

Child and Youth Telepsychiatry in Rural and Remote Primary Care

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KEYWORDS

- Primary care • Pediatric • Child/Youth • Videoconferencing
- Telepsychiatry

The recent proliferation of live interactive videoconferencing technology has made it possible for 2 or more individuals at any distance apart to interact in real time. Telepsychiatry is a specific term designating psychiatric applications using videoconferencing communication¹ and is emerging as one of the most successful uses of this technology.^{2,3} Telepsychiatry has important implications for accessing pediatric subspecialty services and in determining future health care workforce requirements

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and their distribution. Extending the boundaries of the medical home and improving communication with children and adolescents experiencing mental health challenges and their caregivers are now realizable goals with interactive technologies.⁴

The Canadian Standing Senate Committee on Social Affairs, Science and Technology⁵ recommended that telepsychiatry be used in rural and remote communities for consultations, education, and training of mental health practitioners. This recommendation is a judicious one because children and families in rural and remote regions face a number of unique obstacles to obtaining mental health services and support compared with those in urban areas.^{6,7} The problems of service access often result from geographic, economic, and cultural factors.^{8,9} In sparsely populated areas, costs associated with travel, time off work, and other opportunity expenses pose additional barriers to accessing care. Furthermore, it is difficult to recruit and retain specialists and allied health care workers who tend to concentrate in larger urban areas.¹⁰ Geographic and professional isolation makes rural communities less attractive to mental health workers. The shortage of resources and support services in rural communities means that children requiring urgent attention often must be placed in residential care outside of their home community,¹¹ compromising familiar psychosocial and cultural strengths and supports. Thus, providing psychiatric services to children and their families in rural and remote regions must address geographic barriers to access¹² and misdistribution of scarce specialist resources, with attention to cultural contexts of individual communities.

Almost 20% of children worldwide have one or more mental health disorders.^{13,14} A similar prevalence rate applies to the province of Ontario, Canada where only 1 in 6 receives services.¹⁵ It is estimated that in Ontario, the ratio of child psychiatrists to children with mental health needs is approximately 1:6148,¹⁶ which contrasts sharply with an estimated need for child psychiatrists of 14.3/100,000 (or 1:1390) children/youth.¹⁷ Moreover, although 30% of child psychiatrists in Ontario are involved in some outreach activities, only 10% venture more than 150 km from their base practice.¹⁶ Estimates of young people with psychological or psychiatric problems who are seen in primary care range from 15% to 40%.^{18–20} Consequently, a large burden of responsibility for children's mental health care falls on family practitioners, pediatricians, nurses and nurse practitioners,²¹ social workers, and child and youth workers,²² many of whom feel inadequately trained, ill equipped, and uncomfortable in both recognizing and managing child and adolescent psychiatric disorders.^{23,24}

THE TELELINK MENTAL HEALTH PROGRAM: AN OVERVIEW

To begin bridging of the multiple gaps in children's mental health services in rural and remote Ontario communities, The Hospital for Sick Children in Toronto (SickKids) undertook a pilot project in 1997 to provide support to primary care settings through videoconferencing technologies. Fully operational in 2000, the program subsequently evolved to become The TeleLink Mental Health Program (TeleLink). This program's mission is to enhance care and community capacity in children's mental health using videoconferencing and other technologies, providing timely, equitable access to bilingual (English and French) specialist services. Guided by the strategic directions of SickKids (excellence, integrity, collaboration, innovation, integration of care, research, education) and its academic affiliation with the University of Toronto, TeleLink is committed to matching community needs with best evidence and excellence in care through a range of innovative and responsive service delivery models. Particular attention is paid to fostering partnerships with stakeholders, aligned with unique local cultures.

The knowledge-to-action (KTA) approach developed by Graham and colleagues²⁵ permeates the key elements of TeleLink: clinical collaboration, education, evaluation, and research. This model identifies 2 broad activities: knowledge creation and knowledge action. Knowledge creation refers to the typical knowledge created by research and also encompasses tacit or experiential knowledge. The action cycle illustrates the 8 steps required for knowledge implementation. The cycle is dynamic; that is, steps and processes influence each other and can in turn be influenced by available knowledge. The 8 steps that comprise the cycle are (1) identification of a problem; (2) identification and selection of knowledge; (3) adaptation of knowledge; (4) assessment of barriers to knowledge use; (5) selection, tailoring, and implementation of an intervention to ensure knowledge use; (6) monitoring of knowledge use; (7) evaluation of outcomes; and (8) sustenance of use.

