# Using Telehealth to Augment Delivery of Mental Health Services by Family Health Teams: Potential Barriers and Possible Solutions

## Final Report

submitted to:

**Ontario Ministry of Health and Long-Term Care**

**&**

**Ontario Mental Health Foundation**


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# Main Messages

Collaborative relationships between family practitioners and other health care providers may be one way to improve patient outcomes and health system efficiencies. These relationships may be of particular importance in mental health care because family practitioners are often the first point of contact with the health care system for patients with mental health problems. The literature suggests that family practitioners spend 25-50% of their time delivering mental health care. Telehealth, defined as the use of telecommunications and information technologies to provide health care and health education over space and time, has the potential to augment and expand the delivery of mental health services in primary care settings. Tele-mental health may be particularly relevant in rural and remote areas because of the maldistribution of psychiatrists. Findings and recommendations were extracted and synthesized from over 100 articles or reports and discussions with thirty-six key informants.

The following tele-mental health services can be provided: (1) administration, research & evaluation; (2) assessment & diagnosis; (3) case management, conferencing & review; (4) consultation; (5) education, training & supervision; (6) forensic & legal assessment; (7) professional advice & decision support; (8) health promotion & illness prevention; (9) personal & social support; (10) psychological & neuropsychological testing; (11) transplant evaluation; and (12) treatment & therapy.

Tele-mental health care services can be utilized by a variety of health care professionals, clients, families, friends and social support personnel (e.g., school counsellors) and can be delivered in many different settings and in most, if not all, communities.

Results of a meta-analysis that compared telepsychiatry to face-to-face psychiatric assessment found no statistically significant differences for assessment and diagnosis, patient satisfaction or doctor satisfaction. Other comprehensive reviews have echoed these findings, with the caveat that the quality and quantity of evidence was low.

The willingness and ability to use tele-mental health seems to be a function of the technology, the interaction between humans and the technology and the interactions among people. Findings suggest a number of trade-offs as users weigh the advantages and disadvantages of tele-mental health relative to the alternatives. Increasing the awareness of the client and provider in terms of the benefits and limitations, can help users decide when tele-mental health is appropriate.

Major findings and recommendations include:

- Awareness initiatives should be targeted at clients, providers, administrators, etc., to let them know that numerous clinical and educational services can be supported by tele-mental health.
- Needs assessments followed by trials could be used to determine which services should be provided by tele-mental health for a given Family Health Team. Periodic evaluation is needed.
- The telecommunications technology should be used for a variety of clinical and education services and by a diversity of users and not just restricted to mental health.
- Adequate financial support is needed to set-up and maintain the telehealth equipment and network, as well as to pay for professional and technical support personnel.
- Rural or remote communities may need additional resources to provide technical or clinical support.
- Bandwidth should be appropriate to needs ("bandwidth on demand").
- Equipment must be interoperable and compatible among locations and, ideally, among networks.
- Adequate training and real-time, continuing technical support is another key to success.
- Both the Family Health Teams and the clinical experts should know who is available to give advice, support or backup and when these services are available.
- Family Health Teams may wish to avail themselves of the expertise of existing telehealth networks.
- Health care providers may wish to refer to their professional associations, colleges and accreditation agencies for relevant policy or legal requirements.

Family Health Teams may be able to utilize telecommunications and information technologies to augment and support the delivery of mental health services. Understanding the potential and the limitations in the technology-human interface is essential for the successful implementation of a diverse range of tele-mental health services within the context of collaborative mental health care.

# Executive Summary

Family Health Teams bring together doctors, nurses, nurse practitioners and other health care professionals who work collaboratively to provide the best quality care for patients. Collaborative working relationships between family practitioners and other health care providers may be one method to improve patient outcomes and health system efficiencies. These collaborative relationships may be of particular importance in mental health care because Family Physicians/General Practitioners (FPs/GPs) are often the first point of contact with the health care system for patients with mental health problems. In addition, many of these patients see their FP/GP exclusively, or in conjunction with psychiatrists and other mental health care workers during the course of their treatment.

Collaborative or shared mental health care has been practised in Ontario for some years now. Evidence from the literature and from conversations with key informants and focus group participants suggest that many of these shared care programs continue to evolve in concert with changes in policy, clinical practice and technology. Telehealth, defined as the application of telecommunications and information technology to provide health care services and health education over geographical or temporal distances, may have a role to play in facilitating shared care and in augmenting and expanding the delivery of mental health services in primary care settings. The application of information and communications technologies to mental health and psychiatric service delivery is particularly relevant in rural and remote areas because of the maldistribution of psychiatrists.

This study used a focussed literature search and review, coupled with key informant interviews and focus group discussions to explore the potential and limitation of using telecommunications and information technologies to augment and expand mental health care services in the context of Family Health Teams. This Final Report provides an analysis and synthesis of findings from over 100 articles and reports, plus interviews and focus group discussions with a total of thirty-six key informants.

Tele-mental health has the potential to augment and supplement most of the services provided in-person as demonstrated by projects and programs from around the world. The literature and discussions with key informants suggest that a variety of mental health services can be provided through the use of telecommunications and information technologies. These services include: (1) administration, research and evaluation; (2) assessment and diagnosis; (3) case management, conferencing and review; (4) consultation; (5) education, training and supervision; (6) forensic and legal assessment; (7) professional advice and decision support; (8) health promotion and illness prevention; (9) personal and social support; (10) psychological and neuropsychological testing; (11) transplant evaluation; and (12) treatment and therapy.

The literature and discussions with key informants suggest that tele-mental health care services can be provided by a variety of health care professionals such as FPs/GPs, registered nurses, nurse practitioners, mental health workers, social workers, psychologists, psychiatrists and sub-specialists. Services can be received by clients of all ages, by all of the health care providers listed above and by parents, legal guardians, families, school personnel and friends, as appropriate. Tele-mental health care services can be delivered in all settings and in all communities, given sufficient logistical and financial support.

Results of a meta-analysis that compared telepsychiatry to face-to-face psychiatric assessment found no statistically significant differences for assessment and diagnosis, patient satisfaction or for doctor satisfaction. Other comprehensive reviews have echoed these findings, with the caveat that the quality and quantity of evidence was low.

# Executive Summary

The willingness and ability of the client and provider to use tele-mental health seems to be a function of the technology, the interaction between humans and the technology and the interactions among people, all within the context of the health care system and society as a whole. Results from the literature and discussions with key informants suggest a number of trade-offs. For example, satisfaction and reliability may suffer if the technology performs poorly due to insufficient bandwidth, poor image quality or other service disruptions. Yet some patients and providers are willing to put up with these problems as long as they don't have to travel. In addition, some patients may prefer tele-mental health because they can see a different (non-local) provider or can access a service not otherwise available. Providers may prefer to treat some patients remotely because of the patient's condition or behaviour.

Conversely, some users avoid tele-mental health, even if the best technology is made available. For instance, some providers may conclude, in their professional opinion, that the treatment or therapy can not be provided as effectively for a particular patient or for all patients. In addition, a provider may not be able to adapt his/her clinical technique to the demands of the technology for a particular patient or for certain groups of patients. On the other side of the connection, a patient may not feel comfortable with speaking to a TV, may feel insulted by a remote consultation or may feel threatened by being on TV. Increasing the awareness of the client and the provider in terms of the advantages and disadvantages, as well as the benefits and limitations, can help users reach a decision as to whether tele-mental health is appropriate to them and their circumstances. Providing an adequate number of properly trained providers, as well as sufficient clinical and technical support can go a long way to ensure that the tele-mental health service is a success.

Telecommunications and information technologies have the potential to augment and support the mental health services delivered by Family Health Teams. Tele-mental health may also be able to address some of the issues and problems reported in existing shared care programs. For example, professional isolation can be a problem for some of the more specialized mental health workers. Professional isolation can make it difficult to keep up to date in one's discipline. Another aspect is that isolation may make it difficult to receive professional support when dealing with a more diverse range of conditions than had been encountered in a highly specialized practice. In addition, specialized professionals at one location could share their expertise with many other locations through informal or formal education/training telehealth sessions. Telehealth has been advocated as one way to improve recruitment and retention of health care professionals in remote or isolated communities, though the evidence in the literature is limited.

This potential to provide mental health services via telecommunications and information technologies does not mean that tele-mental health could or should replace all face-to-face interactions. Telecommunications and information technologies are complex tools and understanding the strengths and weaknesses is essential for proper use.

Findings and recommendations arising from the analysis and synthesis of the literature, interviews and focus groups include:

- A plethora of clinical and educational services can be provided or supported by means of telecommunications and information technologies.
- Clients, providers, administrators and other potential users need to be informed about what can be provided by telehealth and should be made aware of the major limitations. Demonstration sessions in a variety of settings, including academic and educational situations, may help raise awareness.

