In 2000, the Division of Child Psychiatry of the University of Toronto was awarded a one-year contract with a two-year renewal to establish a telepsychiatry program with the objective of strengthening mental health services to children and their families throughout rural and northern Ontario. We describe the program, including data from the first 500 consultations, a brief summary of educational activities and the approach taken to evaluate service efficacy.

**Key Words:** pediatric telepsychiatry, videoconferencing, underserviced areas, child psychiatry

### Introduction

Canada is chronically short of child psychiatric services. According to the Statistics Canada 1996 census report (1), there were 2,637,330 children aged zero to 17 years in Ontario, of whom about 20 per cent had at least one diagnosable mental health disorder (2). Only one in six of these children were seen by one or both of child welfare or mental health services (2). A current Ontario study found a ratio of one child psychiatrist per 6,148 children and youth, with a recommended ratio of one per 3,800 (1,3). Currently, rural and northern Ontario are served by two and one-half on-site full-time equivalents of child psychiatric time, supplemented by child psychiatrists who fly in for short periods or by adult psychiatrists who are willing to see adolescents and children, as well as by some pediatricians or family doctors who are prepared to look after the mental health needs of their patients. Clearly, there is a severe shortage of professional expertise in this area.

Following a four-year pilot project of telepsychiatric services, the Ontario Ministry of Community, Family and Children’s Services awarded a contract to the University of Toronto’s Division of Child Psychiatry, operating through the Hospital for Sick Children, to establish telepsychiatric services providing psychiatric consultation and education to 10 underserviced children’s mental health sites (later, expanded to 14).

Urness defines telepsychiatry as the use of electronic communication technology to eliminate or reduce geographic barriers to receiving psychiatric services (4).

Advances in technology have made such outreach possible (5). Potential applications are myriad, ranging from assessment and diagnosis to treatment and consultation to support for individual practitioners or site-specific programs and education. After considerable consultation with the College of Physicians and Surgeons of Ontario (personal communications, 1996–2001) and the Canadian Medical Protective Association (CMPA) (personal communications, 1996–2001), it was decided to provide consultee-centred consultation as the primary mode of service, rather than client-centred or direct patient care or treatment (6). Some clinicians are working in a treatment mode, but medico-legal and practical considerations make providing such care problematic (7). The advantages of working as a consultant rather than as a therapist are that this model addresses the issue of duty of care, does not assume responsibility that would be impossible to carry out and provides support to front-line workers.

### Program Description

The hub site is located at The Hospital for Sick Children in Toronto, Ontario. This site is connected to the user sites via integrated services digital network (ISDN) lines carried on telephone lines. This model was chosen because it is available and on the advice of the CMPA; at this time it best ensures patient confidentiality (CMPA, personal communications, 1996–2001).

Although the contract specifies that services must be available to the entire community, a child’s mental health centre is responsible for organizing consultation and ensuring that proper informed consents are obtained, that relevant clinical information is available and that the appropriate people are present at the assigned time. Each site is allocated three and one-half hours’ weekly service consultation. Urgent consultation is offered to all sites, and this service is provided within 24 to 48 hours. Ten extra hours weekly are allotted to any child’s mental health provider in the province who can access compatible technology. Ideally, each centre has a person who...
coordinates the consultation. The coordinator contacts the project manager in Toronto, who triages the consultation, matching the problem with the appropriate specialist consultant and arranging a mutually convenient consultation time (Figure 1). The consultant is given information before the appointment. After the consultation, a report is dictated and sent within 10 working days to the user site and to the family doctor, if proper consent has been obtained. Before the consultation, the referral user site completes questionnaires that give demographic information and identify concerns and interventions already tried. The consultant completes a data collection form indicating which family members and community professionals participated in the consultation. Diagnosis, measurements of severity, age, sex, legal guardianship and, finally, recommendations are also indicated.

From the beginning of April 2000 to the end of July 2003, 1,036 initial consultations were completed, with 230 follow-ups and 83 program consultations to residential and day-treatment programs. A special protocol on fire setting was also initiated. Thirty-two urgent consultations were requested. Thirteen per cent of the consultations were done in French and the rest, in English.

Part of the Telepsychiatry Program mandate has been to provide continuing education for the front-line staff at the participating sites. Based on a needs assessment, a seminar series was designed to cover the child mental health topics in highest demand. Seminars have emphasized practical, hands-on approaches and have been based on case discussion. The first series of seminars was well attended, with positive evaluations. Participants provided pages of detailed comments, frequently indicating how they thought they could use newly learned knowledge and skills in their daily work.

Educating psychiatry residents has also been a priority: a seminar on telepsychiatry is part of a core seminar series for all residents. To date, 138 residents and medical students have participated with division faculty in telepsychiatry consultations. Several residents have participated on multiple occasions, taking the lead in consultation. Two fellows have also provided unsupervised consultation.

