



Building eHealth and Telepsychiatry Capabilities: Three Educational Reports Across the Learning Continuum

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Telepsychiatry and eHealth are evidence-based, cost-effective health care delivery methods that increase access to specialist care, particularly for rural and remote populations [1–3]. Yet, the penetrance of telepsychiatry is uneven and the health system organization to support it is generally underdeveloped [4].

Inadequate postgraduate training in telehealth and eHealth may contribute to this lag. Such training and exposure has the potential to increase interest and skills in telepsychiatry and normalize it as a modality of clinical care. Recent reviews describe the status of telepsychiatry in postgraduate training and highlight the scarcity of literature on the topic and the lack of evaluation of these training programs [5–7]. Building on these reviews, and a study assessing resident learning needs in telepsychiatry [8], frameworks have been proposed to delineate competencies in telepsychiatry and eHealth at different stages of training [8–10].

Although these frameworks help define learner competencies, they do not describe teaching and evaluation methods for achieving these competencies. Sunderji, Crawford, and Jovanovic [6] and Glover et al. [7] provide descriptions of programs, but predate the literature on competency development. To address these gaps, we present a pedagogical case-series across a continuum of skills development, from novice learner to intermediate learner to continuing professional development, drawn from our recent experiences within the University of Toronto, Department of Psychiatry and its residency program, located in Toronto, Ontario, Canada. These

experiences align with our Department's efforts to respond to community needs, build capacity for improved access and quality of mental health care, and prepare future psychiatrists for a rapidly evolving health care system.

Each case describes the instructional methods, the rationale and objectives for the activity, the outcomes and evaluation modalities, and considers lessons learned through the implementation process. Pertinent faculty development needs will be addressed throughout the paper given the importance of faculty trained and experienced in the delivery and teaching environment of telehealth. Our aim is to provide a concrete and feasible approach to building eHealth and telepsychiatry capabilities within the context of postgraduate psychiatric training and continuing professional development, as a complement to existing standardized competency frameworks.

Case 1—Introduction to Telepsychiatry and e-Mental Health (Junior Resident/PGY2)

Second-year psychiatry residents are introduced to core concepts in the use of technology in the provision of mental health care through a lecture (40 min) and case-based exercise (80 min) facilitated in small groups. Residents are also provided with readings. They must then attend a minimum of one half-day telepsychiatry clinic with an experienced faculty clinician, where they may observe and/or conduct all or part of the assessment. Approximately 30 residents across 8 teaching hospital sites complete this teaching per year, for a total of 120 residents to date.

Objectives for the lecture, exercise, and clinic are complementary, and are aligned with the CanMEDs competency domains of Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, and Professional [8, 11]. All are intended to provide early exposure to telepsychiatry and to stimulate interest in this mode of practice, while introducing residents to the technical and clinical skills that are

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important to telepsychiatry and eHealth. Examples of specific telepsychiatry topics covered in the lecture and case include health systems issues (leader and health advocate roles), such as access, cost, and integration into general psychiatry service models; communication (communicator and collaborator roles) via technology; patient care (medical expert role), such as conducting and adapting a standard assessment and mental status exam via telepsychiatry; medicolegal issues (health advocate and professional roles), such as involuntary admission and confinement, privacy, and consent; technology operation (medical expert and leader roles); and, incorporating e-Mental health (leader and scholar roles) into practice.

Residents receive faculty observation and direct feedback as they participate in the case-based exercise. Teaching methods for the telepsychiatry clinic include the opportunity for observing faculty and for receiving observation and feedback. Faculty are provided with a “tips” sheet that encourages them to teach around all of the competency areas, and to provide feedback to residents based on observations across all of these competency domains (see [Appendix](#)).

Resident evaluations indicated that prior to the telepsychiatry clinic, most residents had limited exposure to telepsychiatry: 53% of residents had never had exposure to telepsychiatry or telemedicine more broadly. Residents ratings of the lecture and case experience (using a Likert scale in an anonymous survey) are generally high, with an average of 4.2 across domains. Residents rate the telepsychiatry clinic experience through an online survey. Residents also rate faculty (mean = 4.05 out of 5 or “above expectations”), including their content knowledge (mean = 4.31), and skills in supervising (mean = 4.22). Residents list the CanMEDs roles that are addressed through the clinic experience. Most common are medical expert, communicator, and collaborator (indicated by 94% of residents); followed by advocate (63%); professional (59%); leader (47%), and scholar (31%). By the end of the clinic, 94% of residents indicated that they would be interested in incorporating telepsychiatry into their future practice.

Four areas we need to develop and expand include (1) using more rigorous methods to evaluate resident learning outcomes; (2) standardizing and collecting faculty assessments of resident performance in the telepsychiatry clinic; (3) incorporating telepsychiatry teaching pertinent to other CanMEDs roles, particularly professional and scholar roles; and (4) expanding clinical exposure and supervision of a more broad spectrum of ehealth innovations. Our program is also furthering the integration of telepsychiatry teaching into subspecialty postgraduate training, including child, geriatric, and consult liaison psychiatry.