- Needs assessments followed by pilots or trials could be used to determine which services should be provided by telecommunications and information technologies for a given Family Health Team.
- Periodic evaluation or monitoring is needed to ensure that tele-mental health services are meeting the needs of Family Health Teams and of the populations that they serve.
- Each Family Health Team needs to be able to decide which tele-mental health services, if any, to provide for their patients.
- Telehealth services should be as broad as possible and should not be limited to mental health care. The more types of clinical, educational and administrative uses of the telehealth equipment and the greater number of potential users, the better the chance of success.
- Adequate financial support is needed to set-up and maintain the telehealth equipment and network, as well as to pay for professional and technical personnel.
- The issue of funding and support may be of particular importance to mental health services for specific groups of people (e.g., children) as different provincial ministries (e.g., Ministry of Health and Long-Term Care, Ministry of Children and Youth Services) may have overlapping responsibility for providing these services.
- Tele-mental health networks need technically reliable equipment that is easy to use, consistent in technical quality, and is adequately and consistently supported.
- Family Health Teams need to have equipment that is compatible with other sites and the network as a whole. Technical interoperability must be guaranteed and proven.
- Bandwidth should be appropriate to needs and, ideally could be flexible within pre-specified lower and upper limits (the flexibility is termed "bandwidth on demand").
- Adequate training and real-time, continuing technical support is another key to success.
- Effort and resources are needed to build the necessary technical expertise in rural, remote or isolated communities.
- Expert clinical advice and support should be available within a pre-determined time period for each specialty or subspecialty. Both the Family Health Teams and the clinical experts should know who is available to give advice, support or backup and when they are available.
- Each physical location needs to have a plan for emergencies related to patient condition/behaviour or technical malfunctions.
- Effort is needed to build the necessary clinical or mental health support capacity in rural, remote or isolated communities. In each community it may be necessary to train several people, such as clergy, police, firefighters, paramedics, respected community members, etc., to provide on-site backup in case of technical malfunctions.
- Family Health Teams may wish to take advantage of the expertise of existing telehealth networks in Ontario.
    - Existing telehealth networks are well placed to advise on the logistical, technical and human components of successful telehealth services.
        - Expertise may include minimum technical standards for: room set-up and location; TV monitor; camera; microphone; data compression; and connectivity (bandwidth).

  - Existing networks have developed their own set of policies and procedures and are in the process of merging these into province-wide guidelines.
    - Policies may include: informed consent; duty of care; liability; on-site backup; privacy; security; and confidentiality.
    - Policies may also be in place to address human resource issues, including staffing requirements, training and education, professional responsibilities and so forth.
- Family Health Teams may wish to take advantage of the collaborative care toolkits developed by the Canadian Collaborative Mental Health Initiative (www.ccmhi.ca).
- Health care providers may wish to refer to their professional associations and colleges to read up on any policy or guideline or legal requirement that deal with tele-mental health.
- Health care providers may also wish to monitor the website of the Canadian Council on Health Services Accreditation (www.cchsa-ccass.ca) for the anticipated release of its accreditation guidelines on telehealth.

It is important to note that collaborative care comes with its own set of challenges that may need time and resources to be resolved. Evidence from the literature and from the key informants suggest that it can take up to five years to develop effective collaborative teams. Telehealth in general and tele-mental health in specific also need time to develop the technical networks and inter-personal relationships necessary for success. The co-development of collaborative care and tele-mental health networks may not necessarily double the time, but certainly will increase challenges and opportunities.

Family Health Teams may be able to utilize telecommunications and information technologies to augment and support the delivery of mental health services. These teams should be able to benefit from telehealth networks that are already well-established in Ontario in terms of providing clinical, educational, logistical and administrative support. Understanding the potential and the limitations in the technology-human interface is essential for the successful implementation of a diverse range of tele-mental health services within the context of collaborative care in family practice settings.

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The Research Team thanks the key informants who participated in the interviews and focus groups. We certainly appreciate the fact that they took time out from their busy schedules to speak with us about the issues and concerns that surround mental health care, shared/collaborative care, primary care reform, tele-mental health and telehealth.

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The views and opinions expressed in this report are those of the authors and do not necessarily reflect those of Ontario Ministry of Health and Long-Term Care or the Ontario Mental Health Foundation.

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Final Report

## 1 Introduction

It is estimated that approximately 19% of all Ontario residents have a psychiatric disorder and only about 1/5 of these people use mental health services (Parikh et al. 1997). Approximately 2/3 of those who receive mental health care receive it from their family physician/general practitioner (FP/GP) with/without the consultation of a specialist. Approximately 83% of those with mental health problems are seeing a FP/GP for general health problems only (Parikh et al. 1997). Dealing with mental health issues, with or without physical problems can account for a significant amount of time in a family practice (Craven et al. 1997; Dew et al. 2005). For instance, Craven and colleagues (1997) estimate that every FP/GP spends between 25-50% of their time delivering mental health care. The bottom-line is that a high percentage of patients with mental health problems see their FP/GP (Parikh et al. 1997). Over the years, there have been a number of initiatives to augment the care given by FPs/GPs and other primary care providers in a variety of locations and care environments (Nixon et al. 2003; Roblin et al. 2003; Cook et al. 2004). In Ontario, Family Health Teams are a recent embodiment of these initiatives. [1]

Family Health Teams are an approach to primary health care that brings together different health care providers to co-ordinate the highest possible quality of care for patients and clients.[1] The composition of a Family Health Team will differ from place to place, varying according to the needs of the community and the availability of practitioners. Family Health Teams will typically consist of doctors, nurses, nurse practitioners and other health care professionals who work collaboratively to provide the best quality care for patients. Collaborative working relationships between family practitioners and other health care providers have been proposed over the decades as one method to improve patient outcomes and health system efficiencies (e.g., Coleman & Patrick 1976; Kates 1988; Seaburn et al. 1996).

[1] Ontario Ministry of Health and Long-Term Care: http://www.health.gov.on.ca/transformation/fht/fht_mn.html

Telehealth[2] [3] may have a role to play in facilitating shared or collaborative care and in augmenting and expanding the delivery of mental health services in primary care settings. A substantial amount of money has been allocated by Ontario and other governments to advance telehealth initiatives as demonstrated by the many pilot projects and programs that have been put in place (e.g., NORTH Network, Telehealth Ontario, CHIPP, Smart Systems for Health). Many health care commissions and task forces have advocated the wider use of telehealth, particularly in rural, northern and remote settings, as means of improving access to health care services (Kirby & LeBreton 2002; Ministerial Advisory Council on Rural Health 2002; Romanow 2002).

The application of information and communications technologies to mental health and psychiatric service delivery is particularly relevant in rural and remote areas. This is because, relative to the general population, the geographic distribution of psychiatrists in Canada is one of the most uneven among all physicians (Pong & Pitblado 2006). In contrast, the distribution of FPs/GPs is similar to that of the general population (Pong & Pitblado 2006), providing more evidence that FPs/GPs serve as a first point of entry into the health care system. Delivery of mental health services by means of telecommunications technology started at least 40 years ago and have been implemented world-wide for a variety of services and with varying degrees of success (Liebson 1997; Baer et al. 1997).

This report presents a synthesis of findings from the literature review, augmented by findings from interviews and focus groups. This report includes recommendations on the use of telehealth to enhance the delivery of mental health services by Family Health Teams.

[2] Telehealth is defined as the application of telecommunications and information technology to provide health care services and health education over geographical or temporal distances. The type of technology may include the telephone, the internet, videoconferencing and remote manipulation (e.g., surgery). The focus in this report is on videoconferencing and research findings, unless otherwise noted, also apply to the use of telephones. However, internet applications, such as e-mail and chat rooms, are considered sufficiently unique by several experts and are mention explicitly, where appropriate.

[3] For an explanation of telehealth terms and definitions refer to the web site of the American Telemedicine Association at http://www.atmeda.org/

# 2 Background

## 2.1 Telehealth and Mental Health Care

Tele-mental health[4] has been shown to be effective in connecting practitioners and service users across geographic distances. For instance, in Alberta, an evaluation of a telepsychiatry pilot project suggested that it was acceptable to both patients and psychiatrists and provided a reliable alternative to face-to-face consultations (Doze et al. 1999; Simpson et al. 2001a,b). The authors concluded that telepsychiatry appeared to increase access to community mental health services. A randomized controlled trial of child telepsychiatry in Newfoundland also found that patient satisfaction was high and the sessions were satisfactory, though the psychiatrists preferred face-to-face consultations (Elford et al. 2000).

The findings from Alberta and Newfoundland were echoed in a systematic review of videoconferencing in child and adolescent telepsychiatry (Pesämaa et al. 2004). Hilty and colleagues (2004) reviewed the telepsychiatry literature focusing on clinical and educational applications. They concluded that "in general, diagnostic reliability appears to be excellent with telepsychiatry, with only a few studies detecting minor limitations" (p 14). In a systematic review and meta-analysis, Hyler and colleagues (2005) found no statistically discernable difference between face-to-face and telepsychiatry for assessment and diagnosis values, for patient satisfaction or for doctor satisfaction. Although they were equally satisfied with both modalities, both doctors and patients seem to prefer in-person sessions over telepsychiatry, particularly if low bandwidth (128 kbs) was used (Hyler et al. 2005). The authors of the three reviews indicated that the quality and quantity of evidence was low and thus tempered their conclusions with a call for more rigorous research (Hilty et al. 2004; Pesämaa et al. 2005; Hyler et al. 2005).

