TeleHealth for Mental Health and Substance Use

LITERATURE REVIEW

Prepared for: BC Ministry of Health, Mental Health and Substance Use (MHSU) Branch

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EXECUTIVE SUMMARY

INTRODUCTION

A literature review was undertaken at the direction of the BC Ministry of Health, Mental Health and Substance Use Branch to extract, evaluate, and synthesize the evidence on the best and promising practices in telemental health and substance use services. Included in the scope was literature published from 2005-2012. Five major health and medicine-focused databases were systematically searched which resulted in 1,239 articles being retrieved. Through two screening stages and a coding and full review stage, 1,005 articles were excluded based on predefined exclusion criteria for a final total of 219 articles included in the review. In a final step, data was gathered from each article and organized and synthesized into themes. Below is a summary of the key findings.

Findings from this literature review will be used to inform an environmental scan and strength and gaps analysis of telemental health services in B.C.

SYNCHRONOUS MODALITIES

Video and Web Conferencing

Overall, the body of literature reviewed revealed that the recent literature on synchronous, real-time telemental health modalities is dominated by videoconferencing.

A number of systematic reviews, literature review and single studies have demonstrated that mental health services delivered via videoconferencing are equally effective as face-to-face sessions, producing clinical and quality of life outcomes which are similar, or at least not significantly different. However, the literature also suggests that videoconferencing may not be as effective for some forms of therapy (such as exposure therapy), for patients with particularly severe conditions (such as severe depression or complex cases), or for individuals not familiar with technology. Further, as a body of evidence, there have been concerns expressed regarding the overall variable quality of studies and the general lack of rigorous research on the effectiveness and efficiency of videoconferencing telemental health applications for specific treatments and patient populations/disorders. Despite the limitations, the literature does offer promising results that demonstrate the feasibility of the use of videoconferencing in clinical applications across a range of disorders and settings.

In terms of patient/client satisfaction, a number of literature reviews, systematic reviews and single studies have demonstrated that individuals across diagnostic groups generally express high levels of acceptance and satisfaction with mental health services delivered via videoconferencing in general, even in comparison to face-to-face therapy. The literature, however, cautions that patient satisfaction should not be interpreted as equating to patient preference or a measure of clinical effectiveness, but rather recognized as an important component of effective patient-professional relationships. Similarly, health professional satisfaction and acceptance is a key factor to successful implementation. The current literature suggests that provider acceptance is mixed, but growing.

The most critical advantage of videoconferencing is that it facilitates the extension of access to care to groups which are geographically remote or otherwise underserved, including people in rural and remote areas or transition housing/short-term care facilities, and individuals who will not accept face-to-face treatment.

The results in the literature around economic outcomes of videoconferencing telemental health are generally positive, but inconclusive and sometimes contradictory. The greatest potential cost savings is the reduction in travel time and expense for providers, which supports the extension of services to underserved or geographically-distant populations.

The inconclusive and contradictory nature of conclusions regarding the economic outcomes of videoconferencing in telemental health reflects the difficulty of identifying and accurately measuring cost indicators, which can include not only the direct technology and operating costs, but also administrative, clinical and social outcomes. This difficulty is evidenced in the inconsistent use of indicators and calculations across all telemental health cost evaluations studies.

Teleconferencing

Teleconferencing in mental health and substance use contexts has been applied to therapy and ongoing coaching contexts and is generally found satisfactory to clients and comparable to face-to-face equivalents. Research evidence on the use of teleconferencing suggests this modality can contribute to positive outcomes and reduce the symptoms of a variety of mental illnesses, including mood and eating disorders, schizophrenia and alcohol dependence. It is also suggested that more evidence based on large-scale randomized controlled trials is needed to draw firm conclusions regarding the effectiveness of telephone-based interventions.

In terms of use and access, the studies have also shown that telephone based interventions are a popular approach for providing general mental health and substance use interventions to remote communities due to its relative ease of use and availability.

ASYNCHRONOUS AND MIXED MODALITIES

Asynchronous modalities involve technologies in which the patients/clients and providers do not communicate concurrently. Often this type of communication takes place intermittently and at times which are not pre-defined.

Email

Overall, there is a general lack of evidence of the efficacy for the use of email in telemental health; however, the research does indicate that some patients want to have email contact with clinicians. The available evidence also suggests that this email contact can be an effective tool to facilitate ongoing dialogue between patients and professionals in pre-established therapeutic relationships. It also warns that email may not be appropriate for some patient groups, such as those with severe depression or dementia.