Faculty development has been important to the implementation of telepsychiatry and ehealth teaching. Future directions include holding faculty education sessions, where they will also get a chance to participate in telepsychiatry simulations and receive observation and coaching on how to incorporate these competency dimensions in their teaching.

Case 2—Integrated Mental Health Care by Telepsychiatry (Senior Resident/PGY 5)

All senior residents in their final year of training complete a longitudinal experience in Integrated Mental Health Care (IMHC) (also known as “shared care” or “collaborative care”), for 1 day per week over the course of a year, where they act as a junior consultant to a primary care team or community agency. The IMHC training experience is now offered to residents via videoconferencing. Residents become an integrated member of a rural Family Health Team (FHT; an interprofessional team comprised of family physicians and other health professionals) or a Community Health Centre, by joining the team through videoconferencing. Approximately 63 residents have completed the IMHC rotation over the last 2 years; to date, six residents have completed the rotation using telepsychiatry.

In addition to competencies in integrated care [12], for those residents who complete their IMHC rotation via telepsychiatry, this rotation provides an opportunity to gain complementary competencies in integrated care and telepsychiatry [9]. Examples include integrating collaborative models of care, including indirect care (e.g., case, chart, or caseload review), into telepsychiatry practice; establishing and maintaining interprofessional and community relationships via technology; using technological solutions for team-based communication; and health advocacy around championing telepsychiatry and integrated care as means to address health inequities and needs.

The PGY-5 IMHC experience utilizes several teaching strategies, including a “flipped classroom” (with independent study assignments and centralized interactive workshops), and observation [13]. A minimum of 1 h of faculty supervision is provided to each resident per week and comprises case-based learning and review and observation.

Learning outcomes collected thus far are anecdotal, based on informal feedback by faculty supervisors, residents, and clinical sites. A more formal evaluation is underway. Residents report a largely positive experience, with care delivery to an underserved community being particularly gratifying and meaningful, and the opportunity to take on educational roles, and to be involved in the development of the care systems and their own workflow management. Resource requirements (e.g., faculty supervision and teaching, and rotation administration) are on par with other training experiences. Clinical sites have been very appreciative of the service offered and accepting of trainees.

Residents participating in the IMHC training experience via telepsychiatry have evaluations on par with those who completed the IMHC training through face-to-face integration. Residents in some of these rotations have also advanced adaptations that will be adopted in future iterations of the rotation. For example, one FHT with 15 distinct physical locations, presented challenges for primary care practitioners (PCPs) to participate in real-time, video-linked case conferences and indirect care, and more

informal aspects of integrated care such as “hallway consultations.” The residents utilized secure electronic messaging via the FHT’s Electronic Health Record (EHR) to allow a more convenient avenue for communication between the resident and PCPs, and facilitate the provision of asynchronous indirect patient consultation and support.

The scalability of this learning opportunity is limited only by the availability of capable faculty supervisors and FHTs open to engaging in integrated care via telemedicine. Certainly, resident interest warrants expansion of clinical training experiences that incorporate telepsychiatry. From year 1 to year 2, we have doubled the number of available spots for residents wishing to complete their IMHC rotation via telepsychiatry. Faculty development for the IMHC rotation consists of a daylong event covering the aims and content of the resident rotation (e.g., the evidence for integrated care, principles of population health, quality improvement, and program development in integrated care), new assessment tools, and provides opportunities to establish collegial networks. Methods include mini-didactic presentations, interactive small-group learning incorporating guided self-reflection on practice and peer feedback, and simulated resident assessment and feedback. Given the high resource requirements to mount a full day event, we are exploring approaches that include faculty-resident co-learning, faculty buddy systems, or small groups for peer mentorship, and will be shaped by a faculty development needs assessment that is underway.

Case 3—Continuing Professional Development in the Use of Telepsychiatry and Telementoring (Faculty)

Telepsychiatry has enabled increased access to specialist mental health care. However, the most common consultation model of one-practitioner: one-patient cannot adequately address the mental health needs that exist, particularly in underserved and rural communities. Project ECHO (Extension for Community Health Outcomes) at the University of New Mexico (UNM) developed as an effective solution to the needs. Using videoconferencing, primary care sites, or “spokes,” are connected with an expert “hub” team of specialists, and with each other to form a community of practice. This virtual network allows the dissemination of best practices, and supports PCPs to manage complex patient needs, resulting in improved PCP knowledge and competence, and also in improved patient health outcomes [14, 15]. Our team has brought Project ECHO to Ontario, Canada to address capacity building in mental health and addictions care, resulting in improved knowledge for our participating primary care sites [16].

Many of our faculty who are active in telepsychiatry and integrated models of care have been champions for Project ECHO. In addition to ensuring that faculty and consultants maintain their skills in order to provide education in the above beginner and intermediate telepsychiatry competencies, we also need

to ensure that continuing opportunities exist to learn more advanced skills, such as those required to build primary care capacity through ECHO. We have developed an ECHO Ontario “Superhub,” accredited by the UNM, to train consultants and faculty to implement ECHO. In other words, Project ECHO mentors primary care providers via televideo, while the superhub trains faculty to deliver telementoring through Project ECHO. Over the last 2 years, the ECHO Ontario Superhub has trained 108 faculties.