Operationally, recipient “far” sites are connected to the TeleLink “hub” site via Internet Protocol or occasionally via Integrated Services Digital Network (ISDN) carried on a maximum of 3 lines (maximum bandwidth 384 Kbit/s). The hub site is equipped with 5 stationary studios: 2 of which house two 36-in cathode ray tube monitors each, 3 studios with a single 50-in plasma monitor, and 1 mobile unit containing a 17-in liquid crystal display monitor. All configurations allow both hub and far sites to be viewed simultaneously, and all cameras have local and remote pan-tilt-zoom control. Polycom or Tandberg videoconferencing units enable the data transmission. Core hub site staff (Fig. 1) and a designated telepsychiatry coordinator at far sites provide the necessary infrastructure. A child psychiatrist stationed in a distant community is assigned as liaison with Aboriginal communities to foster relationship building with sites servicing Aboriginal clients and to enhance provider capacity on Aboriginal issues. Funding is derived from diversified sources including an annual contract with the Ontario Ministry of Children and Youth Services; purchase of service agreements; donations; research grants; direct billings to the provincial health care plan; and in kind support from SickKids for partial space lease, information technology and limited accounting assistance.

Twenty three child psychiatrists within the Division of Child Psychiatry at the University of Toronto provide the bulk of services through a regular weekly or monthly roster. An additional 16 faculty are available for specific consultations and/or educational sessions, depending on their expertise and/or availability. Also, 2 social workers and 3 psychologists with specific areas of expertise comprise the core clinical team.

Currently, TeleLink services may be accessed through multiple routes of referral: 15 primary children’s mental health agencies, along with their satellite locations;

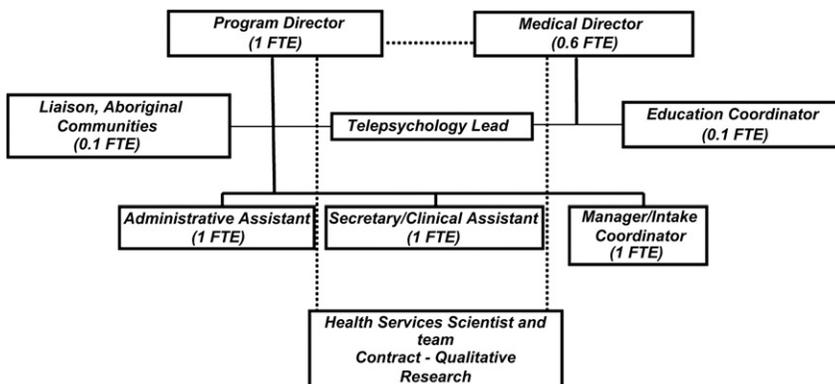


Fig. 1. TeleLink program hub organizational structure.

2 community general hospitals with child/adolescent mental health beds; 1 youth detention center; 1 community youth justice diversion program; and, to a more limited extent, community physicians. Models of service delivery are tailored to requested services and may include clinical consultation and/or short-term follow-up, professional-to-professional consultation, shared care, program consultation, education, and training. Special initiatives targeting specific populations such as young fire setters, children whose military parents are at various stages of deployment to Canada's mission in Afghanistan, infant programs, sex offenders, and trauma victims are also offered.

It is a requirement of TeleLink that the referring clinician complete a mental health assessment before requesting a consultation. Written consent forms have been devised according to the Ontario Personal Health Information Protection Act²⁶ and must be completed to confirm that the youth and/or family understand and consent to the provision of psychiatric/psychological consultation via videoconference from TeleLink. Consents also allow for exchange of relevant information, records, and reports between the referral source and TeleLink and always include the local treating physician, who would ultimately consider and facilitate medical/pharmacologic recommendations. Furthermore, participants are made aware that as an academic facility, medical trainees may be present and that information collected from the consultation will be entered into a database, in aggregate format, to be used for education, statistics, quality improvement, and other purposes permitted or required by law. Any additional research is accompanied by its own consent forms that, along with the protocol, are then submitted to the SickKids Research Ethics Board for approval.

