

Theta burst Transcranial Magnetic Stimulation (TMS) for Methamphetamine use disorder– A feasibility study to inform the design of a multisite randomised control trial.

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Introduction and Aims: This study will examine the feasibility of Transcranial Magnetic Stimulation (TMS) for moderate to severe methamphetamine (MA) use disorder in ambulatory settings, specifically theta burst stimulation (TBS) TMS. The proposed feasibility study aims to inform development of a larger multisite Randomised Control Trial, potentially through Drug & Alcohol Clinical Research and Improvement (DACRIN) collaborating sites to facilitate translation of findings to patients in multiple local health districts (LHDs) across NSW.

Design and Methods: The study will examine feasibility measures including recruitment, treatment adherence, patient and staff experience. Preliminary efficacy results examined include changes to MA use and cravings with TMS. A neuroimaging sub-study will utilize various structural and functional magnetic resonance imaging (fMRI) methods to examine the neurobiological processes associated with cue-elicited craving and TMS treatment in MA use disorder.

Key Findings OR Results: TBS requires significantly shorter duration of treatment (2-3 mins only) and fewer treatment sessions compared to other forms of TMS (where sessions are 15-40 mins). This may be more acceptable for clients with MA use disorder.

Discussions and Conclusions: TMS devices are relatively affordable and staff of existing ambulatory services can be easily trained to administer TMS. It is a potentially scalable and translatable treatment for existing drug and alcohol clinical settings.

Implications for Translational Research:

If proven effective, it has the potential to provide a much-needed adjuvant treatment to existing psychosocial interventions for MA use disorder.

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