

Nexstim

Smart. Focused. Drug-free.

Introducing SmartFocus™ TMS for the treatment of drug-resistant depression.
Now, treat with confidence.



Transcranial magnetic stimulation (TMS) stimulates the brain using small electrical fields. A coil resting against the patient's head communicates directly with the underlying neurons of the brain. A non-drug option, SmartFocus™ TMS only influences the brain and doesn't impact the rest of the body's chemistry.

In fact, TMS speaks the same language as the brain — electricity.

“ Visualization of the therapy in the brain inspires confidence in both the patient and the physician. ”

Marja-Liisa Kempainen, MD

SmartFocus™ TMS brings accuracy and precision to therapy for depression

The Nexstim NBT® System uses TMS with sophisticated navigation tools to visualize the location, orientation and magnitude of the maximum stimulating E-field induced when the TMS coil is activated. We call this SmartFocus™ TMS.

Researchers have shown that the location of the E-field in the brain is dependent on both the conductivity as well as the geometry of the underlying tissues.

Calculating the E-field location requires sophisticated modelling of tissue geometry. Nexstim uses an algorithm based on mathematically modelling the human brain as over 40,000 spheres – taking into account the brain's shape as well as the effects of cerebrospinal fluid, grey matter and white matter on the induced E-field.

The Nexstim multi-sphere model of the brain has been scientifically-validated to accurately determine the location and orientation of the maximum induced E-field – and is the foundation for the FDA-clearance of our technology for pre-procedural planning, used in neurosurgery.*

* Krieg S (Ed.), Navigated Transcranial Magnetic Stimulation in Neurosurgery, Springer International Publishing, 2017

How SmartFocus™ TMS works

Using an MRI head scan, Nexstim SmartFocus™ TMS builds a 3D rendering of the patient's brain. By “peeling” to a depth of 2–3 cm (1 in), you will be able to see the patient's actual cortical anatomy in detail.

Using a published, science-based algorithm**, instead of the 5 cm rule-of-thumb technique, you can then determine the precise location of the left DLPFC (dorso-lateral pre-frontal cortex) target within the individual's brain anatomy.

The Nexstim system displays the location and the orientation of the maximum induced E-field overlaid in the cortical anatomy. As you move, turn or tilt the coil – even slightly – the system screen displays the updated E-field strength and location, all in real-time.

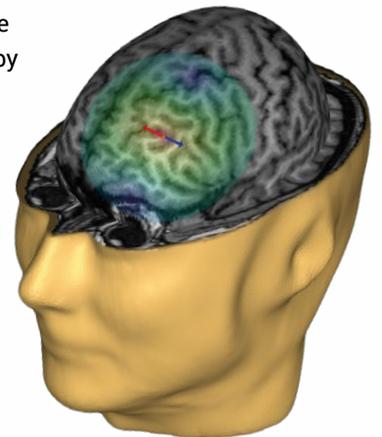
Accurately marking the left DLPFC, just once, gives your patient the benefit of receiving therapy to the same, precise location over the entire course of their treatment – and later, visit after visit.

SmartFocus™ TMS operates with the same accuracy level as demanded by neurosurgeons using Nexstim's navigated TMS for planning.

SmartFocus™
TMS

In order to benefit from E-field navigation, the SmartFocus™ TMS system only requires a short, one-time setup process. The system then guides a trained operator to deliver a series of personalized therapy sessions, reliably and precisely – all in just a few steps.

** Mylius V, Ayache SS et al., Neuroimage. 2013 Sep; 78:224–32



SmartFocus™ TMS workflow



View



SmartFocus™ TMS creates a 3D model of the patient's brain from an MRI head scan. With the patient comfortably seated, the MRI is co-registered to the patient's head using the tracking system with Nexstim's unique forehead tracker. When resting the coil against the patient's head, the system now visualizes the coil and E-field overlaid on the 3D model of the brain. As the coil is moved, the magnitude (V/m) and orientation of the E-field relative to the cortex are dynamically calculated and displayed in real time.



Measure

Place EMG electrodes over hand muscles. Using single-pulse TMS to accurately locate the primary motor area, the SmartFocus™ TMS software quickly guides the operator to determine an optimized intensity of the TMS dose for the patient's individual cortical excitability.



Target

The published, science-based algorithm allows accurate and reliable identification of the left DLPFC in the brain – the validated target in the cortex for treating depression.