Supporting documentation and referrals are triaged by presented issue and urgency and matched to compatible consultants. For nonurgent referrals, the average time from referral to consultation is approximately 2 to 4 weeks. Processes are in place to expedite urgent consultations within 24 to 72 hours. Between April 1, 2009 and March 31, 2010, approximately 95% of all referrals made were completed (**Table 1**). This unusually high rate of materialized outpatient mental health appointments seems to be consistent with technology-enabled service delivery.²⁷ It is a requirement that the child's case manager or primary clinician be present during the clinical intervention to bridge culture, language, formulation, and recommendations between client and consultant and to confirm and clarify roles and responsibilities.²⁸ In the true spirit of a consultee-centered consultation²⁹ and collaborative care, the presence of the case manager and others

Reason	Number (out of 981)	%
Technical—far end	3	0.3
Cancelled by family	4	0.4
Client/family No Show	15	1.5
Scheduling issue	5	0.5
Case manager N/A	1	0.1
Client hospitalized	2	0.2
Illness	3	0.3
Power outage	1	0.1
Weather	3	0.3
Consultant unavailable	8	0.8
Total	45	4.5

involved in the care of the child or youth also serves to expose health care providers to clinically and contextually relevant information, thus increasing knowledge and confidence. Impressions and recommendations are provided verbally at the end of the consultation, and a written report follows within 15 working days. Primary care clinicians may also connect with the core hub medical and administrative staff by telephone, e-mail, or fax with any questions or issues before or after appointments via videoconference. TeleLink maintains an electronic database derived from standard referral forms and sheets completed by all consultants, summarizing those present in the consultation, diagnostic impressions, clinically assessed degree of psychosocial severity, and recommendations. Demographic data, intake and scheduling procedures, distribution of final reports, and administrative and billing information are also readily monitored. A detailed description of TeleLink components and results follows.

PROGRAM COMPONENTS AND RESULTS

Clinical Services

From May 1, 2000 to March 31, 2010, a total of 7056 clinical consultations were provided, of which 21% were follow-ups, as outlined in **Fig. 2**. Sixty six percent of clients were men, 17% Aboriginal, 4% French, and 2% seen urgently. The age distribution was as follows: 44% were 7 to 12 years old, 40% were 13 to 18 years old, and 16% were 6 years old and under. Most frequent diagnoses based on clinical impressions are summarized in **Table 2**. In addition, actively psychotic children/youth and those with autistic spectrum disorders have successfully participated in consultations. These diagnostic categories are in keeping with other similar programs.³⁰⁻³²

The overall degree of dysfunction based on the psychiatric consultants' clinical impression of social, school, family, and/or occupational function, and intensity of intervention recommended was rated as mild (17%), moderate (66%), or severe (17%). Recommendations addressing medication, counseling, focused assessments, placement, and other interventions are summarized in **Table 3**.

Telepsychology

Telepsychology is a new and untested model of delivering psychological services to children. To date, psychologists have used videoconferencing, primarily in the area

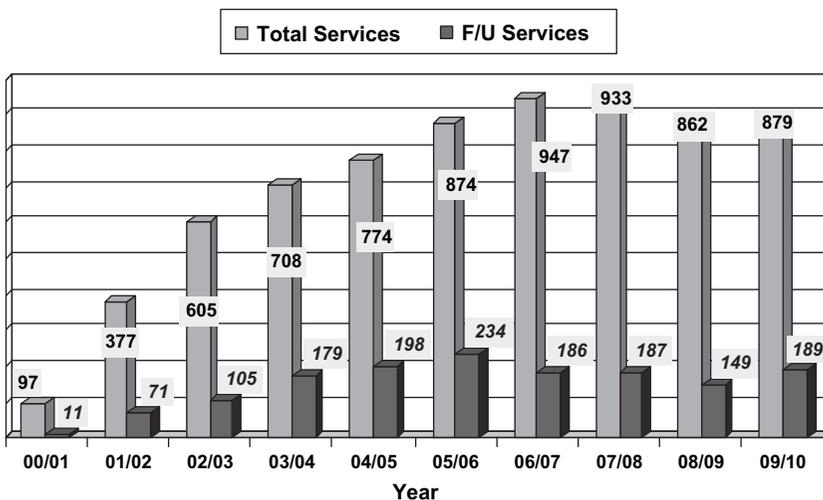


Fig. 2. Clinical consultations.