Other Internet-based Approaches

Web-based programs vary widely, but generally include "websites that provide information about treatment resources, self-help and resources for helping others, and anonymous counselling services" and can be a vehicle for various therapeutic methods. Internet-based approaches are quickly becoming a matter of consumer choice and, for the most part, are meant to augment, not replace, face-to-face methods. As identified in multiple reviews, online interventions offer significant benefits to both patients and providers, in terms of convenience, treatment accuracy and clinical outcomes.

Internet-based cognitive behavioral therapy (CBT) seems to be one of the most studied forms of therapy in the telemental health literature. Evidence suggests that internet CBT is an effective mode of treatment that can achieve clinical outcomes similar to that of in-person CBT. The literature also suggests that treatment outcomes are highly dependent on the suitability of the patient/client.

Similar to the evidence on the cost-effectiveness of video-conferencing, the evidence on the cost-effectiveness of internet-based interventions (and technology-assisted therapies, in general) is lacking. Studies that include such data often fail to incorporate the costs of development and maintenance, which tend to be time and labour intensive.

EMERGING TECHNOLOGIES

Various new technologies are beginning to be researched and applied in mental health and substance use service delivery contexts such as the use of mobile phones for aftercare and ongoing management, the use of online chat functions to offer increased convenience, and the use of social 'networked' technologies to reach various populations and increase communication with patients/clients.

While the findings have been inconsistent and inconclusive in terms of effectiveness, there has been some evidence of patient satisfaction with and the potential for these emerging technologies to be a useful addition to mental health and substance use service delivery. As the technologies continue to develop and be used in new ways, more research is needed to understand how they can be optimally applied.

CLINICAL APPLICATIONS AND SERVICE MODELS

The use of various technologies across clinical applications has been studied both directly (i.e. in terms of the reliability of specific measures using technology versus face-to-face) and indirectly (i.e. as part of a larger evaluation of telemental health). Overall, while effective to varying degrees in their own right, the access to and support for assessment, diagnosis, treatment, consultation and case management for populations of patients/clients who might not otherwise receive care is often the biggest benefit.

In terms of assessment, studies have shown the reliability and accuracy of mental health assessment is not compromised by the videoconferencing modality. Other studies have suggested that computer-based assessment tools may increase client engagement and response accuracy, particularly in substance use applications. Additionally, mixed approaches which allow clients to complete assessments via the Internet for use in their first session can be more efficient and save time during the appointment.

Technology, as described above, also offers new and innovative ways to engage patients in addressing their mental health and substance use issues and can support evidence-based treatment approaches. Research has identified areas of caution across all technology-mediated treatment formats, however. The use of technology at a distance and relative anonymity created by this modality can increase the potential for positive transference/countertransference in psychotherapy and can shift power in the therapeutic relationship toward the client.

In terms of case conference and management, for providers, the research suggested the use of various technologies improved communication and coordination between members of care team. Further, technology can also help facilitate routine collection, aggregation and reporting of patient data which has the potential to enable health professionals to be more proactive with care and management.

The literature also indicates that telemental health technologies, in particular videoconferencing, can be used to strengthen the link between the primary health care system and mental health and substance use specialists. Several service models have been developed to enhance collaboration and consultation between different health care professionals, as well as to improve community engagement in patient-centred care.

SUBSTANCE USE

Overall reviews of the literature on telemedicine for substance use revealed "the majority of studies reported evidence of clinical effectiveness, which justifies continued research in the field." In particular, telephone-based technology approaches to smoking cessation have been found to be successful, and in some cases, providing better outcomes than alternative approaches. Additionally, telephone follow-ups as part of a continuing care approach to managing alcohol and other drug use disorders have been integrated into programs, such as the Betty Ford Clinic, as a way to reach and retain clients in treatment long term.

Since comorbidity occurrence is a very real concern for substance use clients, telemental health services can be used to increase access to additional treatment that also includes family therapy via technology like videoconferencing to help reduce the cost of travel/ time loss at work for all members.

CLINICAL DISORDERS

The review of the literature revealed that in general, the effectiveness and satisfaction with telemental health services varies by the nature and severity of the clinical disorder. Additionally, the amount of studies and evidence available, the focus of the evaluation (effectiveness versus satisfaction), and the inclusion of specific therapies and technologies greatly differs across the clinical disorders.

Depression, Anxiety and Mood Disorders

Two literature reviews suggested that videoconference-based telepsychiatry is a feasible and effective modality in the treatment of patients with depression. Further, another review suggested that internet-based services for depression, anxiety and phobias showed positive results and can be as effective as traditional face-to-face therapy. In addition, a meta-analysis concluded that patients with anxiety disorders responded well to self-help supported by therapist contact via teleconferencing (by phone, video or web). The analysis also found high patient satisfaction and even preference for technology-mediated therapy.

