

● REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION

rTMS Clinical information for doctors

Clinical summary of repetitive transcranial magnetic stimulation (rTMS) at AlmaraClinic: indications, eligibility criteria, protocol, safety profile, published evidence and referral.

20 to 30sessions per
treatment course**18.5 to 24.5**

minutes per session

2 to 5

sessions per week

≥ 18

years, adults only

+maintenance
sessions after the
course

● 01 · INDICATIONS

Clinical indications

- Major depressive disorder in adults with an inadequate response to prior antidepressant medication, at or above the minimum effective dose and within the current episode
- Anxiety symptoms comorbid with major depressive disorder
- Obsessive-compulsive disorder (OCD), as adjunctive therapy

The indication is always confirmed at a medical consultation, after eligibility assessment.

● 02 · PROTOCOL

Treatment course and maintenance

Course	20 to 30 sessions, as prescribed by the doctor
Frequency	2 to 5 sessions per week
Duration	18.5 to 24.5 minutes per session
Maintenance	Spaced maintenance sessions after the course, set by the doctor at review
Age	Adults, from 18 years
Setting	Outpatient, no anaesthesia, sedation or recovery

● 03 · TECHNIQUE

Non-invasive neuromodulation

Pulsed magnetic fields modulate activity in specific cortical regions, typically the dorsolateral prefrontal cortex.

Individual intensity

Set as a percentage of the patient's motor threshold, measured before treatment starts. Parameters according to the indication.

No disruption to routine

The patient is awake during the session and resumes usual activities immediately, with no need for a companion.

● 04 · ELIGIBILITY

Criteria and contraindications

Mandatory prior assessment

The indication always depends on a prior clinical assessment at a medical consultation: verification of eligibility criteria, review of previous tests and clinical history, screening for contraindications and, where in doubt, ordering tests before treatment is prescribed.

Indicated for adults only. Transcranial magnetic stimulation requires specific written informed consent (Law no. 35/2023, Mental Health Act, art. 8).

Absolute contraindications

- Electronic implants in or near the head, active or inactive: electrodes, deep brain stimulators, cochlear and ocular implants
- Vagus nerve stimulators, pacemakers, defibrillators and other neurostimulators
- Metallic or ferromagnetic implants or objects in the head, or within 30 cm of the coil, such as aneurysm clips, stents or bullet fragments (with some exceptions in the mouth)
- Pregnancy and breastfeeding

Precautions assessed at consultation: personal history of epilepsy or seizures and other conditions identified during assessment.

● 05 · SAFETY

Safety profile

The safety profile of rTMS is well characterised and favourable. The most frequent adverse effects are mild and transient: headache and local scalp discomfort during stimulation, mainly in the first sessions, and mild tiredness. Seizure is a very rare event, hence the prior safety screening.

International safety recommendations, stimulation limits and contraindications are set out in Rossi et al, 2021, the reference document of the International Federation of Clinical Neurophysiology.⁴

No systemic drug exposure

- Local action: the systemic effects typical of antidepressants, such as weight gain, sexual dysfunction or sedation, are not expected
- No worsening of cognitive function in controlled trials^{20,21}
- All-cause dropout no different from sham stimulation in meta-analyses^{5,6,7}



06 · EVIDENCE

Published outcomes by indication

rTMS is supported by more than three decades of clinical research, including sham-controlled randomised trials and large clinical practice registries. Response and remission as defined by each study.

MAJOR DEPRESSIVE DISORDER

75% **44%**

response (HAM-D-17) remission

Retrospective registry study (n = 108) with rTMS/iTBS: 72 patients with major depression without an anxiety disorder.

Noda Y. et al. J Pers Med. 2026;16(2):68.¹³

MDD IN CLINICAL PRACTICE

58% **37%**

response (CGI-S) remission (CGI-S)

Naturalistic study across 42 sites, 307 patients. PHQ-9: 56.4% and 28.7%. IDS-SR: 41.5% and 26.5%.