Diagnosis	% (Of 7056 Consultations)
ADHD	43
Oppositional defiant disorder	30
Anxiety disorder	24
Learning disability	17
Relationship problem	15
Problems related to abuse/neglect	13
Mood disorder	10
Attachment disorder	10
Conduct disorder	9

of counseling.^{33–35} Unlike psychotherapy or telepsychiatry consultations and assessments, the provision of psychological assessment services cannot be completed by sole practitioners. It can only be done with the assistance of a psychometrist who is available to administer tests directly to the child. Given the limited availability of trained psychometrists in smaller communities, this requirement adds to the complexity of establishing a telepsychology service. A pilot project to determine the feasibility of

Recommendation	% of Total Clients Seen
Further assessment	
Psychological	19
Educational/academic	13
Speech/language	3
Medical/neurologic	7
Therapy/counseling	
Individual	61
Family	31
Parent	28
Psychoeducational	16
Group	4
Other recommendations	
School intervention	28
Application for support funding at school	3
Foster/out-of-home placement	5
Residential group home placement	7
Day treatment	1
Medication	
No change	10
Change/add	53
Do not give	37

Note: N = 7056 consultations, including follow-ups.

providing individual psychological assessments to children using videoconferencing is ongoing. A referral and intake process has been established, and this requires written informed consent outlining detailed descriptions of the assessment process and methods. Psychometrists from the referring agencies attended at the hub site for training and supervision. Over a period of several weeks, assessments consisting of 3 to 5 sessions were completed. These assessments included an initial interview with parents and agency personnel, direct testing sessions with the child, and a feedback interview in which results and recommendations were presented orally, followed by a written report.

From January through December 2009, 7 comprehensive psychological assessments were completed. The children's age ranged from 5 to 15 years (mean age 7.4 years). Of those seen, 57.1% were male. Most frequent diagnoses were learning disability (42.8%), attention-deficit/hyperactivity disorder (42.8%), and intellectual disability (28.6%).

Program Consultations

TeleLink currently provides monthly program consultations to 23 teams in remote or underserved contexts. A consistent consultant meets with a designated group of mental health providers from a particular program (ie, school-based day treatment programs, residential and foster homes, specialized programs working with children of military families, family health team and so on) to discuss clinical, program-wide, and community issues. Upon client registration in these identified programs, youth and family are asked to sign consent forms, informing them that issues related to the youth's management while in the program may be discussed in this indirect consultation modality. In addition, to be inclusive of local treating physicians, consent is obtained to notify the youth's physician that program staff may be consulting with a child psychiatrist about their patient's situation. Topics discussed have included individual youth and their emotions and behaviors, diagnosis, formulation, and management. Programming, systems development, advocacy and community matters, staff roles, transference, and counter transference are also commonly addressed. Informal evaluations suggest that primary care staff appreciate the education, support, and guidance in working with very difficult or complex situations.

Qualitative Research and Evaluation

Collaboration between researchers and knowledge users is critical to understand users' context and to ensure that the translated knowledge meets their needs.³⁶ Ideally, this collaboration should take place in the early phases of the KTA cycle to allow for constructive exchanges on explicit expectations and objectives to be met by the team.³⁷ Since its inception, TeleLink has had in place a program of research,³⁸ based on the exchange and linkage conceptual KTA framework. This program is grounded on findings that show increased application when decision makers are more involved with the research process.³⁹ Previously, the commonly accepted view was that knowledge flows are unidirectional, uncomplicated, and linear, with the assumption that these flows are appropriate. It has been demonstrated that this assumption is flawed.⁴⁰ Following from the authors' model described earlier, the effective flow of knowledge is conceptualized as bidirectional.

The program of research has involved a series of projects including the development of a participatory approach to the design of a framework for evaluation of pediatric telepsychiatry,⁴¹ family member and caregiver perspectives on pediatric telepsychiatry,⁴² medical opinions on telepsychiatry,⁴³ a study of the uptake of

recommendations made during a telepsychiatry consultation,⁴⁴ and the views of young people receiving consultations.⁴⁵

Key findings from this research included the importance of acknowledging the social context of various communities, the positive experiences of families with respect to reduced burden after receipt of telepsychiatry services, and the enhanced capacity of service providers to deal with complex mental health issues. In addition, research has identified factors most likely to increase uptake or application of recommendations made in telepsychiatry consultations, and subsequent feedback has been important for the development of guidelines for best practice for consulting psychiatrists. Narratives from young people themselves demonstrated the importance of their relationship with the psychiatrist and their ability to actively take responsibility and exert control within the consultation session. The most positive facet of their telepsychiatry consultations was the opportunity to be exposed to a new form of technology.