Tele-mental health may increase the availability of mental health services in rural and remote areas (Sunmer 2001; Urness et al. 2003) or can be used as a means to bring these services into the home (Yellowlees 2001; Urness et al. 2003). More broadly, telehealth may increase awareness and access, as well as improve communication among providers, professionals and patients. There are, however, limitations and, perhaps, exceptions.

## 2.2 Family Health Teams and Tele-Mental Health

One of the nine objectives of the Family Health Teams (FHTs) is to provide comprehensive primary care. Included within this objective is the provision of "primary mental health care (early identification and treatment of emotional and psychiatric illnesses and, where appropriate, collaboration with psychiatrists or FHT mental health workers)."[1] It may be possible to use telecommunications technology (telehealth) to provide these primary mental health care services in rural or remote areas, or in other areas with few or no psychiatrists, psychologists or other mental health workers. In doing so, there may be increased opportunities to link telehealth to other FHT objectives such as health promotion and the use of information technologies.[1] There are barriers to implementing telehealth—these include policy and regulatory barriers, as well as system inertia and competition for resources (Pong & Hogenbirk 1999, 2000; Hogenbirk et al. 2006).

[4] We define tele-mental health as the application of telecommunications and information technology to provide all types of mental health care and educational services over geographical or temporal distances. Tele-mental health is used to evoke the broader context and includes telepsychiatry. We use the term telepsychiatry when specifically referring to psychiatric applications of telehealth.

The conceptual framework used in this research project is shown by a three-way intersection of: (1) primary care; (2) mental health care; and (3) telehealth (**Figure 1**). There is a considerable amount of information in each of the three separate knowledge areas; there is some information in the intersection of any two areas (labelled in Figure 1 as "A", "B" and "C"); and little, if any, in the overlap of all three areas (labelled as "D"). The overlap of all three areas demarcates a knowledge gap. The research approach used in this study was to identify information in the overlap between any two areas that could be extended into the overlap among all three areas—this process is indicated by the arrows in **Figure 1**.

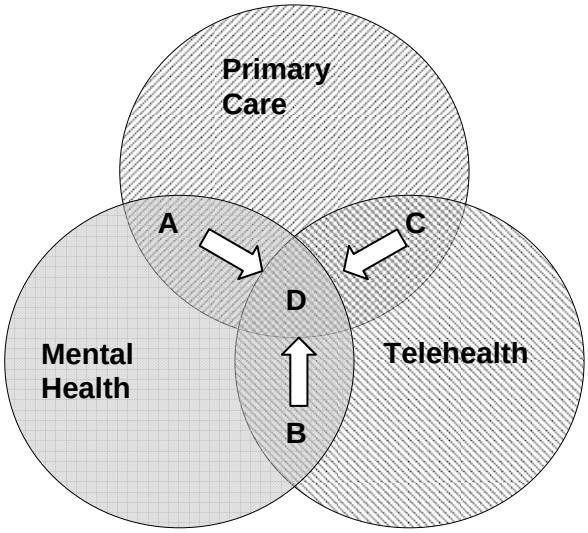


**Figure 1.** Conceptual diagram of the areas of knowledge.
Arrows indicate that the knowledge in the overlap between any two areas will be used to augment the knowledge in the overlap among all three areas. Research questions have been identified for the lettered regions.

## *2.3 Research Questions*

The research questions were grouped for each region of overlap between knowledge areas. The emphasis in Regions A, B and C was to identify findings, lessons learned and implications that could be extrapolated towards the three-way overlap of Region D. It was not the goal of this research project to populate the entire overlap region between any two knowledge areas. Rather, the goal was to identify the knowledge that can be extended into the gap (the arrows of **Figure 1**).

**(A) Mental Health Care and Primary Care**

(1) Which mental health care services could be provided by Family Health Teams?

(2) Which of these mental health care services (Question 1) could be delivered as tele-mental health programs?

**(B) Telehealth and Mental Health Care (= Tele-Mental Health)**

(3) What are the successes/failures in existing/recent tele-mental health service delivery? (Focusing on those that have the highest relevance to Ontario and primary care.)

(4) What are the possible barriers to tele-mental health service delivery? (Barriers could include issues related to readiness, integration, policies (e.g., remuneration, licensure), client and provider willingness-to-use, etc.)

(5) What are the pros and cons of the potential solutions to these barriers?

**(C) Telehealth and Primary Care**

(6) Are there any lessons learned from the application of telehealth to primary care that are relevant to the knowledge gap?

**(D) Tele-mental Health and Primary Care (the 3-way overlap)**

(7) How would the successes/failures and barriers/solutions of tele-mental health in particular and telehealth in general (Questions 3-6) apply to the potential use of tele-mental health services in primary care reform (Question 2)?

# 3 Methodology

The Research Team conducted a focused literature review, key informant interviews, and focus group discussions to find answers to the research questions. This study received ethics approval from the Laurentian University Research Ethics Board (REB) on November 13, 2005 and from the Hospital for Sick Children's REB on December 15, 2005. Details of the application for ethics approval and the study instruments (interview and focus group guides) appear as **Appendix 1**.

## *3.1 Literature Search and Review*

A focused literature search examined the overlap between any two knowledge areas to extract findings and implications that were relevant to the knowledge gap—the intersection of all three areas. The research team conducted a focused search of the published and unpublished (grey) literature. The team developed keyword search strategies, conducted on-line searches of bibliographic databases for potentially relevant publications, screened abstracts to identify studies for further review, and examined the references sections of publications for potentially useful studies.

The following bibliographic databases were searched from 1990 to 2005 for relevant publications.[5]

1. Telemedicine Information Exchange
2. Ovid (Ovid Technologies) including:
    a. All Evidence Based Medicine (EBM) Reviews, including:
        i. Cochrane Database of Systematic Reviews (DSR)
        ii. American College of Physicians (ACP) Journal Club
        iii. Database of Abstracts of Reviews of Effects (DARE)
        iv. Cochrane Central Register of Controlled Trials
    b. Books@Ovid
    c. Cumulative Index to Nursing & Allied Health Literature (CINAHL)
    d. Journals@Ovid Full Text
    e. OVID Medline 1966-Present
    f. PsycINFO 1967-Present
    g. Your Journals@Ovid
3. EBSCOhost Research Databases (EBSCO Publishing) including:
    a. Academic Search Premier (ASP)
    b. General Science Abstracts
    c. Social Sciences Abstracts
4. ProQuest Dissertations and Theses – Full Text
5. Web of Science, including:
    a. Science Citation Index Expanded (SCI Expanded) 1945-Present
    b. Social Science Citation Index (SSCI) 1956-Present
    c. Arts & Humanities Citation Index (A&HCI) 1975-Present

[5] Some searches went back to the start of the bibliographic collection. At a minimum, we searched 1990-2005.

6. Scholars Portal: 7,457 full text journals from 17 publishing companies.
7. World Wide Web using the search engines: Google (www.google.ca) and Vivísimo (http://vivisimo.com).
8. Search of specific journals for relevant articles, including:
    a. Australian Journal of Rural Health (1998-Present)
    b. Canadian Journal of Community Mental Health (1998-2004)
    c. Canadian Journal of Psychiatry (1999-Present)
    d. Canadian Journal of Rural Medicine (1999-Present)
    e. Canadian Medical Association Journal (1997- Present)
    f. Community Mental Health Journal (1996- Present)
    g. Cyberpsychology & Behavior (2000- Present)
    h. eHealth International (2003- Present)
    i. Evidence Based Mental Health (1998- Present)
    j. Health and Social Care in the Community (1998- Present)
    k. Informatics in Primary Care (2003-Present)
    l. International Journal of Integrated Care (2000-Present)
    m. International Journal of Rural Psychiatry (2000-2004)
    n. Journal of Mental Health (1992- Present)
    o. Journal of Psychiatric & Mental Health Nursing (1998- Present)
    p. Journal of Rural Community Psychology (1997- Present)
    q. Journal of Rural Health (1985-2003)
    r. Journal of Rural Studies (1998- Present)
    s. Journal of Telemedicine and Telecare (1996- Present)
    t. Journal of the American Medical Informatics Association (2001-Present)
    u. Medical Informatics & the Internet (1999-Present)
    v. Primary Care Mental Health (2003- Present)
    w. Primary Health Care Research and Development (2000-Present)
    x. Telemedicine Journal and e-Health (1999-Present)

Results of the keywords/keyword combinations searches are displayed in **Tables 1 & 2**.

