**Course ID: CMEC16**

## Transcranial magnetic stimulation: A new tool in neuropsychiatry

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**Educational Objectives:** TMS is a developing technology that will most certainly play a role in the future of neuropsychiatry. This course has been developed to provide clinicians with the basic knowledge on TMS. The topics selected for presentation will guide the clinician through the complexities of this fascinating tool.

**Course description:** Transcranial Magnetic Stimulation (TMS) was introduced by Barker et al in 1985 as a technique for non-invasively and almost painlessly stimulating the central nervous system. Soon after its introduction, and especially after the development of repetitive TMS (rTMS), studies concerning the potential antidepressant effects of TMS and rTMS began to appear in the literature. Seminal studies by Pascual Leone et al and George et al describing the antidepressant effects of rTMS in controlled studies of patients with major depression (MD) created significant enthusiasm among clinicians managing these difficult to treat patients.

Over the following years a number of important studies were published, some of them supporting the antidepressant effects of TMS and rTMS and others not finding it different from placebo, or as having at best mild antidepressant effects. Grunhaus el al has presented evidence that in patients with MDD without delusions rTMS may be as effective as ECT. Sackeim in a recently published editorial concluded that "rTMS exerts antidepressant effects over and beyond those of placebo contributions", nonetheless Sackeim questioned whether enough evidence has accumulated to suggest clinical utility for rTMS.

TMS is a developing technology that will most certainly play a role in the future of neuropsychiatry. This course has been developed to provide clinicians with the basic knowledge on TMS. The topics selected for presentation will guide the clinician through the complexities of this fascinating tool.

1. TMS: Introduction and basic physical and electrical principles
2. TMS: Neurophysiological aspects including cortical excitability
3. TMS: Neuropsychological effects
4. TMS as an antidepressant treatment. Review of the evidence
5. Instrumentation for TMS administration
6. Conclusion

At the end of this course participants will have a broad understanding of TMS, its principles and neurophysiological effects, of the supporting data for its use in patients with major depression, and will have a basic understanding of the instruments available for TMS administration.

**Course level:** Basic.