As a result of these research projects, an excellent knowledge base reflecting the perspectives of key TeleLink stakeholder groups regarding issues of access, use, communication, education, technology and administration, program delivery, and contextual sensitivity was documented. Feedback from these groups provided critical information to inform the program about what is working well and what changes could be made to further enhance the program. Careful evaluation and theory-grounded research has contributed to TeleLink's credibility and viability and has had many effects on the internal program itself as well as at broader provincial and international levels. Internally, each of the research phases produced research findings, which were extensively disseminated and then used to change or modify the practice of the program. For example, as a result of our young clients' recommendations for a less formal setting, 1 studio at the hub was designed with a couch and arm chair dispensing with the standard table, which the consultant sits behind. At the provincial level, the information and results of the evaluative research had a direct effect on one of the funder's (Ministry of Children and Youth Services) decision to amend the mandate and to allow for follow-ups. In addition, internationally, many emerging programs are looking to emulate the model, based on what was learned in our program of research.

One of the longer-range impacts of our research is the creation of a learning culture. When collaboration entails ongoing interaction and exchange of ideas, it supports continuous knowledge generation and translation for all who are involved. Chunhara⁴⁶ specifies 3 elements critical to a learning organization: (1) those who conduct research and those who use it must interact regularly, (2) mechanisms must be in place for knowledge translation, and (3) all information is recorded for future sharing. As the coproduction of knowledge is intrinsic to our research, it is particularly conducive to an integrative approach to knowledge translation that relies upon strong relationships between clinicians and researchers. These 3 elements are culturally congruent with existing Ojibwe, Oji-Cree, and Cree values including Mamow, "altogether," and "sharing."⁴⁷

Current research projects include an examination of the impact of the telepsychology component of the program, an exploration of recruitment and retention issues of child psychiatrists in TeleLink, and an evaluation of the delivery of weekly academic lectures in the Department of Psychiatry at the University of Toronto via interactive video.

Education and Training

As telemedicine services continue to expand,⁴⁸ future psychiatrists, psychologists, and other children's mental health care providers will need to be more comfortable

incorporating technologies as part of their practices. Thus, it is imperative that psychiatry residency programs, for example, provide training in telepsychiatry to prepare their graduates for the future. Little has been published about training residents in telepsychiatry other than an outline of a curriculum⁴⁹ and a model of training residents in developmental disabilities using telepsychiatry as a vehicle to access patients.⁵⁰

Exposing psychiatry residents to telepsychiatry has been a particular priority of TeleLink hoping that at least some of the residents will choose to participate in telepsychiatry in their future careers.⁵¹ Beginning in 2005, all University of Toronto psychiatry residents have been required to participate in 2 telepsychiatry consultations through TeleLink as part of their mandatory child psychiatry rotation. Residents observe a staff providing the consultation and also participate in the interview process. From 2005 through 2009, 112 residents attended 196 consultations and completed 164 evaluation forms. Eighty-two percent (160/196) of the residents found the experience interesting and enjoyable, and 78% (152/196) were interested in participating further in telepsychiatry. One resident commented that it is: "monumental to see an enthusiastic, engaged expert consult to several far-flung communities in one lovely morning. Great model for communication skills, assessment skills and intervention in a collaborative way." Opportunities also exist for participation of undergraduate, postgraduate, and elective and selective trainees at hub and distant sites. Seven residents participated in 3- and 6-month electives with TeleLink, one of whom subsequently established a practice in a rural community.

Telepsychiatry can provide a variety of educational services to practitioners in rural areas, including continuing education and clinical supervision.⁵² Studies of continuing education interventions report high rates of satisfaction, significant knowledge gain, and evidence of changes in practice.^{53,54} These studies also reported that their interventions helped reduce a sense of professional isolation, an important factor in the retention of practitioners in rural areas.⁵⁵