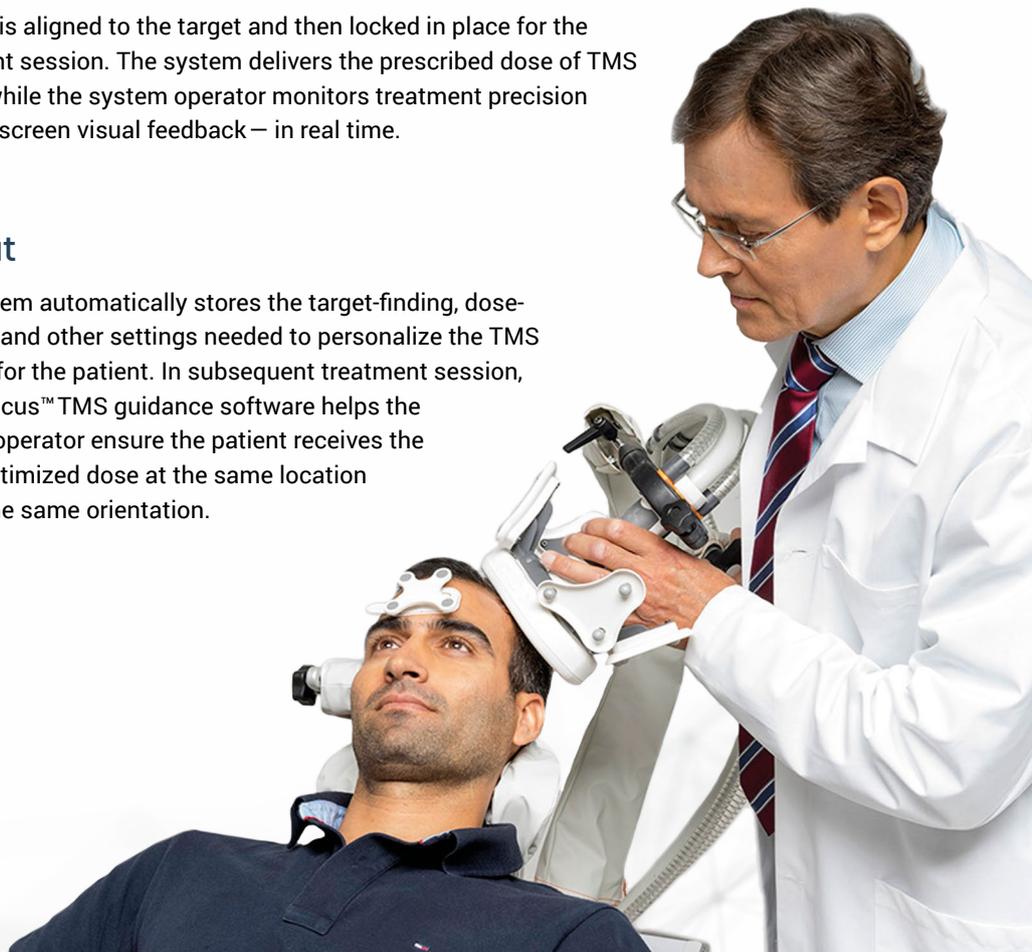


Treat

The coil is aligned to the target and then locked in place for the treatment session. The system delivers the prescribed dose of TMS pulses while the system operator monitors treatment precision from on-screen visual feedback – in real time.

Repeat

The system automatically stores the target-finding, dose-defining and other settings needed to personalize the TMS therapy for the patient. In subsequent treatment session, SmartFocus™ TMS guidance software helps the system operator ensure the patient receives the same optimized dose at the same location and in the same orientation.

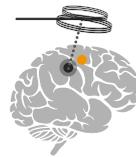
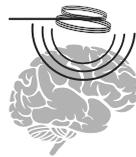




Demand the most that TMS therapy can offer

- ✔ Clinicians say E-field visualization of the therapy in the cortex inspires confidence in both the patient and the physician. SmartFocus™ TMS offers you unsurpassed accuracy in the treatment of drug-resistant depression.
- ✔ Provide your patients with the benefits of MRI-guided TMS navigation, E-field visualization, and personalized, monitored dosing. Clinicians say SmartFocus™ TMS truly makes a difference to them.

SmartFocus™ TMS—a paradigm shift in TMS therapy for depression



Features	Stand-Alone TMS	TMS with coil navigation	SmartFocus™ TMS
Head/brain image display from MRI	—	✓	✓
Coil localization/positioning	—/✓	✓	✓
Individual modeling of brain conductivity	—	—	✓
E-field orientation shown on cortical anatomy	—	—	✓
Navigation of E-field in cortex	—	—	✓
Integrated motor response (EMG) measurement	—	—	✓
Accuracy clinically proven	—	—	✓
Fully integrated system	—	—	✓
Single & repetitive TMS	✓	✓	✓
FDA-cleared and CE-marked Applications for Nexstim technology			
Treatment of major depression disorder (MDD)	✓	—	✓
Pre-procedural localization of the primary motor cortex*	—	—	✓

www.nexstim.com

FDA INDICATIONS FOR USE: The Nexstim NBT® System 2 is indicated for the treatment of Major Depressive Disorder in adult patients who have failed to achieve satisfactory improvement from prior antidepressant medication in the current episode. The Nexstim NBT® System 2 is intended to be used by trained clinical professionals.

CAUTIONS, RISKS AND SIDE EFFECTS: TMS therapy should not be given patients with non-removable conductive metal in or near the head. The most common side effects reported during clinical trials are mild headache and pain on the stimulation site, occurring less frequently after the first week of treatment.

See the website www.nexstim.com for full prescribing information for physicians.