**Table 1: Number of Citations Found in the Telemedicine Information Exchange Bibliographic Database (Total of 16,234 Citations)**

| *KEYWORD(S)* | *NUMBER OF CITATIONS* | *KEYWORD(S)* | *NUMBER OF CITATIONS* |
|---|---|---|---|
| Telemental | 11 | Mental | 305 |
| Telepsychiatry | 351 | Mental health | 455 |
| Telepsychology | 8 | Psychiatry | 305 |
| Telecounseling | 4 | Psychology | 122 |
| Telecounselling | 0 | Counseling | 66 |
| | | Counselling | 6 |
| Primary | 643 | | |
| Primary health | 86 | Canada | 330 |
| Primary healthcare | 7 | | |
| Care reform | 16 | Rural | 1281 |
| Healthcare reform | 13 | Northern | 130 |
| Shared health | 3 | Remote | 1678 |
| Primary care | 512 | Isolated | 127 |
| Integrated delivery | 38 | | |
| Comprehensive health | 7 | | |
| Patient centered | 3 | | |
| Centered care | 1 | | |

The Research Team viewed all of the citations selected from the Telemedicine Information Exchange Bibliographic Database (**Table 1**) and all citations identified in the keyword combination searches (**Table 2**). These citations were screened on the basis of how well they addressed the research questions. The screening process started with an examination of titles and abstracts (if available) to determine the suitability of publications for further review. The Research Team identified approximately 250 articles and reports with potential relevance to the study. These documents were obtained and examined in detail. Approximately 150 documents were identified subsequently for possible inclusion in the study. Thirty-four of the most relevant documents have been summarized in **Appendix 2: Summary of Selected Literature** and 106 references have been cited in the text of this report.

**Table 2: Number of Citations from a Search of Selected On-line Bibliographic Databases**

| *KEYWORD GROUP* | *OVID* | *EBSCOHOST* | *PROQUEST* | *WEB OF SCIENCE* | *SCHOLARS PORTAL* |
|---|---|---|---|---|---|
| 1. telemedicine OR tele-medicine OR telehealth OR tele-health OR telecare OR tele-care OR telemonitoring OR tele-monitoring | 5,488 | 1,738 | 148 | 3,087 | 694 |
| 2. telemental OR tele-mental OR telepsychiatry OR tele-psychiatry OR telepsychology OR tele-psychology OR telecounselling OR tele-counselling OR telecounseling OR tele-counseling | 522 | 91 | 7 | 210 | 21 |
| 3. communication technology OR information technology OR videoconferencing OR video conferencing OR video teleconferencing OR video tele-conferencing | 2,391 | 60,517 | 3,924 | 11,085 | 7,002 |
| 4. mental health OR psychiatry OR psychology OR counselling OR counselling | 75,806 | 506,452 | 2,007,672 | 39,263* | 37,017 |
| 5. primary health care OR primary healthcare OR primary health care reform OR primary healthcare reform OR shared health care OR shared healthcare OR integrated primary health care OR integrated primary care OR integrated primary healthcare OR shared mental health care OR shared mental healthcare OR integrated delivery systems OR comprehensive health care OR comprehensive healthcare OR patient centered care OR patient-centered care OR primary mental health care OR primary mental healthcare | 38,860 | 5,858 | 4,483 | 6,307 | 2,027 |
| 6. Canada | 216,944 | 217,116 | 18,648 | 73,410 | 18,880 |
| 7. Rural OR northern OR remote OR isolated | 608,324 | 262,171 | 93,400 | 64,961 | 316,562 |
| **Combinations:** | | | | | |
| (1 OR 2 OR 3) & 4 | 151 | 260 | 64 | 128 | 92 |
| (1 OR 2 OR 3) & 4 & 6 | 6 | 41 | 5 | 0 | 0 |
| (1 OR 2 OR 3) & 5 | 116 | 48 | 52 | 46 | 13 |
| (1 OR 2 OR 3) & 5 & 6 | 1 | 1 | 2 | 0 | 0 |
| (1 OR 2 OR 3) & 4 & 5 | 0 | 6 | 5 | 0 | 0 |
| (1 OR 2 OR 3) & 4 & 5 & 6 | 0 | 0 | 0 | 0 | 0 |
| (1 OR 2 OR 3) & 4 & 7 | 18 | 90 | 11 | 51 | 18 |
| (1 OR 2 OR 3) & 5 & 7 | 7 | 7 | 13 | 9 | 6 |
| (1 OR 2 OR 3) & 4 & 5 & 7 | 0 | 1 | 2 | 0 | 0 |

## *3.2 Interviews & Focus Groups*

The Research Team conducted interviews and focus groups with a total of thirty-six participants. Potential participants were identified from the literature or suggested by members of the research team members and officials with the Mental Health and Rehabilitation Policy Unit, Ontario Ministry of Health and Long-Term Care. Other potential participants were suggested by interviewees and colleagues. Participants for the interviews and focus groups were from southern and northern Ontario and include social workers, registered nurses (RN), psychiatrists, psychologists, clinical coordinators and students/interns. Many have practical experience in one or more of the areas of interest, namely tele-mental health, telepsychiatry, mental health, shared/collaborative care or primary care reform.

Potential participants were contacted by email, by telephone or in person (**Appendix 1a: Cover Letter**) and invited to participate in the interviews or focus groups. Thirty-six key informants contributed to this study and the rate of participation was 72%. Five people refused and three people had to decline due to last minute conflicts. However, an additional six people were willing to participate but could not be interviewed or attend focus groups due to conflicting schedules and the tight timeline for this study.

Sixteen key informants participated in a 30-45-minute semi-structured interview. Each interview was digitally recorded with the key informant's consent. Signed consent forms (**Appendix 1b: Consent Form**) were stored securely at the Centre for Rural and Northern Health Research in Sudbury. The interview protocol comprised eight guiding questions (**Appendix 1c: Interview Guide**). Interviews were conducted either face-to-face or by telephone.

There were two hybrid interviews/focus groups that were based on the interview questions, but were conducted with group discussions over 1-1.5 hours. A total of thirteen people participated in these two sessions. These hybrid sessions were conducted prior to the release of the preliminary findings and initial recommendations.

Two focus groups with a total of seven participants were conducted by videoconferencing and in-person participation. Each focus group ran for 1.5-2 hours and were digitally recorded with the permission of the participants. A three-page executive summary of the preliminary findings and recommendations was distributed to these participants prior to the focus group. Focus groups were semi-structured (**Appendix 1d: Focus Group Guide**) and participants were encouraged to expand upon their answers.

Each research team member submitted written summaries of interviews that he/she had conducted. Summaries were also prepared for each of the three focus groups. All summaries were analyzed for emerging themes and issues that pertained to the research questions. We looked for both agreement and disagreement with the literature. In addition, we looked for issues and concerns raised by the key informants that related to the use of tele-mental health services by Family Health Teams in Ontario. Results from the key informant interviews and focus groups were integrated with those from the literature to refine and contextualize the main findings and recommendations.

# 4 Results & Discussion

## *4.1 Mental Health Care Services Provided by FHTs*

The idea of FPs/GPs and other primary care providers collaborating with psychiatrists, psychologists and other mental health workers to provide mental health care services has been around for several decades and has arisen in many countries (Seaburn et al. 1996).[6] There have been a number of models of collaboration proposed for primary care and mental health care providers (e.g., Seaburn et al. 1996; Craven & Bland 2002; Fleury 2005; Pautler & Gagné 2005). Many of these shared care or collaborative care arrangements are intended to improve patient outcomes and health system efficiencies by improving access to the most appropriate mental health care services (Seaburn et al. 1996).

There are a number of organizations or projects in Canada that are dedicated to facilitating the success of collaborative or shared care. These include:

- The Canadian Mental Health Association (www.cmha.ca)
- The Enhancing Interdisciplinary Collaboration in Primary Health Care Initiative (www.eicp-acis.ca)
- The National Primary Health Care Awareness Strategy (www.phc-ssp.ca)
- The Canadian Collaborative Mental Health Initiative (www.ccmhi.ca)
- Shared Mental Health Care in Canada (www.shared-care.ca)
- The Ontario Centre for Collaborative Primary Health Care (www.occphc.ca)
- Provincial/territorial chapters of national organizations

A visit to the above web sites will attest to the involvement of many professional associations in most, if not all, Canadian jurisdictions.

Collaborative or shared mental health care is designed to support FPs/GPs in the care of their patients with mental health issues by providing expert clinical advice and services in the context of family practice, while allowing the FP/GP to retain responsibility for patient care (Kates et al. 1997a). The potential benefits, listed by Kates and others (1997a), include:

- *enhanced quality of mental health care received*
- *improved access to psychiatric consultation or services*
- *increased skill and comfort on the part of FPs/GPs in managing the patients mental health issues*
- *increased effectiveness on the part of psychiatrists as consultants and supports to FPs/GPs*
- *mutual support when managing complex mental health needs*
- *more efficient and effective use of available resources*
- *enhanced models of mental health care delivery for people in isolated communities*

**Potential benefits of shared resources and responsibilities.**

*If there were more integrated services, clients would receive more comprehensive care in a more timely and appropriate manner. Co-location of services like primary care, social services and mental health at one site is not only helpful for clients, providers also benefit because they get to know and see each other, and are more likely to refer. There is a building of alliances and more sharing of information. … Service is as a unit. By putting professionals from different agencies together, I have seen … the difference in the product [e.g., care] because it's more comprehensive ...*

Mental Health Administrator

[6] Interdisciplinary collaboration can occur between two or more health care professionals from different disciplines (See www.eicp-acis.ca or www.occphc.ca).