In 2001, TeleLink began to develop a continuing education program for the practitioners at the far sites. The needs-assessment process included a questionnaire distributed to all far sites. The results of this questionnaire were verified and elaborated in a videoconferenced meeting with the coordinators at each site. Consultants at the hub site were also surveyed about their perceptions of the learning needs of the practitioners. The subsequent program consisted of longitudinal, multipart seminar series on a variety of clinical topics. Guidelines for seminar presenters were developed that emphasized interactive teaching methods (case-based discussions, role plays, games). The use of a needs assessment, a longitudinal multipart format, interactive teaching methods, and the program format were chosen in light of evidence that these are associated with more effective continuing education interventions.⁵⁶

By the end of 2009, 180 sessions had been presented on 46 different topics, including disruptive behavior disorders, cognitive behavioral therapy, psychiatric medications, and dialectical behavior therapy. Participants returned 6863 evaluation forms, yielding an average overall rating of 5.63 (out of 7) for the seminars. A preliminary qualitative analysis of comments on the evaluation forms found a number of emerging themes: (1) interactive techniques and the use of case examples were valued, (2) the seminars reinforced existing knowledge, (3) the seminars provided new knowledge that could be applied to the participants' practices, (4) the seminars stimulated participants to reflect more on their clinical work, and (5) participants felt more confident about their practice.

A donation to SickKids Department of Psychiatry allows for an expansion of the target audiences of professional development seminars, to target, for example, community physicians. This donation includes establishment of an interactive link

between the Department's weekly Psychiatry Grand Rounds and 23 registered rural sites, allowing a maximum of 6 remote sites to participate with the in-house SickKids audience at any one time. Two annual public fora for parents and caregivers have successfully been delivered to multiple sites concomitantly, addressing topics of cyberbullying and disordered eating.

Although technological problems may occur, telepsychiatry is generally considered an appealing experience for trainees and attendees, and seminars can be delivered successfully to multiple and diverse distant sites via videoconference. However, time commitment and dedicated personnel are required to execute such a comprehensive educational program that is attentive to the needs of heterogeneous target audiences.

Administration, Dissemination, and Promotion

Administratively, the hub site staff meet on a monthly basis to discuss program-related issues and future planning. Steering Committee meetings with the core hub team and all far sites are held quarterly via videoconference. As well, orientation of prospective and new sites is provided through this medium. An annual newsletter entitled "Short Circuit" is circulated electronically to keep consultants apprised of relevant information in TeleLink and for dissemination of research findings.

TeleLink collaborates regularly with similar programs in other Canadian provinces as well as United States, England, and Australia⁵⁷ to share initiatives, processes, protocols, and experiences. At time of preparation of this article, the team has contributed to and has been recognized through 20 publications (peer-reviewed journals, abstracts, book article), 65 presentations, 16 associated committees, 6 news and media opportunities or events, 3 teaching awards, and 1 service award and has produced a video of the program.⁵⁸

Quality Standards Program

A team of physicians and nonphysicians was assembled at the hub to devise and implement a Quality Standards Program of clinical activities. The overall framework includes the creation of modules and processes, targeting specific selected components, collating and circulating the findings to the program, consultants, and indicated stakeholders and making necessary adjustments. To date, the second round of random file audits is nearly complete. Development of standards and guidelines for consultant performance appraisals for annual reappointment has been established. Other phases currently in progress include solicitation of feedback of the clinical intervention and accompanying report from referral sources, young patients/clients, and their guardians. Modules and processes for tracking positive feedback, concerns, and subsequent action taken are nearly complete. On an ongoing basis, issues related to technology and referrals, budgets, and daily operations are reviewed at monthly staff meetings as well. Consultants have informally reported appreciation of the feedback as they rarely have the opportunity for self monitoring in their usual practices.

SUMMARY

The Standing Senate Committee on Social Affairs, Science and Technology⁵ described the current children's mental health system as fragmented, underfunded, and with a critical shortage of mental health professionals. This committee consequently identified telepsychiatry as a promising mechanism of sharing existing limited resources, but only if a basic level of mental health service is already in place.

Champions at hub and distant sites, in addition to adequate funding, current and secure technology, needs-driven service deliverables, and infrastructure (policies, procedures, guidelines, physical space, and support personnel) are required to advance and sustain telemental health programs. It is also important to maintain a presence and actively merge such a program with the day-to-day operations of service providers, hospital, and university. Dissemination of lessons learned and program promotion are vital to the demystification, uptake, and integration of telepsychiatry as a complimentary approach to supporting primary care in remote and isolated communities.