Carpenter L. L. et al. Depress Anxiety. 2012;29(7):587-596.¹⁰

MDD WITH GENERALISED ANXIETY

72% **42%**

response (HAM-D-17) remission

36 patients with depression and generalised anxiety disorder, with no significant difference from patients with depression alone.

Noda Y. et al. J Pers Med. 2026;16(2):68.¹³

OBSESSIVE-COMPULSIVE DISORDER

73% **58%** **52%**

first response (Y-BOCS) response after 29 sessions sustained response

Post-marketing data from 167 patients at 22 clinical sites, with deep TMS.

Roth Y. et al. J Psychiatr Res. 2021;137:667-672.¹⁴

DEPRESSION AFTER TWO TREATMENT FAILURES

39.7% **35.7%** **6.1** **5.4**

response vs 13.7% sham remission vs 8.4% sham NNT for response NNT for remission

Meta-analysis of sham-controlled randomised trials of adjunctive rTMS: response in 19 trials (n = 854), remission in 9 (n = 551). RR 2.25 (95% CI: 1.71 to 2.97) for response and 2.78 (1.40 to 5.53) for remission.

Vida R. G. et al. BMC Psychiatry. 2023;23(1):545.⁸

Summary of key sources

Study	Type and size	Response	Remission
O'Reardon et al, 2007 ¹¹	Multicentre sham-controlled randomised trial	about 24%	14.2 to 17.4%
Berlim et al, 2014 ⁵	Meta-analysis of randomised trials	29.3%	18.6%
Blumberger et al, 2018 (THREE-D) ⁹	Randomised non-inferiority trial, n = 414	47 to 49%	27 to 32%
Sackeim et al, 2020 ¹²	Clinical registry, 103 sites, n = 7,759 (5,010 in the ITT analysis)	58 to 83%	28 to 62%

Rates vary with study design (randomised trial or clinical practice), scale (CGI-S, PHQ-9, HAM-D, MADRS, IDS-SR), sample (intention to treat or completers), degree of prior resistance and dose delivered. Studies use different devices and protocols; results vary between patients.

● 07 · RECOMMENDATIONS

Guidelines and maturity of evidence

The International Federation of Clinical Neurophysiology guidelines (2020 update) give high-frequency rTMS over the left dorsolateral prefrontal cortex in depression the highest level of recommendation given to any therapeutic rTMS application.¹ The Clinical TMS Society published consensus recommendations in 2016 and 2018.^{2,3}

In MDD and treatment-resistant depression, the evidence is robust and consistent, with a NICE recommendation (IPG542, 2015). In OCD, rTMS was cleared by the FDA in 2018; NICE (IPG676, 2020, now HTG548) judged the efficacy evidence still limited, with no major safety concerns.^{15,16}

● 08 · PORTUGAL

National framework

- Law no. 35/2023 (Mental Health Act) names transcranial magnetic stimulation explicitly: art. 8 requires specific written informed consent.¹⁷
- In use in the Portuguese National Health Service (SNS), notably in the Psychiatry Department of São João University Hospital Centre, for treatment-resistant depression and OCD, with published research.¹⁸
- Opinion no. 03/2025 of the Portuguese Nurses Association: prescribing and defining protocols are a medical responsibility.¹⁹

09 · REFER A PATIENT

211 375 819

Or use the form at almaraclicinic.pt, on the For doctors page. With the patient's consent, we send the assessment summary, the proposed plan and, at the end of treatment, the progress report.

Useful information to send

- Diagnosis and reason for referral
- Current medication and previous treatments, with doses and duration
- Relevant reports and test results
- History of epilepsy, implants or devices

● 10 · RESPONSIBLE TEAM



Dr Bruno Gomes
Clinical director. Internal Medicine, OM 60263.



Dr João Francisco Cunha
Psychiatry, OM 63033.



Nurse Joana Managem
Nursing, OE 114409. Trained in rTMS. Supervises the sessions.



Dr Patrick Roque Teixeira
Clinical Neuropsychology and Clinical Psychology, OPP 14529.

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COGNITIVE SAFETY

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Information document for healthcare professionals. It does not replace individual clinical assessment.