- *elimination of some of the barriers that prevent better integration of mental health and primary care reform*
- *opportunities for collaborative projects that lead to the prevention or early detection of mental health problems*

In this study, many of the key informants echoed the potential benefits listed above. For northern or rural communities, several participants mentioned that these benefits were dependent on the availability of qualified primary care and mental health care providers. For example, in our study one mental health clinician stated:

> *For the client in a rural community, there may be no family support let alone a primary care person. … I look forward to the possibility of working collaboratively with primary care and mental health professionals, but it doesn't really happen now. The complexity of care required by the clients of this program requires a skilled team approach, but the number and type of providers to service these clients is limited. … There is a need for more professionals, resources and professional rapport building in this area so that outreach is possible, but we need to begin by building teams that are knowledgeable about the complexity of these patients' needs.*

Similar findings were echoed by several other key informants who participated in a separate and distinct study that examined the role of FHTs in providing chronic mental health care in northern Ontario (Minore et al. 2005).

There is some evidence from the literature that some of the aforementioned benefits have been realized, though the studies in Canada (Kates et al. 1997b,c,d; 2001b; 2002; Turner & de Sorkin 1997; Rockman et al. 2004) and elsewhere (Nixon et al. 2003; Cook et al. 2004) are largely descriptive in nature. Recent syntheses from the Canadian Collaborative Mental Health Initiative have concluded that a lack of standard definitions and outcome measures has made evidence gathering difficult and that definitive conclusions about the relative advantages/disadvantages of collaborative models may be premature (Pautler & Gagné 2005; Macfarlane 2005). However, some findings are beginning to emerge. Most notably, Craven & Bland (2006) presented eleven conclusions based on a systematic review of 38 studies and follow-up reports that used experimental methods. Their eleven conclusions were:

1. *Collaborative relationships between primary care physicians and other mental health care providers do not happen instantly or without work. They require preparation, time and supportive structures. System-level collaboration also requires preparation, service reorganization and time to develop.*
2. *Co-location is important for both providers and patients.*
3. *Degree of collaboration does not in itself appear to predict clinical outcome.*
4. *The pairing of collaboration with treatment guidelines appears to offer important benefits over either intervention alone in patients with depressive disorders.*
5. *Collaboration paired with treatment guidelines for depression may have a differential effect on outcome, with patients with more severe disorder responding better.*
6. *One of the most powerful predictors of positive clinical outcomes in studies of collaborative care for depression was the inclusion of systematic follow-up as part of the study protocol.*
7. *Efforts to increase medication adherence through collaboration with other health care professionals (e.g., practice nurses) were also a common component of many successful studies.*

8. *Collaboration alone has not been shown to produce skill transfer or enduring changes in primary care physician knowledge or behaviours in the treatment of depression.*
9. *Enhanced patient education about mental disorders and their treatment (usually by a health professional other than the primary care physician) was a component of many of the studies with good outcomes.*
10. *Collaborative interventions established as part of a research protocol may be difficult to sustain once the funding for the study is terminated.*
11. *Patient choice about treatment modality may be an important factor in treatment engagement in collaborative care.*

Craven and Bland (2006) noted that many studies used complex interventions that were multifaceted and multidisciplinary. As a consequence, key interventions were difficult to isolate and the generalizability of the results was limited. While the aforementioned caveats may still apply, it seems that different groups in different settings have found ways to make selective components of collaborative care work and work well, in comparison with care as usual.

Collaborative care is made possible through the sharing of resources, including personnel, and by providing services that may not be otherwise readily accessible in a family practice. Personnel may include:

1. mental health workers;
2. counsellors;
3. psychologists and
4. psychiatrists:

Services might include (Kates et al. 1997b,c):

1. initial/follow-up consultations;
2. therapy or treatment;
3. health education or health promotion/illness prevention training to patients;
4. care management sessions with the FP/GP and his/her staff; and
5. education/training sessions with the FP/GP and his/her staff

These services can be located in shared or adjacent office space in family practices (e.g., Kates et al. 1997b,c), clinics or hospitals (e.g., Turner & de Sorkin 1997).

There is evidence from this study's interviews and focus groups that collaboration already occurs in Ontario. Several key informants suggested that the geographic challenges of providing mental health care in rural or remote Ontario communities combined with the realization of the need to work together to deliver health care has lead to these informal collaborative networks. Key informants also remarked that many of these networks have used both travel (by providers and clients) and telehealth services. Collaborative networks evolved, logistics and processes developed and policies or guidelines emerged over time—mostly through trial and error. Similar findings were reported by Minore and colleagues (2005) in their study that examined the potential role of FHTs in providing chronic mental health care in northern Ontario. It is clear that the development of collaborative care networks takes time (up to five years) and deliberate effort (Minore et al. 2005; Craven & Bland 2006).

## *4.2 Mental Health Care Services Delivered via Telehealth*

Tele-mental health has the potential to augment and supplement most of the services provided in-person as demonstrated by projects and programs from around the world (Gammon et al. 1996; Mielonen et al. 1998; Smith & Allison 1998; Buist et al. 2000; Lessing & Blignault 2001) and here in Canada (Health and the Information Highway Division 2004; Boydell et al. 2004; Urness et al. 2004: Greenberg et al. 2006). A variety of mental health services can be provided through the use of telecommunications and information technologies. These services include (Smith & Allison 1998; Lessing & Blignault 2001; Broder et al. 2002; Urness 2003; Urness et al. 2004):

1. administration, research and evaluation;
2. assessment and diagnosis;
3. case management, conferencing and review;
4. consultation;
5. education, training and supervision;
6. forensic and legal assessment;
7. professional advice and decision support;
8. health promotion and illness prevention;
9. personal and social support;
10. psychological and neuropsychological testing;
11. transplant evaluation; and
12. treatment and therapy

Tele-mental health care services can be provided by a variety of health care professionals such as FPs/GPs, psychiatric nurses, nurse practitioners, mental health workers, social workers, psychologists and psychiatrists. The range of expertise can be considerable—Urness and colleagues (2004) listed a dozen or so subspecialty psychiatric services offered in Canada in 2001/2002. Services can be received by clients of all ages (e.g., Urness et al. 2004) and by all of the health care providers listed above. Parents, legal guardians, families, school personnel and close personal friends may also be involved. Tele-mental health care services can be provided in homes, family practices, after-hours/walk-in or outpatient or outreach clinics, nursing homes, emergency departments and hospitals (Hilty et al. 2004).[7]

Hilty and colleagues (2004)[8] conducted a comprehensive review of videoconferencing applications of psychiatry by searching seven databases for the period of January 1965 to July 2003. They concluded that:

> *Telepsychiatry is feasible, increases access to care, enables specialty consultations, yields positive outcomes, allows reliable evaluation, has few negative aspects in terms of communication, generally satisfies patients and providers, facilitates education, and empowers parties using it.* (p. 12)

In noting that telepsychiatry improved access, Hilty and colleagues (2004) commented that it brings specialists virtually into the FP/GP's office rather than sending patients to specialist's office. The authors also found that "[o]verall, interrater reliability has been high, and in general, diagnostic reliability appears to be excellent with telepsychiatry, with only a few studies detecting minor limitations." (p. 14). There is some suggestion that telepsychiatry "may improve outcomes or stabilize patients with chronic deteriorating courses" (p. 14), but that comprehensive data on clinical outcomes and cost-effectiveness are lacking. The authors give

[7] Evidence from the literature and from key informants show that many of these services are already being provided in Ontario by a variety of personnel in a diversity of settings.

[8] Summarized in Appendix 2.

measured support for telepsychiatry—promoting its potential while recognizing that more rigorous evaluation is needed.

A recent meta-analysis and literature review conducted by Hyler and others (2005)[8] sought to determine whether telepsychiatry can replace in-person assessment. Issues of ongoing treatment were not included in their review. Studies were identified from Medline and PsycINFO from 1956 to 2002 using relevant keywords. The search yielded 380 studies from which 14 studies with sample size >10 and sufficient statistical data were selected. No statistically significant difference was found for assessment and diagnosis values (3 studies), for patient satisfaction (9 studies) or for doctor satisfaction (3 studies). However, results for doctor satisfaction were more variable and could not be explained by statistical models that included possible confounding variables. Although they were equally satisfied with both modalities, both doctors and patients seem to prefer in-person sessions over telepsychiatry, particularly if low bandwidth (128 kbs) was used.[9] The authors conclude that their meta-analysis found no difference in accuracy or satisfaction between telepsychiatry and in-person assessments. Hyler and colleagues point out, however, that their study does not resolve the issue of whether telepsychiatry should replace in-person assessments.

This potential to provide mental health services via telecommunications and information technologies does not mean that tele-mental health could or should replace face-to-face interactions. Telecommunications and information technologies are complex tools but are tools nonetheless. As with any tool, the circumstances must be appropriate for the tool. These circumstances would include the strengths and weaknesses of the available technology and technical support, the physical and geographic location, the condition and comfort level of the patient or client as well as the ability and comfort level of the health care professional. These and other possible barriers or limitations to the use of telecommunications and information technologies are discussed in more detail in the following section.

## *4.3 Successes/Failures, Possible Barriers and Potential Solutions*

Tele-mental health has been in existence for close to 30 years in Canada (House & Roberts 1977; Dongier et al.. 1986) and over 50 years in the United States of America (Smith & Allison 1998).[10] Not all tele-mental health pilot projects have survived and this is also true of pilot projects in the broader area of telehealth. Nonetheless, there are lessons to be learned from those projects that have failed as well as from those that have survived (Yellowlees 1997). Telehealth projects in Ontario were no exception and the study team was fortunate to have the opportunity to talk with a number of experts who have been associated with successful telehealth projects.