The American Academy of Child and Adolescent Psychiatry practice parameter for telepsychiatry with children and adolescents¹ delineates the barriers and facilitators to accessing mental health care for children and youth via telepsychiatry and acknowledges some of the unique characteristics of service provision to rural and remote communities. For example, they note the need to recognize existing local community services and resources and whether or not they can support the provision of recommendations. The authors' experience has demonstrated that clinicians in these communities are likely to advocate for their clients when supports are not available, customize services to fit individual needs, and exhibit enormous flexibility. The KTA framework that guides the administrative, education, research, and quality management components of TeleLink allows for an iterative approach to identifying issues, researching them in a collaborative fashion and arriving at strategies to improve the program. In this manner, practice is optimized.

Through relationship building and partnering with communities, telepsychiatry is well positioned to enhance, not replace delivery of health care; reduce professional isolation; and improve distribution of clinical expertise. Limitations imposed by catchment areas virtually disappear, whereas care can remain locally, thus facilitating less-intrusive and culturally congruent assessment and treatment plans. Consultant recommendations lend extra weight in advocating for interventions that can be instituted locally.⁴⁴ In small, remote communities where clinicians and clients may have close knowledge/acquaintance of each other, receiving mental health services from a distant provider via videoconference may offer a greater sense of anonymity, privacy, and confidentiality, which may reduce the stigma of receiving mental health intervention. The consultee-centered consultation model and provision of continuing education, often to multiple sites simultaneously, contribute to the multiplier effect, transferring expertise from one to many. The practice of psychiatry, which largely uses history taking, observation, and collateral information gathering, lends itself well to the videoconferencing medium, and in effect, this mode of service delivery can tackle challenges to access due to distance, geography, terrain, climate, traffic, and other such factors.

A population of all ages, with diverse presenting problems and degrees of psychosocial severity can be managed by interactive videoconference,^{38,59-61} using principles of community systems of care⁶² and shared care⁶³; however, challenges remain. Community and agency cultural issues and provision of recommendations that are feasible and locally available require consideration. Technologically, although image resolution is adequate, it does not yet allow for crisp details of body language or facial-affective nuances. Senses of smell and touch and absolute direct eye contact⁶⁴ are lost. These details can be partly accommodated by feedback from the clinician in the room, but further consideration is warranted. In addition, alternative approaches must be found to confer empathic and social gestures (ie, handshaking, sharing coffee, offering tissues). Communication via videoconferencing requires awareness of etiquette and extra consideration to adjust to the medium. It is important for

participants to work with the technology rather than be frustrated by it. Adjusting pace, use of humor, and inviting feedback are mechanisms that facilitate interaction.

TeleLink offers a comprehensive, critical initiative to confront the shortage of specialist child and adolescent mental health resources in rural and remote Ontario and a model for remote regions elsewhere. Interactive videoconferencing offers an efficient, cost-effective,^{31,59,65–67} and user-friendly modality,⁶⁸ providing increased pediatric mental health knowledge and training to distant and under-served areas.^{38,69} Medical trainees in urban teaching centers are also expanding their knowledge of and comfort level with rural mental health issues, various complimentary service models, and the potentials of videoconferencing in providing psychiatric and psychological services. Family physicians supported by specialty services can realize an increase in knowledge and comfort in their recognition and management of children's mental health issues,^{18,19} and telepsychiatry is well poised to enable that. Committed and enthusiastic champions, a positive attitude,⁷⁰ and flexibility are a few of the necessary attributes ensuring program viability.^{52,71}

FUTURE DIRECTIONS

Through promotion and further integration within hospital, academic, and other provincial telemedicine networks, TeleLink continues to develop its distance psychiatry and psychology presence and support to primary care clinicians in rural and remote communities. Collaboration amongst the multitude of agencies and ministries servicing the needs of children is key in creating community systems of care^{62,72} and realigning fragmented, parallel systems. Exploration and integration of newer technologies in addition to videoconferencing will keep the venues for service deliveries current. Ongoing national and international collaboration will advance our knowledge in the use of this relatively novel approach to enhancing child and youth mental health services. Although TeleLink has generated and learned from its programs of quality standards and evaluations to date, future research initiatives include an examination of technology-enabled knowledge translation of evidence-based practice in applied child and youth mental health settings in rural/remote communities in Ontario. With the unique benefit of a large cadre of child psychiatric consultants, research is also underway to identify factors contributing to recruitment and retention of child psychiatrists, an issue with implications extending beyond TeleLink.

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