

Offering Transcranial Magnetic Stimulation to Eligible Patients with Treatment-Resistant Depression

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Mission Statement

We aim to increase the rate at which transcranial magnetic stimulation (TMS) is offered to eligible patients at KTPH Psychological Medicine from 15% to 60% over 6 months.

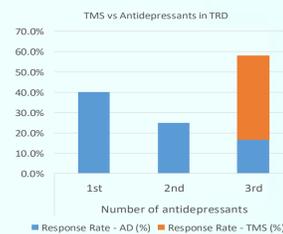
Team Members

Role	Name	Designation	Department
Team Leader	Dr Tay Yi Hang	Consultant	Psy Medicine
Team Members	Ng Kwee Hiang Carol	Snr Nurse Clinician	Nursing
	Tan Wan Ling	Asst Nurse Clinician	Nursing
	Dr Tan Ling Wei Bryan	Psychiatry Resident	Psy Medicine
	Dr Thng Ern Wei Christabel	Consultant	Psy Medicine
Sponsor	Dr Surej John	HOD, Snr Consultant	Psy Medicine
Facilitator	Chan Sue Mei	Principal Dietitian	Nutrition & Dietetics

Thank you to Jack Lau for patiently assisting us with our TMS publicity materials, and Doreen Lau and James Wong for their invaluable guidance on the quality improvement methodology.

Evidence for a Problem Worth Solving

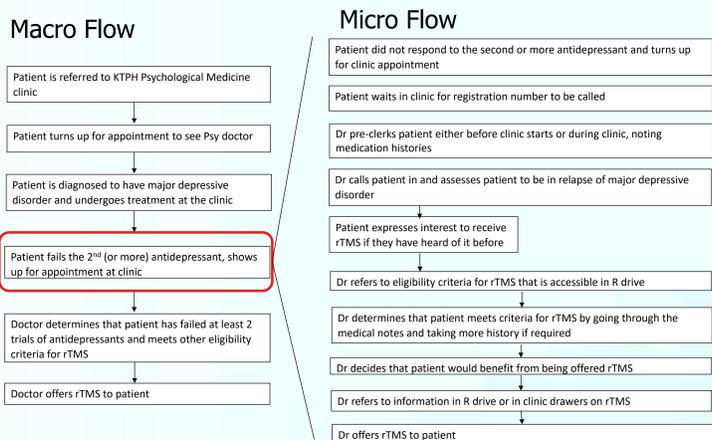
- More than 35% of patients do not respond to 2 trials of antidepressants, defined as treatment-resistant depression (TRD)
- TMS is a brain stimulation that is evidence-based for TRD. Magnetic fields applied over the head generate small electric currents to stimulate the underactive neurons in depression.
- A TMS course consists of 30 daily (week day) sessions of 3 to 37 minutes each, conducted in clinic over 6 weeks
- While TMS is 3 times more likely to be effective than the next antidepressant trial in TRD, not all eligible patients are being offered TMS.



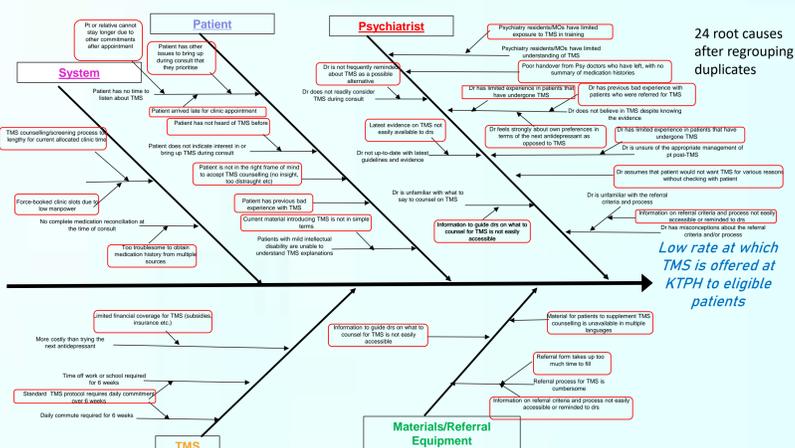
Current Performance of a Process

While there are no reported benchmarks locally or overseas, we found that only 15% of eligible patients were being offered TMS at the start of our project, and we were keen on improving on this rate.

Flow Chart of Process



Cause and Effect Diagram



Pareto Chart

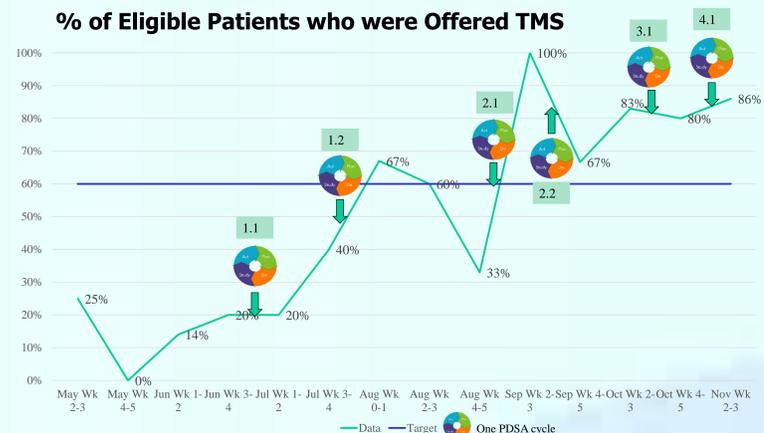


Implementation

ROOT CAUSE	INTERVENTION
Dr is not frequently reminded about TMS as a possible alternative	Remind doctors periodically about TMS (a) Emails, meetings and notices (b) Patient leaflets & videos
Standard TMS protocol requires daily commitment over 6 weeks	Introduce other TMS protocols that require less patient commitment
Patient has other issues to bring up during the consult that they prioritise	Introduce & offer TMS outside of the clinic consultation
Limited financial coverage for TMS (subsidises, insurance etc.)	Correspondence with Chief Financial Officer; Put up Technology Advisory Committee (TAC) evaluation request to MOH again

Results

TMS is being offered to about **86%** of eligible patients, a significant increase from 15%, following 6 PDSA cycles.



69% reduction in depression rating scores for patients who complete the TMS course (>50% deemed as good response)

Cost Savings

- Reduced traveling time
 - Get better in half the time
 - Reduced time spent in clinic
 - Reduced absenteeism
 - Less leave taken to attend Psych appointments
 - Improved socio-occupational function
 - Smoother referral process
 - Reduced waste
 - Increased TMS utilisation
 - Stakeholder satisfaction
 - Improved relationships with family and friends
 - Increased sense of agency over mental health care plans
- ~\$2190 per year saved by every patient for each year spent in remission following TMS

Problems Encountered

We had a flat Pareto chart initially, which was overcome with an additional round of voting.

Strategies to Sustain

Inform new psychiatrists and residents on TMS counselling and referral process, conduct twice-yearly reviews and journal clubs on TMS cases at department meetings and CMEs, and obtain feedback to ensure sustainability of TMS counselling service