Because this is a new area, there are few models for evaluating such a program (4,5,8,9). Tools more relevant than consumer satisfaction scales had to be developed. The evaluation program had to serve multiple interest groups, namely, the 14 community sites and regions; the Ministry of Community, Family and Children’s Services; the Division of Child Psychiatry of the University of Toronto; the consultants doing the consultation and The Hospital for Sick Children.

An evaluation protocol, to be conducted via videoconference, was developed for five focus groups selected to represent a range of large and small sites, First Nations and non-First Nations populations, languages spoken, urban and remote locations and length of time with the telepsychiatry program. In each focus group, a facilitator and a note taker took detailed notes of the proceedings. In addition, 12 caregivers, comprising most of the eligible families who had consultations during data collection, were interviewed via telephone. For each, the interviewer took detailed notes, and the conversation was audio recorded; the recording was used later to validate the notes and confirm quotes. A team of three researchers undertook the analysis. Each reviewed the material from the focus group videoconferences and caregiver interviews, identifying important themes and checking the results against one another.

Overall, participants indicated that their experiences with the telepsychiatry program were positive and that they found it to be a useful and helpful service. For families, the availability of the service in or near their communities meant reduced expenses associated with travel and less time missed at work and school. For mental health workers, local telepsychiatry services offered access to an expanded knowledge base, which increased their confidence and competence in assisting their clients. Participants in both focus groups and telephone interviews also suggested ways to improve the usability and effectiveness of the telepsychiatry program; these included more satellite sites, staff training, standardization of information forms and more follow-up.
First 500 Consultations
The first 500 initial consultations took place from the beginning of April 2000 to the end of August 2002. Data were obtained from referral questionnaires, checklists completed by the consultants and individual client files.

The 500 consultations took 645 service hours, or 1.29 hours on average per consultation, with a range of one-half hour to three hours. The consultations were provided by 38 consultants, all of whom have appointments with the University of Toronto’s Division of Child Psychiatry. All sites used the service—some considerably more than others—and three sites were major users.

Unlike most children’s mental health centres, wherein the ratio is two boys to every girl, we saw 297 boys and 203 girls. The boys were most often prepubertal and the girls postpubertal; the sex and age differential is statistically significant ($P < 0.0001$) (Figure 2).

Of the children, 73 per cent were not wards and resided with one or both parents. Accurate figures are not available, but it appears that many came from single-parent homes and were in the care of their mothers. Eleven per cent were temporary wards, and 10 per cent were crown wards living in foster homes.

Questions about treatment management (416) were asked first, followed by diagnosis (345) and medication (284). Questions about diagnosis were raised not only to inform clinical work but also as a way of obtaining extra help for the children in the schools. In Ontario, if a child has a formal diagnosis and a psychiatrist states that extra help would be useful, funds for extra in-school help can be applied for.

Because this is a consultee-centred service for front-line service providers, and also for medico-legal reasons, the responsible clinician had to be present during the consultation. Often, the child or patient was present (78 per cent of the time). Mothers attended 64 per cent of the time, fathers 34 per cent of the time and guardians 15 per cent of the time. Unlike urban sites, school personnel attended 17 per cent of the time and physicians 10 per cent of the time, even though they could not be reimbursed.

The consultants diagnosed most of the children (70 per cent) as moderately dysfunctional, with fewer than 10 per cent mildly dysfunctional and 10 per cent significantly impaired; 10 per cent were not coded. The full range of DSM-IV diagnoses were seen (Table 1), with most falling into the externalizing or internalizing group. A significant difference in sex distribution was seen: boys were more often diagnosed with externalizing and girls with...
internalizing disorders ($P < 0.0001$). Although few met the formal diagnostic criteria for posttraumatic stress disorder (six per cent), a chart review suggested that trauma was common, as were family dysfunction and out-of-home placements with lack of continuity of care. Girls were more often abused (both physically and sexually), which could explain the diagnostic differences as well as cultural expectations of behaviour. A new referral form that will systematically collect information on exposure to trauma was put into use in the spring of 2003.

Surprisingly, given the population, only two per cent were given the diagnosis of fetal alcohol syndrome–fetal alcohol effects–alcohol-related neurodevelopmental disorder (FAS–FAE–ARND). Three per cent were diagnosed with a pervasive developmental disorder, one per cent with psychosis and 15 per cent with mental retardation. Eleven per cent were diagnosed with a learning disorder, but this is likely an underestimation, given the lack of educational and psychological resources. Only 10 per cent were diagnosed with relationship problems. However, not all consultants or front-line workers have a family or systemic perspective; they may tend to focus only on the child, which may explain the dearth of this diagnosis.

