inheritance pattern typical of essential tremor.

Functional Impact: Patient reports profound functional impairment. Cannot eat without spilling food, unable to drink from cups or glasses without lids, writing is completely illegible (relies on typing exclusively). Previously worked as graphic designer but forced to retire at age 58 due to inability to use computer mouse with any precision. Avoids all social situations including restaurants and family gatherings due to extreme embarrassment about visible tremor. Quality of life severely impacted.

Neurological Examination

Examination Date: October 5, 2025

Mental Status: Alert and oriented x3. MOCA: 28/30 (normal). No cognitive impairment.

Cranial Nerves: II-XII intact. No dysarthria. Voice normal without tremor.

Motor Examination: Normal bulk, strength 5/5 throughout. Tone normal - no rigidity. No bradykinesia observed. Rapid alternating movements normal in rhythm and speed when tremor not interfering.

Tremor Assessment:

- **At Rest:** No tremor when hands resting in lap
- **Postural Tremor:** With arms extended forward, severe bilateral tremor present, amplitude 4-5 cm, frequency 6-7 Hz. Scored as 4/4 severity on each hand using Fahn-Tolosa-Marin scale.
- **Kinetic Tremor:** Tremor markedly worsens with intentional movements. During finger-to-nose testing, severe tremor throughout movement and at endpoint. Unable to drink from water cup - entire contents spill. Spiral drawing shows completely tremulous lines. Scored 4/4 bilaterally.
- **Functional Tasks:** Unable to use spoon (food falls off), cannot button shirts, cannot sign name legibly. All functional tremor ratings 4/4.

Fahn-Tolosa-Marin Clinical Tremor Rating Scale: Total score 36/144 with severity predominantly in bilateral upper extremities (both hands scored 4/4 for postural and kinetic tremor) and functional impairment (4/4 on drinking, eating, writing tasks).

Cerebellar Examination: No ataxia or dysmetria beyond that attributable to tremor itself. Gait normal.

No Parkinsonian Features: No resting tremor. No rigidity. No bradykinesia. Normal gait with normal arm swing. No postural instability.

Current Medications

Medication	Current Dose	Response
Propranolol	60 mg twice daily (120 mg/day)	Patient reports "some improvement" in tremor but still severely limiting
Primidone	125 mg at bedtime	Patient states this "helps a little" but tremor remains disabling

Note on Medication History: Patient has been on propranolol for approximately 7 years and primidone for approximately 5 years. He reports both medications provide partial benefit but tremor

remains severely functionally limiting despite these treatments. Chart documents adjustments have been made over the years but specific details of dose escalation attempts, maximum doses tried, reasons for not escalating further, and trials of other medications are not fully detailed in current submission.

Diagnostic Studies

MRI Brain (September 20, 2025): No structural abnormalities. No stroke, tumor, vascular malformation, or other lesions. Normal basal ganglia and cerebellar structures. Study appropriate for stereotactic surgical planning.

Neuropsychological Testing (September 25, 2025): MOCA 28/30 (normal). Comprehensive cognitive battery shows all domains within normal limits. No evidence of dementia or significant cognitive impairment. Patient demonstrates good understanding and decisional capacity.

Exclusion Criteria Assessment

Parkinsonian Features: ABSENT - Examination reveals no rigidity, bradykinesia, or resting tremor. Presentation consistent with essential tremor, not Parkinson's disease.

Cognitive Status: NORMAL - MOCA 28/30, comprehensive neuropsych testing normal

Psychiatric: No depression (BDI-II: 10, minimal). No anxiety disorder. No psychosis. Patient expresses frustration about tremor limitations (appropriate reaction) but no clinical depression.

Substance Use: No alcohol abuse. Patient does consume alcohol socially (2-3 drinks per week) and notes tremor improves somewhat with alcohol, which is typical for ET. No drug abuse.

Structural Lesions: ABSENT - MRI normal

Prior Surgery: No prior brain surgery or movement disorder procedures

Medical Comorbidities: Patient has well-controlled hypertension and hyperlipidemia. Otherwise healthy. Cardiology clearance obtained. Anesthesia clearance obtained. No contraindications to surgery.

Patient Cooperation and Education

Patient attended DBS educational seminar on September 28, 2025 (2 hours). Excellent understanding demonstrated of:

- Awake surgical procedure with local anesthesia
- Intraoperative testing requirements
- Post-operative programming sessions needed
- Realistic expectations (significant tremor improvement likely but not guaranteed complete resolution)
- Risks including hemorrhage, infection, hardware complications

Patient is highly motivated and desperately seeking tremor improvement to restore some quality of life. Wife very supportive and will provide transportation to all programming appointments. Patient

demonstrates excellent understanding and strong commitment to cooperate with all aspects of procedure and post-operative care.

Device Information

Proposed Device:	Medtronic Activa PC Neurostimulator System
FDA Status:	FDA approved for VIM thalamic stimulation for essential tremor
Target:	Bilateral VIM (Ventral Intermediate Nucleus of Thalamus)

Provider and Facility Information

Neurosurgeon: Dr. David Johnson, MD
Board Certified Neurosurgery (2008)
Fellowship: Functional Neurosurgery, University of Toronto (2009)
Experience: 16 years, 190+ DBS implantations
Member: American Society for Stereotactic and Functional Neurosurgery

Neurologist: Dr. Karen Williams, MD
Board Certified Neurology (2011), subspecialty Movement Disorders (2013)
Experience: 12 years managing essential tremor and tremor disorders
Experience with 130+ DBS patients

Facility: Midwest Tremor Center / Minneapolis Medical Center
Academic tertiary medical center
Dedicated stereotactic OR with Leksell frame and microelectrode recording
3T MRI for surgical planning
Established DBS program: 50+ cases annually, program since 2007

Clinical Summary

Mr. Sullivan is a 63-year-old male with 9-year history of essential tremor characterized by severe bilateral postural and kinetic hand tremor without other neurological signs. Clinical examination demonstrates tremor meeting diagnostic criteria for ET with Fahn-Tolosa-Marin severity scores of 4/4 bilaterally, causing profound functional limitation affecting eating, drinking, writing, and all activities requiring hand precision.

Tremor has resulted in loss of career (graphic designer), social isolation, and severe quality of life impairment. Patient forced to retire at age 58 due to tremor. Currently unable to perform basic ADLs independently (eating, drinking) due to tremor severity.

Patient has been on medical therapy for tremor for multiple years including propranolol (currently 120 mg/day) and primidone (currently 125 mg at bedtime). Despite these medications, tremor remains severely disabling with Fahn-Tolosa-Marin scores of 4/4.

Comprehensive evaluation confirms ET diagnosis. No parkinsonian features. No cognitive impairment (MOCA 28/30). No psychiatric contraindications. MRI normal. No prior surgery. Medical comorbidities controlled.

Patient demonstrates excellent understanding of DBS procedure and realistic expectations. Highly motivated with strong family support.

Surgery to be performed by experienced team at academic center using FDA-approved device.

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Karen Williams, MD
Movement Disorders Neurology
Midwest Tremor Center
Date: October 12, 2025