

# TMS TRENDS

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## IS TMS COST EFFECTIVE?

Repetitive transcranial magnetic stimulation (rTMS) is known to be a safe, noninvasive, treatment for major depressive disorder (MDD), but how does cost compare with that of pharmacotherapy?

Australian researchers compared the cost-effectiveness of rTMS with pharmacotherapy in treatment-resistant patients with MDD (ie, those who have failed at least 2 courses of antidepressant therapy). They found that, although both pharmacotherapy and rTMS are clinically effective, rTMS is more cost-effective.

Although several studies have compared the cost of rTMS with that of electroconvulsive therapy, only one has compared the pharmacoeconomics of rTMS with that of pharmacotherapy for MDD.

To further explore the issue, the Australian research team compared costs of rTMS and standard pharmacotherapy with a variety of commonly used antidepressant medications. These include selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, tricyclic agents, noradrenergic and specific serotonergic antidepressants, and monoamine oxidase inhibitors. Data were also extracted from published literature, cost reports, and expert opinion.

Sensitivity analyses confirmed the superiority of rTMS in terms of value for money compared with antidepressant medications, with multivariate analysis showing that the probability of rTMS being either dominant or cost-effective compared with antidepressant therapy exceeded 70%. The findings confirmed those of the earlier study.

## POSSIBLE BIOMARKER TO IDENTIFY INDIVIDUALS AT RISK FOR DEVELOPING DEPRESSION

A network of interacting brain regions known as the default mode network (DMN) was found to have stronger connections in adults and children with a high risk of depression compared to those with a low risk. These findings suggest that increased DMN connectivity is a potential precursor, or biomarker, indicating a risk of developing major depressive disorder (MDD).

Researchers at Columbia University Medical Center (CUMC) and New York State Psychiatric Institute (NYSPI) used magnetic resonance imaging to compare people at high risk for depression to those at low risk based on their family history of depression. This approach allowed researchers to look for differences in the brain that are not a consequence of the depression itself, since the disorder had not yet manifested in most of the individuals. This study was published online in *Neuropsychopharmacology*.

The DMN brain system is more active when people are focused on internal thinking, such as ruminative thoughts. Increased DMN connections have previously been seen in individuals with MDD. The study reveals that the process of increasing DMN connections may occur before the onset of depression.

“These findings suggest that looking at activity in the DMN may offer an objective method of identifying people who are at risk of developing major depression,” said lead author Myrna Weissman, PhD. She continues, “This may represent a way toward advancing prevention and early intervention for this major public health issue.”

**THE TMS INSTITUTE OF PENNSYLVANIA WISHES YOU A HAPPY NEW YEAR – ALL THE BEST IN 2016!**