

# **Magnetic Resonance-Guided Focused Ultrasound Neurosurgery for Treatment-Refractory Obsessive–Compulsive Disorder**

**Recommendation**

MAY 2025



**Ontario  
Health**

# Final Recommendation

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Ontario Health, based on guidance from the Ontario Health Technology Advisory Committee, recommends time-limited public funding for magnetic resonance-guided focused ultrasound (MRgFUS) neurosurgery for people with treatment-refractory obsessive-compulsive disorder (OCD), during which time further data will be collected.

## Rationale for the Recommendation

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The Ontario Health Technology Advisory Committee made the above recommendation after considering the clinical, economic, and patient preferences and values evidence reported in the health technology assessment.<sup>1</sup>

The committee members noted that MRgFUS neurosurgery may convey clinical benefits such as treatment response and improved OCD symptoms, quality of life, and patient functioning for people with severe, treatment-refractory OCD. The committee acknowledged that the published body of evidence is uncertain and includes a small number of cases, and that there are no studies directly comparing MRgFUS neurosurgery with other surgeries. Due to the lack of comparative clinical evidence, a primary economic evaluation was not conducted, and therefore the cost-effectiveness of MRgFUS neurosurgery is unknown. However, the committee recognized the favourable safety profile of MRgFUS neurosurgery owing to its noninvasive approach and use of ultrasound waves.

Ontario Health Technology Advisory Committee members considered the lived experience of patients with severe, treatment-refractory OCD and their care partners and families, who described the negative impact of OCD on their day-to-day activities, work and school, social life, family relationships, and mental health. The committee weighed the substantial burden and severity of treatment-refractory OCD on people and their families, as well as the paucity of treatment options. Committee members noted that, like rare disease cases, the population in need is small but has a large unmet need for treatment. Publicly funding MRgFUS neurosurgery for people with treatment-refractory OCD in Ontario is estimated to increase costs by approximately \$1.9 million over 5 years to treat 110 people.

The committee reflected upon the lack of a clear care pathway for people with OCD overall; the current pathway is fragmented and difficult for patients to navigate. The committee supports efforts to strengthen the OCD care pathway in Ontario to enhance equity of care and improved access to evidence-based treatments.

The committee noted the alignment of MRgFUS neurosurgery with the health system's priority of mental health care; however, due to the uncertainty and limitations in the available evidence, the committee supports time-limited public funding for MRgFUS neurosurgery for treatment-refractory OCD. The committee emphasized the need for additional evidence development during this time-limited funding period to inform a recommendation about long-term funding. Committee members recognized the need for more evidence but that it is important for patients to access the treatment. Real-world evidence from all centres should be collected, including data on demand, clinical effectiveness, cost-effectiveness, patient perspectives, and case volumes in Ontario.

Ontario Health intends to revisit the body of evidence and this recommendation once the evidence collected from the time-limited public funding period is available. The parameters of the time-limited funding will be determined by the Ministry of Health, in consultation with implementing clinical centres.

# Decision Determinants for Magnetic Resonance-Guided Focused Ultrasound Neurosurgery for Treatment-Refractory Obsessive–Compulsive Disorder

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## Overall Clinical Benefit

### Effectiveness

*How effective is the health technology/intervention likely to be (taking into account any variability)?*

There is considerable uncertainty about the effectiveness of MRgFUS neurosurgery for severe, treatment-refractory OCD based on evidence from 2 small case series with a combined total of 17 patients. No comparative clinical evidence was available. However, the evidence from the case series suggests that MRgFUS neurosurgery may improve OCD symptoms, quality of life, and patient functioning and result in treatment response (Grading of Recommendations, Assessment, Development and Evaluations [GRADE] certainty of evidence: Very low). MRgFUS neurosurgery may have a technical failure rate of up to 25% and may not require re-treatment or follow-up interventions; however, the evidence is very uncertain, as no occurrences of re-treatment were reported (GRADE: Very low).