The success or failure of telehealth or tele-mental health projects is influenced by the technology, the user of the technology and its integration into day-to-day practices. It seems reasonable to assume that the closer that the technology allows users to approximate an in-person session, the better the chance of success (e.g., McLaren 2003). Evidence from the literature suggests that improved picture and audio quality, including synchronization of sound and picture, as well as more frames per second (less jerky images) provide for more reliable and consistent sessions (Hilty et al. 2005). Key informants reported that technology had improved greatly in the last five years.

[9] Hyler et al. (2005) defined high bandwidth as 384 kbs or higher (kbs = kilobits per second = 1000 bits per second).
[10] According to Liebson (1997), the first recorded use of a tele-mental health service was in Nebraska in the late 1950s.

From a technical viewpoint and leaving aside (for now) the interaction between the user and the technology, high quality sessions are a function of the equipment at either end (e.g., camera, microphone, speakers, compression software/protocols, monitor) and the connection (e.g., available bandwidth). Administrator and clinician key informants in this study stressed the need for ongoing technological guidance and support in the establishment, maintenance, application and expansion of their tele-mental health projects. Otherwise, "accessible, available, very expensive pieces of equipment are not being used." In their meta-analysis, Hyler and others (2005) found evidence for a slight superiority of in-person sessions over telepsychiatry that used lower bandwidths (128 kbs) but no difference when higher bandwidths (384 kbs) were used.

A number of organizations have developed technical guidelines that range from fairly generic recommendations (e.g., American Psychiatric Association 1998, Canadian Psychiatric Association (Urness 2003); University of Toronto Psychiatric Outreach Program (Broder et al. 2002)) to lists of applicable standards with discussion (e.g., Brockway 2003; National Initiative for Telehealth Guidelines 2003; American Telemedicine Association (undated); Hogenbirk et al. 2006). Several authors have examined the implications for professionals who wish to include tele-mental health in their practice (Reed et al. 2000; Glueckauf et al. 2003; Rees & Haythornthwaite 2004). One recent report on clinical guidelines and technological standards for telepsychiatry, published by the Government of Quebec, sets out specific recommendations for the room, TV monitor, camera, microphone, data compression and bandwidth in addition to clinical guidelines, economic aspects, human and organizational factors, legal framework and ethical considerations (Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS) 2006).[11]

There is also anecdotal evidence that some tele-mental health sessions may be superior to in-person sessions. For instance, the ability to remotely manipulate the camera, to zoom in on the face, particularly the eyes, may help the specialist judge the accuracy and sincerity of the client's response. Key informants from one program remarked that the ability to temporarily mute their location, so that the client could not hear, allowed for spontaneous case-consultations to clarify therapeutic strategies. After the live session, audio-visual recordings (with the client's consent) may permit subsequent computer-assisted analysis of the voice or re-analysis of the session.[12]

Difficulties that occur when the client mumbles or faces away from the camera would be the same difficulties that occur during an in-person session. In either case, the specialist could ask the client to speak up and face the camera or specialist. In many ways, this is more of a human factor issue, rather than a technological one and is discussed below.

Human factors may be the most important set of factors to govern the success or failure of tele-mental health projects (e.g., Yellowlees 1997; Stamm & Perednia 2000). One common theme identified by many key informants and in the literature (Yellowlees 1997) was the importance of leadership. The presence of a champion or opinion leader was mentioned as a facilitator for the integration of mental health care services into primary care. Key informants also emphasized that the structure and function of the team is very important and may be more important than the technology. The importance of team dynamics and composition has long been considered a

[11] Available from: www.aetmis.gouv.qc.ca

[12] There are examples for this in other telehealth applications. For instance, electronic stethoscopes and the various diagnostic software packages available to analyze heart sounds may be superior to that of the human ear and thereby augment the ability of the health care professional to detect anomalies.

crucial issue in the success of shared/collaborative care endeavours (Kates et al. 2001b, 2002; Minore et al. 2005; Craven & Bland 2006). Key informants were adamant that for a tele-mental health service to be successful, support is needed from a broad diversity of people—from clients to clinicians to technicians to managers to local, regional and provincial decision-makers and politicians. In a recent systematic review, Länsisalmi and colleagues (2006) reported that this support is a key feature of many successful innovative programs in health care in general.

The interface between people and the technology was crucial: equipment that is easy to operate, comfortable to use, easy to fix or reset, is important for success. Providers and patients alike must be willing and able to use the equipment. This speaks to the need for an awareness of the benefits of tele-mental health. This awareness of tele-mental health or of mental health itself (Boydell et al. 2006) can be encouraged through increasing knowledge via word-of-mouth or other informal means or by formal training or educational opportunities.

**Awareness as a key facilitator**

*"More community education about tele-health services is required. People in the community don't know what is out there. Even I don't [know] … I happened upon a 1-800 number for mental health services and I told so-and-so. … [Awareness is] mostly word-of-mouth. Even the FPs didn't know. If the FPs don't know, [then] the gates [to the services are] closed. The crisis help lines may be more [known] to the public, but [the public] need[s] to be more informed so that they just don't call after they ingested the pills or inflicted self-harm."*

Key Informant

Potential users may also benefit from seeing the technology used to deliver these educational opportunities and clinical demonstrations before being asked to use it for their own clinical purposes. Evidence from the literature (Mair & Whitten 2000; Williams et al. 2001) and the experience of many key informants suggests that satisfaction with telehealth services can be high, particularly when users are made aware of what to expect in terms of what can and what cannot happen or be done via telecommunications and information technologies. Key informants also reported that satisfaction and comfort with the technology usually increased after an initial adjustment period.

What can and cannot be done speaks to the limitations of humans interacting with the technology and, as one might expect, varies from person to person and equipment to equipment. Many key informants where quick to point out that with any tool, there are inherent limitations to what the tool can do in terms of both technological limits and human abilities or proclivities. Supervision or mentoring, along with professional learning opportunities, with continuing education/professional development credits, may help to ensure success.

Success also hinges on the willingness and ability of the patient or client to participate in tele-mental health sessions and this may or may not be related to the technology (e.g., Werner 2004). Malfunctioning or inadequate equipment can be the biggest source of dissatisfaction with any telehealth service. Anyone who has used videoconferencing will have likely felt frustrated and disappointed when images are interrupted or out-of-sync with the audio or if the session was terminated prematurely. Conversely, users will have marvelled at convenience and utility of a session that went smoothly. Evidence from the literature suggests that patients and providers feel the same way (Kavanagh & Yellowlees 1995; Doze et al. 1999; Elford et al. 2000; Simpson et al. 2001a,b). With increasing videoconferencing experience, one informant stated that "it got so that you didn't realize everyone wasn't in the same room." In a bit of a "chicken and egg" situation, informants have suggested that utilization is higher when satisfaction is higher.

In the opinion of several key informants, some users are willing to put up with minor technical glitches or even interrupted sessions because the users considered the alternative to be worse (see also Simpson et al. 2001b). For instance, key informants said that telehealth was "better than providing no services," and "better than families travelling for long periods of time for service." Interestingly, tele-mental health was also considered as "a means to [provide] service [to] those labelled as the 'worried well'" as these clients may be reluctant to seek a referral to mental health services, particularly when they would have to travel long distances. Several key informants thought that tele-mental health could provide pre-emptive or preventative services rather than allowing the otherwise lack of services to bring problems to a crisis. In the opinion of several key informants, however, tele-mental health was not well-suited to providing emergency mental health care (see also AETMIS 2006).

Reluctance to use tele-mental health may not be related to use of the technology. For example, clients may be adverse to the treatment or to the provider per se and not to the mode of delivery. Two Canadian studies (Elford et al. 2000; Simpson et al. 2001a,b) reported that the psychiatrists' personality influenced patient satisfaction and preferred modality. In some circumstances, the client reported being more comfortable talking to a TV screen than to a live person (Whitten & Kuwahara 2004). This finding that was echoed by some of the key informants in this study. In anecdotal accounts, patients have reported that they felt more in control because they could leave the field of view of the camera or leave the room for a few moments or even turn off the TV (Kavanagh & Yellowlees 1995; Doze et al. 1999). There are also issues of stigma associated with accessing mental health specialty care and to be able to communicate with a mental health professional that is removed from one's own community may add to feelings of anonymity (Boydell et al. 2006). One key informant suggested that clients' comfort in using tele-mental health is affected by "the level of need, the health issue, their background, their familiarity with technology as well as [that of] the service providers … and the competency of the service providers."

In some situations, the clinical efficacy of tele-mental health may be limited by a client's physical or mental condition (e.g., paranoia, delusions), stage of illness, socio-cultural background or other client characteristic such as impaired hearing (AETMIS 2006). Conducting a tele-mental health session in these circumstances can be extremely frustrating for all involved. In the words of one key informant—words that captured the thoughts of several other informants—the client and the clinician may need "face-to-face [sessions] to build comfort and relationships in order to [be able to] work at a distance." Alternatively, key informants suggested that some clients may need someone in the room with them, at least initially. This someone could be a trained mental health provider, local clinician, family member, friend or a trusted member of the community. Key informants opined that this someone gave the personal touch or social presence to the tele-mental health session.