The objectives for superhub training have been developed by the UNM, and include imparting fidelity to the ECHO model (and the four principles of using technology; case-based learning; disseminating best practices; and evaluating impact). Training in advanced competencies in the use of televideo conferencing technology includes facilitation skills for large group learning to dispersed learners via technology, pedagogical methods suited to; and considerations, particularly across a community or network; implementation factors [17]; evaluation [15]; health systems planning for how Project ECHO fits within the range of telepsychiatry options to form part of a continuum of care; and health equity, such as adapting Project ECHO to meet the unique needs of some communities. In Ontario, for example, we had adapted ECHO to create a community of practice for First Nations, Inuit, and Métis primary care providers.

Superhub training employs brief didactic lectures; implementation workshops to allow participants to apply concepts to their own ECHO; the opportunity to observe an ECHO session, which is accompanied by a play-by-play through a skilled facilitator; and simulation through running a mock ECHO session. Evaluation of superhub trainees includes direct observation and feedback to participants. Participants in turn provide feedback on teaching content and methods. Participants highly rated the teaching, as measured through self-report satisfaction surveys, in particular the commentary as they observed an ECHO session, feedback on their own project plans, and from practice through running a simulated or mock ECHO. Lessons learned from evaluation have encouraged us to reduce lengthy didactic sessions and to increase small workshops that guide participants with their own planning and implementation, and from passive observation to opportunities for simulation and feedback.

Faculty who deliver the superhub training have received in-person training from the UNM, Project ECHO Institute. This is supplemented by monthly teleconference calls with the Project ECHO team.

Discussion

The three educational case studies detailed above illustrate practical ways to introduce eHealth, telepsychiatry, and televideomentoring into postgraduate training and continuing professional development, and pedagogical methods, evaluation, and faculty training needs required to support these activities. Although these three opportunities were developed

independently of each other (with some faculty members common across the cases), they do illustrate the possibility of building competencies in telepsychiatry across stages of training. Trainees generally expressed a high degree of satisfaction with these learning opportunities, with intention to incorporate these technologies into their current and future practices.

Evaluation and lessons learned across these experiences reinforced the need for learning opportunities that are experiential, situated within clinical practice, and provide observation and feedback. There was particularly positive feedback for simulation and we anticipate an expanded role for simulation in both resident and faculty training in telepsychiatry. An important area for improvement is to more rigorously evaluate these educational experiences, and to collect learning outcome data beyond satisfaction surveys.

We need to turn greater attention to faculty development to keep pace with these educational needs, including development of instructional methods that allow greater dissemination of training, such as remotely accessed simulation and virtual learning opportunities.

Compliance with Ethical Standards

This is a description of educational programs and was deemed exempt from research ethics review by the University of Toronto REB.

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Appendix: “Tips” For Faculty Supervising Residents in Telemental Health

This clinical experience is intended to be a pragmatic introduction to the use of telepsychiatry in general practice, and to provide earlier exposure to residents to aspects of telepsychiatry, with a focus on what a generalist would need to know. Topics to address through the consultation experience will also be highlighted in core curriculum. The objectives of this experience are aligned with the CanMEDS roles, so any aspects of practice that address the roles (Medical Expert; Collaborator; Advocate; Scholar; Leader; Communicator; Professional) can be made explicit through demonstration and/or discussion (see Table below).

Objectives

1. To provide early exposure to telepsychiatry during residency training, and to stimulate interest as a mode of practice.
2. To introduce technical and clinical skills relevant for the use of telepsychiatry in general practice, and how these differ from the provision of face-to-face care
3. To provide a perspective on telepsychiatry’s role in health systems, and community and population context

CanMEDS role	
Medical expert	Technical aspects of using telepsychiatry equipment (camera use; billing) Medical issues, including confidentiality; informed consent, etc. Adaptations in assessment, diagnostic and therapeutic skills for provision of effective and ethical care via telepsychiatry
Collaborator	How to work successfully with other professionals and families in telepsychiatry environment How to cultivate a collaborative, interprofessional team environment across sites.
Health advocate	Consideration of social economic, cultural and community context, needs and resources Awareness of local community resources, and how to adapt treatment and intervention recommendations to available resources
Communicator	How to establish a therapeutic alliance across technology Considerations when listening via technology Communicating with patients, family, professionals Creating an effective consultation report
Scholar	How to access up-to-date information about telepsychiatry (textbooks, journals, online resources) References to literature an efficacy and effectiveness of telepsychiatry
Leader	Appropriate use of healthcare resources related to telepsychiatry How to manage a practice that includes telepsychiatry
Professional	Ethical and professional telepsychiatry practice Stimulate interest in telepsychiatry as a mode of practice and care

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