

Cost effectiveness and benefits of transcranial magnetic stimulation treatment ar...

[Technology](#), [Innovation](#)



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Introduction

Depression is one of the most prevalent mental health conditions in the United States, affecting approximately 14 million American each year; about 3. 2 million receive adequate treatment (Simpson, Welch, Kozel, Demitrack, & Nahas, 2009). There is a significant economic cost and disability burden to the illness of depression. Studies have shown that depression is associated with higher rates of death from suicide, serious complications of chronic disease, significant burden to family caregiver, chronic substance abuse and high workplace costs of over \$34 billion per year for missed or less productive work (NAMI, 2014). The vast majority of patients are prescribed antidepressants medication. Despite their overall significant clinical efficacy, the antidepressant medicines do not perform well in some patients and remain with symptoms. Some others suffer side effects and cannot remain the medication. Most often, these patients are dissatisfied and remain coping with underlying depression. The Transcranial Magnetic Stimulation (TMS) is a noninvasive neuron modulation procedure to treat depression. TMS is administered by placing a coil on the scalp; these coils transmit an

electromagnetic current that stimulates the cortical neurons within the brain. The target of the treatment is to drive stimulation in the nerves of the brain and produce a clinically significant acute antidepressant effect (Simpson et al., 2009). The TMS is found to be more cost-effective in medication resistant depression as compared to continuation of treatment with antidepressant medication or sham treatments. If one draws a PPC curve, it would be going upwards with time showing the in availability of the services for masses but with increased quality for the existing. Therefore, not only is the treatment is cost effective in terms of other treatments but also on the cost in the burden, it is more effective in dealing with depression and in improving the quality of life amongst the patients.

Benefits and Cost Effectiveness

Economic decision-making analysis is a technique used in comparing two or more medical treatments to achieve a specific health care objective. Cost-effectiveness measures quantity of effectiveness in life years whereas cost-utility analysis measures effectiveness in quality adjusted life years (Santerre & Neun, 2013). Additionally, cost benefit analysis is based on willingness to pay for a treatment or cure (Santerre & Neun, 2013). There are limits to efficacy and tolerability of antidepressant medications (Stah, 2008). TMS has no systematic side effects, such as weight gain, sexual dysfunction, sedation, nausea or dry mouth that are associated with antidepressant medications (PR Newswire, 2014). TMS treatment is a tool for getting the maximum output and outcome quality with limited resources. Solvason, Husain, Fitzgerald, Rosenquist, McCall, Kimball, Gilmer, Demitrack, & Lisanby (2014)

found statistically significant improvement in both functional status and quality of life (QOL) in patients treated with TMS compared to sham or medication treatments. The clinical effect was durable in long-term follow up.

The research conducted over the cost of treatment of TMS compared to other available treatments found the cost of TMS to be much less than other treatments available (Simpson et al., 2009)). Economic decision making analysis is a technique used in comparing two or more medical treatments to achieve a specific health care objective. The cost-effectiveness of TMS is described by Simpson et al (2009) using an incremental cost-effectiveness ratio (ICER) per quality-adjusted life year (QALY) gained and in direct cost per patient (Simpson, Welch, Kozel, Demitrack, & Nahas, 2009).

Simpson et al (2009) studied the utility analysis of the TMS. The research found that TMS is more efficient as compared to the other products. The utility analysis depicts the services offered by the product in comparison to cost. Quality-adjusted life-years (QALYs) were the summary benefit measure. The three main cost categories were health care use (TMS, treatment of depression, hospitalizations, emergency department visits, primary care visits, and antidepressant therapy), caregiver support, and productivity lost. The resource data was from clinical trials and cost data was from Medicaid billing data. The incremental cost per QALY with TMS over sham treatment was \$3, 544 and for those who had failed only one medication treatment the saving were \$5, 092. Excluding the productivity costs, the incremental cost per QALY was \$36, 551 for all patients and \$29, 556 for patients who had failed one medication treatment. From their data, they found TMS was

dominant as it was more effective and less expensive than medication treatments. It produced cost savings that varied from \$746 to \$9, 844. Based on this utility analysis, TMS is highly positive as compared to the other products like medication treatments and sham treatment.

Conclusion

TMR is highly desirable in term of its effectiveness for treating depression. The side effects of the therapy are also found to be much less than other therapies available. The long-term effects and sustainability have not been measured in terms of their effectiveness.

The cost effectiveness of the TMS product is no doubt much more than the available therapies for the depression. The benefits associated with tracking of the symptoms have to do a lot with the effectiveness of the treatment. The treatment effectiveness and efficiency of the TMS treatment is undoubted and firm.

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