Essentially, in becoming more and more aware of what is/isn't available and what is/isn't possible, health care professionals become more capable with tele-mental health as they would with any other tool. This relates to the clinicians ability to decide if tele-mental health is appropriate for that particular client, in that time, place, and context. This expertise would extend to having a backup plan to deal with major issues at the client's

**Public and Professional Expectation**

*"Demand for mental health services is increasing. Implementing best practices is expected. To reassure those of us on the front-lines, we need more knowledge and research about the who, what, when, why and how-to of telepsychiatry so that it can become a day-to-day practice just like a shift report."*

A clinician in Northern Ontario

location. Issues could include a serious technical malfunction or when a client begins to exhibit immediate danger to himself/herself or others.[13] Several key informants in our study clarified that, with few exceptions, the use of technology did not significantly influence a standard psychiatric assessment. Rather, tele-mental health could influence, for good or bad, the ability to establish trust or build a therapeutic alliance.

Clients and specialists who travel long distances for consultations may be the first to realize the benefits of telehealth. A few key informants also mentioned that tele-mental health can be used over short distances. For instance, telehealth could be used for clients staying in long-term care facilities who would otherwise need ambulance transport and accompanying personnel to travel to see their physician. For some clinicians, the perception and sometimes the reality may be that tele-mental health will increase their workload. Several key informants mentioned that clients were typically more open to the possibilities of tele-mental health than were the clinicians. Turn-key operations, centralized administration and scheduling, including one point of access for referrals, appointments, support, etc., may go a long way to ease the burden for clinicians.

Interoperability or compatibility of equipment is an essential element that potential users ignore at their own risk. Several key informants had first hand experience with or knew of cases where agencies made large financial investments in equipment only to find out that technical incompatibility rendered the new equipment useless. Another caveat expressed by a few key informants was that centralized services were suitable, so long as they were convenient and efficient. Otherwise, as one key informant remarked, it was easier to do the scheduling rather than delegate this task to the network.

Fee-for-service providers may need alternative payment approaches as not all provincial/territorial governments reimburse for services delivered via telehealth (Pong & Hogenbirk 2000; Hogenbirk et al. 2001) or via the telephone (e.g., Silveira 2004). This issue may not be as important for FHTs or other providers who are salaried or capitated. However, reimbursement may still be an issue for specialists who are external to FHTs and bill fee-for-service.

For some clinicians, logistical issues, including the need to adhere to the appointment time for tele-mental health sessions may conflict with other practice commitments. A significant barrier identified by key informants is that physician participation may be reduced if they have to leave their office to go to a telehealth location. Ideally, the telehealth equipment would be in the physician's office or next door.

In addition, some health care professionals may find it difficult to adapt their practice technique to the tele-mental health service, perhaps because of inherent limitations in the technology, individual preferences, or systemic incompatibilities between how they deliver services and what works best for tele-mental health service delivery (May et al. 2001; Lehoux et al. 2002; McLaren 2003). Raising the awareness of the strengths and weaknesses of existing technology, and making sure that major technological short-comings are resolved, may help increase the appropriate use of tele-mental health care services.

[13] As mentioned earlier, several key informants were very uncomfortable with and even opposed to the idea of using tele-mental health for crisis situations. One suggestion may be to put together a plan to detect and determine what to do when a tele-mental health session starts to head in this direction.

The issue of changing a health care professional's style of practice is a complex issue and applies to many aspects of primary care reform (Aarons 2004; Cohen et al. 2004; Michie et al. 2004), including shared/collaborative care (Ochocka et al. 1999; Wilson et al. 2005) and tele-mental health care (Lehoux et al. 2002). Several key informants noted that resistance to change is pervasive and suggested that approaches to the provision of shared care begin at the training/educational level. There are implications and consequences on policy and political levels, as well as on practical levels (Marshall et al. 2003).

Other limitations include issues related to licensure (typically not an issue within a given jurisdiction) and credentialing (an issue in any jurisdiction) (Pong & Hogenbirk 1999; Hogenbirk et al. 2006). At present, both of these issues tend to be dealt with by the individual telehealth service providers and participating institutions. There are, however, recent initiatives to develop uniform policy or guidelines across Canada (Canadian Council on Health Services Accreditation 2006; Hogenbirk et al. 2006). In addition, many of the telehealth networks (e.g., Broder et al. 2002), professional associations (e.g., Urness 2003) and colleges (e.g., College of Nurses of Ontario 2005) have developed policies or guidelines.

## *4.4 Lessons from Telehealth and Primary Care*

Telehealth can be used in primary care settings to provide the FP/GP or other primary care provider with access to specialists for advice and support in treating patients and educational opportunities (see references cited by Hersh et al. 2002 and McLaren 2003). Applications can include decision-support on whether to transport a patient and advice on how to stabilize a patient prior to transport (Ricci et al. 2003) or to assist with on-going treatments (Winblad et al. 2003). Primary care providers may also see patients via telehealth (e.g., Bulik 2004). Continuing professional education via telehealth is widespread and pervasive (e.g., Curran 2006). Recent reviews of telehealth or telemedicine provide some information on primary care applications in the emergency department (Mair & Whitten 2000; Hersh et al. 2001; Roine et al. 2001; Hailey et al. 2002; Whitten et al. 2002), in prison (Hailey et al. 2002) and in military settings (Carmona 2003). An examination of these reviews and selected articles (e.g., Harrison et al. 1996a,b; Winblad et al. 2003; Bulik 2004) suggested that most major issues and lessons learned have already been discussed in previous sections of this report.

One new issue that arose from the literature related to the characteristics of communication when the patient, primary care provider and the specialist were involved simultaneously in a telehealth session (Street et al. 2000). Street and colleagues analyzed a convenience sample of 26 sessions that were at least 10 minutes long and focussed on discussion amongst the participants. The authors found that specialists tended to ask the most questions, displayed controlling behaviours more frequently and generally talked more than the other participants. Patients were the least active and received the least amount of information. One individual dominating the session may not be an issue for certain types of tele-mental health sessions, but could have implications for multi-directional communication in collaborative/shared care settings. It may be prudent to monitor tele-mental health sessions for any imbalance that might affect cooperation among health care providers or influence quality of care.

## *4.5 Into the Gap: Tele-Mental Health and Primary Care*

The creation of Family Health Teams in Ontario offers an excellent opportunity to build collaborative relationships among health care professionals and to explore the utility of

telecommunications and information technologies to augment and support the delivery of mental health services. Evidence from the literature (e.g., Urness et al. 2004) suggests that tele-mental health can be successfully implemented in a number of practice settings and for a range of clinical and educational services provided by a variety of mental health care providers. Several of our key informants were associated with successful tele-mental health projects that offered a variety of services on a local, regional and province-wide basis. There is evidence that some therapies, such as virtual environment therapy for phobias, could be better delivered via tele-mental health (Riva & Gamberini 2000; Bouchard et al. 2004).

Tele-mental health may also be able to address some of the issues and problems reported in existing shared care programs. For example, professional isolation can be a problem for some of the more specialized mental health workers (e.g., Kates et al. 2001b; Cook et al. 2004). Professional isolation may make it difficult to keep up to date with clinical developments. Another aspect is that isolation may make it difficult to receive professional support when dealing with a more diverse range of conditions than had been encountered in a highly specialized practice. Key Informants acknowledged that tele-communications lessened their sense of isolation and provided a means to engage in dialogue and receive reassurance when attempting to distinguish between behavioural, emotional or psychiatric clinical presentations. In some situations, primary care workers working in remote communities "needed [very] little encouragement" to attend a clinical conference.

Tele-mental health is capable of supporting specialized mental health workers, psychologists and psychiatrists who are located away from their peers (Watanabe et al. 1999). In addition, specialized professionals in one location could share their expertise with professionals in many other locations through informal or formal education/training telehealth sessions. One key informant said that telehealth was used to help "build capacity of primary care workers and communities." Telehealth has been advocated as one way to improve recruitment and retention of health care professionals in remote or isolated communities, though the evidence is limited (Watanabe et al. 1999; Jennett et al. 2000; Sargeant et al. 2004). In an interesting development, key informants who work as mental health care administrators in northern Ontario have used videoconferencing to interview job candidates, thereby reducing some of the costs associated with recruitment.

Key informants provided descriptions of interdisciplinary teams who take a holistic approach to patient care. It was also noted that these teams mobilized the needed practitioners in the community and had the expertise to handle most any referral. Informants acknowledged that mental health problems are frequent in primary care. This may be due to the lack of access to specialized mental health care in many Ontario communities or it may be because people are more comfortable talking to their primary care providers due to the perception that it is less stigmatizing than seeking specialized care. Consequently, if mental health care became more integrated into primary care, then the needs of consumers could be better addressed.

