



Facilitating routine data collection to improve clinical quality and research in Interventional Psychiatry: The CARE Network

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Mental health disorders are a leading contributor to the global burden of disease. Although a wide array of pharmacological and psychological therapies is used, a substantial number of individuals either do not respond or experience only modest benefits. In recent years, several promising treatments within Interventional Psychiatry have entered clinical practice. Interventional Psychiatry treatments are defined primarily by their procedural nature and include neurostimulation techniques such as transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS), and the novel use of 'old drugs' such as ketamine and psychedelics. While the efficacy and safety of these interventions have been studied in clinical trials, findings can be difficult to generalise to clinical practice because of restrictive eligibility criteria, highly protocolised research methodology, short follow-up periods and a lack of head-to-head comparisons. Clinicians are thus faced with uncertainties, including: (1) how these interventions perform and compare in real-world conditions, (2) which interventions are best suited to each individual, (3) the optimisation of clinical treatment protocols, including how and when to stop, (4) how to accommodate broader populations seen in clinical practice compared to research trials (e.g. those with comorbidities, receiving concurrent treatments), (5) the relative cost-effectiveness of different treatments, and (6) whether new safety concerns may emerge as treatments are provided to a larger number of patients or for a longer-time (e.g. maintenance treatment).

High-quality 'phase 4' data derived from real-world clinical settings are essential to address questions of this nature. Indeed, governments are increasingly recommending data collection in their clinical policies and guidelines, in recognition of the critical role of real-world data in ongoing service improvement, funding, and

research. However, these health datasets often fail to capture important treatment and outcome variables, and end up being a step removed from clinical practice. For example, outcome measures included in Australia's Mental Health National Outcomes and Casemix Collection are used for reporting and activity-based funding purposes at a service level but are not sufficiently sensitive or administered frequently enough to be used for clinical management or research within Interventional Psychiatry.

Clinical networks play a critical role in addressing this issue, facilitating the creation of routine data collection frameworks that are relevant to clinicians, and which meaningfully inform evidence-based practices and policies. One such example is the Clinical Alliance and Research Excellence in Electroconvulsive Therapy (ECT) and Interventional Psychiatry (CARE) Network. Initially established in 2015 with the aim of improving clinical practice and facilitating research in ECT (Martin et al., 2018), the CARE Network has subsequently expanded to incorporate other treatment modalities, including TMS, transcranial electrical stimulation (tES; which includes tDCS), ketamine, and psychedelic-assisted therapy, reflecting their incorporation into everyday clinical practice.

As part of CARE, clinicians and academics collaborate to develop standardised data collection frameworks for each treatment modality (termed a 'module'), in consultation with consumers with lived experience. Each module comprises a suite of measurement scales to capture clinical, cognitive, quality of life and functional outcomes in a structured manner, with minimum 'core' and optional 'additional' measurement scales. Patient demographics, clinical characteristics, and treatment parameters are also captured. Modules are tailored to each intervention and indication, but the recommended measurement scales are kept consistent

across modalities where possible, for ease of use and to facilitate comparison between modalities.

Services use pre-designed forms and databases to collect data at specified time points, in accordance with the CARE framework. Importantly, each service maintains ownership of their own local data but may then voluntarily 'opt-in' to share their anonymised, individual patient data for use in specific multi-site research and benchmarking projects, in accordance with local governance restrictions. This allows CARE to provide the benefits of a clinical registry (i.e. a common suite of data variables which facilitates benchmarking and research) without the privacy/data ownership complexities and costs associated with maintaining a single overarching data repository.

The involvement of different types of clinical services (e.g. outpatient/inpatient, public/private) across different states and countries makes it possible to capture wider variations in clinical practice and policy, which enriches the Network by enabling better comparison of different treatment approaches. The Network also facilitates the development of a collaborative community for knowledge exchange among experienced clinicians and world-renowned experts in the field, advancing both research and clinical development. Ultimately, the core aim is a shared commitment to excellence in treatment delivery and patient care across different health-care systems.

Adopting the CARE Network data collection framework provides services with immediate benefits for enhancing patient care and evidence-based practice in Interventional Psychiatry. Not only does the use of validated outcome measures facilitate the evaluation and improvement of clinical protocols and procedures, the data collected can also support clinical decision-making to improve treatment for individual patients and contribute to the future development of

predictive algorithms for personalised precision treatment. For example, ECT services have reported that implementing CARE-recommended clinical and cognitive measures has helped optimise ECT dosing and reduced retrograde amnesia risk via improved patient monitoring. Some centres have implemented CARE modules within a digitised framework (e.g. Microsoft Teams, Research Electronic Data Capture [REDCap]), reporting that having access to real-time summaries of individual patient outcomes allows clinicians to better track clinical improvements and adverse effects, and thus adjust treatment parameters accordingly.

Involvement in the CARE Network also provides services with medium and longer-term benefits, with the data facilitating quality improvement, benchmarking, and clinical research. To date, the CARE Network has conducted benchmarking activities in ECT and TMS and facilitated multisite international research. Some of the research projects completed have allowed services to examine the impact of COVID-19 on ECT service delivery (Kwan et al., 2022), and the utility of certain measurement tools in clinical care (Martin et al., 2022; Waite et al., 2022).

Research derived from data collected using the CARE Network framework has also played an important role in informing government policies at the state and national level. For example, two of the validated cognitive screening tests for ECT developed based on research by the CARE Network (10-Item Orientation and Brief ECT Cognitive Screen) will be mandated in incoming NSW Health ECT Treatment Guidelines/Handbooks. Furthermore, by helping to generate real-world data on resource use, the Network also facilitates economic analyses of the relative cost and outcomes of different treatments, which is crucial for reimbursement decisions made by regulatory advisory committees. Indeed, a

service in Singapore which systematically collected symptom, cognition, and quality-of-life outcomes for both ECT and TMS using the CARE Network framework, was able to produce cost-effectiveness data that were pivotal in the Singapore government's decision to subsidise TMS treatment for depression in January 2022 (Tor et al., 2024).

Promoting clinical excellence via routine data collection and analysis needs to become the norm rather than the exception in psychiatry. This is particularly important in Interventional Psychiatry, given the growing number of emerging treatments entering clinical practice in recent years. The CARE Network helps services to embrace routine data collection and measurement-based care, with further optional participation in benchmarking and research. It is free to join and provides resources for clinical use at no cost. All clinical services from public and private sectors in Australia, New Zealand, and overseas, are welcome. Further information about the materials available for use, and how to join the network, can be found at: <https://www.carenetwork.unsw.edu.au/>.

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