Recommendations depended very much on the site, with some able to offer the full range of services and some having very limited capabilities. Across the North, there is an extreme shortage of long-term residential beds for children. Therefore, children with such needs end up in foster care or, sometimes, probation facilities, or they are sent out of the area to another province or to the United States. In our cohort, residential care was nevertheless recommended for 10 per cent of youths, the challenge being how to implement such recommendations. Individual counselling was recommended for 55 per cent of children, family therapy for 25 per cent, group therapy for six per cent, and parent counselling for 17 per cent. Developmental and educational concerns were common and significant: educational input was suggested for 20 per cent and psychological testing for 22 per cent. The consultants were for the most part impressed with the quality of care provided and supported the program in place, sometimes supplemented by additional recommendations (in 31 per cent of cases). Follow-up was suggested for 20 per cent. It was anticipated that questions about medication would be common. Although not part of the initial reason for referral, medication recommendations were made for 60 per cent. Predictably, stimulant medication was commonest for the boys and selective serotonin reuptake inhibitors (SSRIs) for the girls. Antidepressants other than SSRIs, mood stabilizers and antipsychotic medication were recommended for 15 per cent.

<table>
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<th>Table 1 Distribution of DSM-IV diagnoses</th>
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<td>Diagnoses</td>
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<td>------------------------------------------</td>
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<td><strong>Externalizing disorders</strong></td>
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<td>Attention-deficit hyperactivity disorder</td>
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<td>Conduct disorder</td>
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<td>Oppositional defiant disorder</td>
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<td>Adjustment disorders</td>
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<td>Substance abuse</td>
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<td><strong>Internalizing disorders</strong></td>
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<td>Mood disorders</td>
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<td>Anxiety disorders</td>
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<td>Eating disorders</td>
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<td>Obsessive–compulsive disorder</td>
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<td>Posttraumatic stress disorder</td>
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<tr>
<td><strong>Other</strong></td>
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<tr>
<td>Attachment disorder</td>
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<td>Brain damage, epilepsy, fetal alcohol syndrome, fetal alcohol effects</td>
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<td>Psychosis</td>
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<td>Relationship problems</td>
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Issues and Concerns

Clearly, telepsychiatry standards and guidelines are needed. The document prepared by the University of Toronto’s Department of Psychiatry is a start, and other institutions, such as the Canadian Psychiatric Association, are grappling with the issues (7).

Well-designed studies comparing the reliability of teleconferencing with face-to-face interviewing are lacking (9,10). Early evaluations of our service are positive, but methodologies need to be developed. The real costs and savings of the service are not clear. It is also unclear whether the program supports children’s mental health providers and prevents staff burnout. Medico-legal issues have not been tested in court. Two provinces (Ontario and Quebec) have no category under the health scheme to pay participating professionals. Across Canada, the cost of the projects and services to date have been covered by federal and provincial government grants. Ongoing sources of revenue need to be found that are not provided on a year-to-year basis or to support pilot projects. Clearly, technology is being used more and more as a way of melting the miles in our vast country and countering the shortage of trained children’s mental health practitioners. The technologies are changing rapidly, and the issue of encryption will be solved to guarantee privacy, so that less costly technologies can be used.

Conclusion

Telepsychiatry is an efficient and user-acceptable way of providing child psychiatric consultation to distant and underserviced areas. Consultation to front-line workers seems to be the most efficacious model for service and program consultation. Front-line workers are highly dedicated but hungry for educational input, and they appreciate the service’s support.

More boys than girls were seen, with boys showing more externalizing disorders and girls more internalizing disorders. Most of the children showed at least moderate dysfunction. Questions about management strategies were the most common, followed by questions about diagnosis and medication. Sites with mixed mandates (that is, mental health and welfare) are usually farther away, serving smaller communities of largely First Nations people. The problems of children from these sites are significant and complicated, and the staff are generally less well trained, with fewer resources. How to help is a major challenge, but technological mechanisms can efficiently provide expert and timely care.

References


SURVEY ON YOUR LEARNING NEEDS

The CPA is conducting a national learning needs assessment survey to inform future psychiatric continuing education programs.

Members will receive personal invitations to complete the survey electronically in June. Completing the survey will give you a chance to win quality prizes. Don’t miss out on your chance to make your needs known.

SONDAGE SUR VOS BESOINS DE FORMATION

L’APC mène un sondage d’évaluation des besoins de formation, en vue d’élaborer les futurs programmes de formation psychiatrique continue.

Les membres recevront une invitation personnelle à remplir le questionnaire électronique en juin. Si vous y répondez, vous aurez la chance de gagner des prix de qualité. Ne ratez pas l’occasion de faire connaître vos besoins.