Informants suggested a number of different strategies for integrating mental health care services into primary care reform. It was repeatedly mentioned that there are currently several excellent models of shared care that can be drawn upon. These models highlight the ways in which FP/GPs utilize a wide variety of practitioners on an interdisciplinary team in order to treat patients in a holistic fashion. As one key informant stated:

> *Mental health care ideally is holistic. It's best to have someone who can address multiple issues like housing, finances, exercise, nutrition. The more variety of people there are in one setting to help, the better is the patient [care].*

Tele-mental health that uses videoconferencing may be able to augment telephone support as currently practised in shared care settings (e.g., Kates et al. 1997d). However, relative to video-conferencing, the telephone may still be preferred in terms of cost and ease of access when visual data are not essential to the transfer of information such as professional advice or, in some cases, the application of research assessment scales (Ball & McLaren 1997; Evans et al. 2004).[14] Despite the availability of videoconferencing, one informant noted that "much of my day can be spent on the phone doing crisis management, medication teaching, directing callers about how to gain access to services, or providing support for families in distress. … It is not uncommon for clients to call just to hear another voice."

It seems reasonable to assume that videoconferencing need not replace the telephone or vice versa—both are tools to be used as appropriate to the circumstance. It is interesting that a common goal of telehealth visionaries and espoused by a few of the key informants is to have the telehealth station just as easy to use as the telephone. Users should be able to place point-to-point calls through the videoconferencing equipment just as easy as they can with the telephone. Multipoint telehealth sessions would still require some effort at scheduling a common convenient time, just as it does with a telephone conference involving several participants.

The telephone may be the simplest technology to connect provider to provider or client to provider. However, several key informants mentioned that some clients cannot afford or do not want a telephone in their home. Additionally, people living in remote communities or those who live with others often do not have reliable and private telephone lines. Of course, the availability and quality of videoconferencing may also be problematic. It is interesting to note, however, that the introduction of telehealth connections to and within First Nations communities in northwestern Ontario has enabled other telecommunication devices such as IP phones and internet hook-ups (personal communication, Kevin Houghton, Telehealth Manager, Keewaytinook Okimakanak Telehealth).[15]

Key informants suggested that holding tele-mental health sessions in the same room as all other telehealth sessions may help improve patient compliance with appointments, particularly if there is little to distinguish a tele-mental health appointment from any other tele-consultation. Patients may feel less ashamed or stigmatized if they walk through the door of a FP/GP's office or walk through the corridors of a clinic or hospital to visit the telehealth clinic. Having the receptionist say "the (tele-) doctor will see you now" rather than "the (tele-) psychiatrist will see you now" can go a long way to reducing stigma. Issues of privacy and confidentiality during telehealth sessions are essentially the same for other health care situations (e.g., Hogenbirk et al. 2006), but patients and providers may need reassurance.

**Preparing Users**

*"preparing" clients, families and community partners prior to a tele-mental health session is critical in order "to meet their expectations and make them comfortable … Clients ask if it is as good as coming in person and I tell them that it is the same interview process, but they are just sitting in a different room."*

Key Informant

[14] It is interesting to note that one key informant pointed out that some people believe that telepsychiatry is exclusively defined as the provision of services and support over the telephone. This study supports a view of telepsychiatry as the use of all forms of telecommunications and information technologies to provide psychiatric services.

[15] Keewaytinook Okimakanak Telehealth offers a diversity of clinical and educational services (including telepsychiatry and tele-mental health) to 24 First Nations communities in northwestern Ontario. For more information, see http://telehealth.knet.ca/.

Ontario has a history of telepsychiatric and tele-mental health services, such as Project Outreach, Pediatrics Telepsychiatry Program and Psychiatric Outreach Program, that originated from medical schools and hospitals (Health and the Information Highway Division 2004; Urness et al. 2004). Successful tele-mental health programs have found ways to increase acceptance, utilization and satisfaction. It is important to note that many of the more successful and long-lived telehealth networks in Canada and around the world offer a diversity of clinical and educational services as well as facilitate use by other users, such as administrators, and other agencies, such as regional or provincial governments. There are discipline-specific programs, such as telepsychiatry, but there are very few discipline-specific telehealth networks. The three main telehealth networks in Ontario, NORTH Network, VideoCare and CareConnect, are exemplars of this approach. These Ontario networks are in the process of merging and so the time may be opportune to expand services in tele-mental health care.[16]

Tele-mental health was viewed by several key informants as essential in the provision of mental health services and supports within primary care. In fact, it was viewed as having a role on multiple levels: education, supervision, consultation, case conferencing, etc. It was seen to augment the variety of issues that primary health care teams can address and the variety of expertise that is available to them.

[16] For more information see: www.northnetwork.com, www.videocare.ca and www.careconnect.org, respectively.

# 5 Conclusions

Telecommunications and information technologies have the potential to augment and support mental health services delivered by Family Health Teams. Evidence from the literature and from this study's key informants suggests that tele-mental health can be successfully implemented in a number of practice settings and for a range of clinical and educational services provided by a variety of mental health care providers.

This potential to provide mental health services via telecommunications and information technologies does not mean that tele-mental health could or should replace all face-to-face interactions. Telecommunications and information technologies are complex tools and understanding the strengths and weaknesses is essential for proper use.

Findings and recommendations arising from the analysis and synthesis of the literature, interviews and focus groups include:

- A plethora of clinical and educational services can be provided or supported by means of telecommunications and information technologies.
- Clients, providers, administrators and other potential users need to be informed about what can be provided by telehealth and should be made aware of the major limitations. Demonstration sessions in a variety of settings, including academic and educational situations, may help raise awareness.
- Needs assessments followed by pilots or trials could be used to determine which services should be provided by telecommunications and information technologies for a given Family Health Team.
- Periodic evaluation or monitoring is needed to ensure that tele-mental health services are meeting the needs of Family Health Teams and of the populations that they serve.
- Each Family Health Team needs to be able to decide which tele-mental health services, if any, to provide for their patients.
- Telehealth services should be as broad as possible and should not be limited to mental health care. The more types of clinical, educational and administrative uses of the telehealth equipment and the greater number of potential users, the better the chance of success.
- Adequate financial support is needed to set-up and maintain the telehealth equipment and network, as well as to pay for professional and technical personnel.
- The issue of funding and support may be of particular importance to mental health services for specific groups of people (e.g., children) as different provincial ministries (e.g., Ministry of Health and Long-Term Care, Ministry of Children and Youth Services) may have overlapping responsibility for providing these services.
- Tele-mental health networks need technically reliable equipment that is easy to use, consistent in technical quality, and is adequately and consistently supported.
- Family Health Teams need to have equipment that is compatible with other sites and the network as a whole. Technical interoperability must be guaranteed and proven.
- Bandwidth should be appropriate to needs and, ideally could be flexible within pre-specified lower and upper limits (the flexibility is termed "bandwidth on demand").
- Adequate training and real-time, continuing technical support is another key to success.
- Effort and resources are needed to build the necessary technical expertise in rural, remote or isolated communities.

- Expert clinical advice and support should be available within a pre-determined time period for each specialty or subspecialty. Both the Family Health Teams and the clinical experts should know who is available to give advice, support or backup and when they are available.
- Each physical location needs to have a plan for emergencies related to patient condition/behaviour or technical malfunctions.
- Effort is needed to build the necessary clinical or mental health support capacity in rural, remote or isolated communities. In each community it may be necessary to train several people, such as clergy, police, firefighters, paramedics, respected community members, etc., to provide on-site backup in case of technical malfunctions.
- Family Health Teams may wish to take advantage of the expertise of existing telehealth networks in Ontario.
    - Existing telehealth networks are well placed to advise on the logistical, technical and human components of successful telehealth services.
        - Expertise may include minimum technical standards for: room set-up and location; TV monitor; camera; microphone; data compression; and connectivity (bandwidth).
    - Existing networks have developed their own set of policies and procedures and are in the process of merging these into province-wide guidelines.
        - Policies may include: informed consent; duty of care; liability; on-site backup; privacy; security; and confidentiality.
        - Policies may also be in place to address human resource issues, including staffing requirements, training and education, professional responsibilities and so forth.
- Family Health Teams may wish to take advantage of the collaborative care toolkits developed by the Canadian Collaborative Mental Health Initiative (www.ccmhi.ca).
- Health care providers may wish to refer to their professional associations and colleges to read up on any policy or guideline or legal requirement that deal with tele-mental health.
- Health care providers may also wish to monitor the website of the Canadian Council on Health Services Accreditation (www.cchsa-ccass.ca) for the anticipated release of its accreditation guidelines on telehealth.

It is important to note that collaborative care comes with its own set of challenges that may need time and resources to be resolved. Evidence from the literature and from the key informants suggest that it can take up to five years to develop effective collaborative teams. Telehealth in general and tele-mental health in specific also need time to develop the technical networks and inter-personal relationships needed for success. The co-development of collaborative care and tele-mental health networks may not necessarily double the time, but certainly will increase challenges and opportunities.

Family Health Teams may be able to utilize telecommunications and information technologies to augment and support the delivery of mental health services. These teams should be able to benefit from telehealth networks that are already well-established in Ontario in terms of providing clinical, educational, logistical and administrative support. Understanding the potential and the limitations in the technology-human interface is essential for the successful implementation of a diverse range of tele-mental health services within the context of collaborative care in family practice settings.

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# 7 Appendices