### Safety

*How safe is the health technology/intervention likely to be?*

The evidence suggests that MRgFUS neurosurgery for severe, treatment-refractory OCD may have a favourable safety profile (GRADE: Very low); no occurrences of serious or persistent adverse events were reported, and it may have little to no effect on neurocognitive function (GRADE: Very low).

### Burden of Illness

*What is the likely size of the burden of illness pertaining to this health technology/intervention?*

About 1% of adults have OCD,<sup>2</sup> and about one-third of those have severe symptoms.<sup>3</sup> An estimated 20% to 40% of people with OCD do not respond to evidence-based treatments despite many trials and combinations and are considered to have treatment-refractory OCD.<sup>4,5</sup>

### Need

*How large is the need for this health technology/intervention?*

Severe OCD has an elevated risk of suicide, reduced quality of life, caregiver burnout, and chronic disability. OCD is a chronic condition and requires ongoing, comprehensive treatment, including exposure and response prevention psychotherapy and/or pharmacotherapy after neurosurgery.

## Patient Preferences and Privacy

### Patient Preferences and Values

*Do patients have specific preferences, values, or needs related to the health condition, health technology/intervention, or life impact that are relevant to this assessment?*

Noninvasive MRgFUS neurosurgery is expected to align with patient preferences and values and may provide an additional surgical option for people who may not accept, be suited to, or be eligible for other surgeries.

Patients regarded MRgFUS neurosurgery as a last resort after exhausting multiple treatment options and emphasized the importance of having access to MRgFUS neurosurgery as a treatment option for severe, treatment-refractory OCD.

### Autonomy, Privacy, Confidentiality, and/or Other Relevant Ethical Principles as Applicable

*Are there concerns regarding accepted ethical or legal standards related to patient autonomy, privacy, confidentiality, or other ethical principles that are relevant to this assessment?*

Patients expressed that noninvasive MRgFUS neurosurgery allowed them to regain their independence and perform day-to-day activities with little to no support needed from care partners.

## Equity and Patient Care

### Equity of Access or Outcomes

*Are there disadvantaged populations or populations in need whose access to care or health outcomes might be improved or worsened that are relevant to this assessment?*

Neurosurgery for OCD is highly specialized and, appropriately, only provided in centres of expertise, with multidisciplinary teams and specialty equipment. Currently, this service is only available in Toronto, Ontario. Support services (e.g., travel grant) and care coordination are required as part of implementation to facilitate equitable access to MRgFUS neurosurgery for all eligible people in Ontario, especially those who must travel.

### Patient Care

*Are there challenges in the coordination of care for patients or other system-level aspects of patient care (e.g., timeliness of care, care setting) that might be improved or worsened that are relevant to this assessment?*

Less than half of people with OCD seek treatment,<sup>6</sup> and there is no clear care or referral pathway for people with treatment-refractory OCD to undergo neurosurgery, nor for OCD care overall, in Ontario. People with OCD may experience stigma associated with mental illness.

## Cost-Effectiveness

### Economic Evaluation

*How efficient is the health technology/intervention likely to be?*

The cost-effectiveness of MRgFUS neurosurgery is unknown. No existing economic evidence was identified, and a primary economic evaluation was not conducted due to the lack of comparative clinical evidence.

## Feasibility of Adoption Into Health System

### Economic Feasibility

*How economically feasible is the health technology/intervention?*

Publicly funding MRgFUS neurosurgery for people with treatment-refractory OCD is estimated to increase costs to the province by approximately \$1.9 million over the next 5 years.

### Organizational Feasibility

*How organizationally feasible is it to implement the health technology/intervention?*

One site is currently offering MRgFUS neurosurgery to eligible patients with treatment-refractory OCD from Ontario and across Canada. Two sites in Ontario have the equipment and expertise to offer MRgFUS neurosurgery and are expected to accommodate the demand in Ontario for this population. These 2 sites also provide other neurosurgeries for severe, treatment-refractory OCD.

# References

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