Schizophrenia and Psychotic Disorders

The literature review revealed that internet-based treatment and management programs for schizophrenia showed positive results for patients in general, and that tele-monitoring specifically, resulted in a higher rate of adherence to medication and a reduction in emergency room visits and medical appointments.

Eating Disorders

The use of various telemental health technologies and applications, including teleconferencing, internet based approaches and text messaging, have been studied in regards to use with eating disorders. The evidence regarding the effectiveness of these technologies for the treatment of eating disorders varies, and there are some concerns regarding the impersonal nature of asynchronous, text-based modalities. In terms of long-term management, while some researchers are hopeful mobile phones and on-going messaging may be helpful, others are less optimistic, especially for patients with more severe cases.

Post-Traumatic Stress Disorder

In the literature reviewed, most telemental health post-traumatic stress disorder studies used military populations. Telemental health services seem to be effective in this population for this clinical disorder. When compared to traditional face-to-face therapies, the telehealth group showed significant improvement in all areas; however the in-person comparison group showed even greater improvement.

Additionally, virtual reality technology is also extensively studied within this population and is considered to be a cost-effective way to treat stress disorders and is being used actively in the military where stress is a necessary part of the job experience. Military virtual reality technology has been quickly accepted and is currently having significant effects reducing symptoms of PTSD when used in a provider-facilitated environment. This technology may be able to be repurposed for civilian use to provide effective exposure therapy.

SPECIAL POPULATIONS

When considering special or sub-populations, such as children and youth, older adults, First Nations, and rural and remote communities, often the biggest benefit of telemental health services is access to health

care professionals that may not otherwise be available or are limited in capacity to respond to the needs. Considerations vary, however, for the different groups.

The literature revealed First Nations communities found very positive benefits in the extension of high-quality mental health services into remote and rural First Nations via videoconferencing and mental health programs. Additionally, study results also highlighted the importance of cultural competencies when providing telemental health care to First Nations Communities via videoconferencing.

Literature examining telemental health services for children and youth found a high level of satisfaction with videoconferencing, but also highlighted the need to take into consideration the needs and abilities of this population. For example, in one study, the results indicated that internet-based programs tended to be less effective for children and youth, achieving only 'small to moderate' impacts on health outcomes. These findings, however, were attributed to the tendency for some programs to not adjust their methods and content to target children and youth.

Finally, studies focused on older adult populations reiterated the need for modification, this time to ensure ease of use by those hard of hearing and with visual acuity issues**.**

POLICY CONSIDERATIONS

In terms of policy considerations, the findings from the literature showed that the successful introduction of telemental health services needs stepwise and methodical implementation, factoring in patient/client suitability, health professional readiness, health system work flow and administration, while also complying with existing health policies or developing new policies for arising or unique issues such as contingency planning for technical glitches or failures.

Another policy piece to consider is the thoughtful integration of technologies throughout the patient's journey in the healthcare system – from assessment to diagnosis, treatment, and follow up – relating back to the patient-centered model of care which focuses on the individual, not the technology, which can lead to better health outcomes.

Additionally, risks and legal issues need to be carefully managed as there will be no success without a protocol of policies and strategies in place for things like informed consent, risk and contingency planning. Further, these policies need to have support and be backed by government bodies.

SUMMARY

A review of the evidence has shown that the use video conferencing has been strongly established for telemental health and substance use services, both in the literature and practice, and is a viable option to extend services when face-to-face is service is not possible. Some concerns regarding variable quality of the clinical effectiveness, efficiency and cost evaluation still remain due to inconsistency across studies. As another well-established modality, teleconferencing has also been well used and integrated into the clinical context, and is heavily relied on for ongoing management and follow up care.

The use of asynchronous modalities in telemental health and substance use services, such as email and other internet-based approaches, have shown some evidence in feasibility, suitability, and even effectiveness, especially in terms of patient/client satisfaction and relationship building between the patient and provider. More research is needed, however, to understand how these approaches can augment and help deliver traditional face-to-face care and follow-up treatment.

Early research on using mobile devices and other new technologies has been emerging and presents new opportunities for telemental health and substance use services. The optimal implementation and use of this developing technology for treatment and support will require ongoing research to stay abreast of new technology developments.

Overall, the application of these technologies, especially videoconferencing, across the clinical continuum has proven to be a promising alternative or adjunct to face-to-face methods. When using any of the technologies, however, many factors need to be considered such as suitability in practice contexts, patient populations, and provider capacity. Additionally, ethics, legal and technical issues, as well as contingency planning and cost-effectiveness around the use of telemental health and substance use services need to be carefully managed. Policies and guidelines addressing these aspects of technology use need to be developed and supported by governing bodies.

TERMINOLOGY

telemental health: refers to mental health or substance use health care services delivered, in whole or in part, via information and communication technologies (ICTs). As is common in the literature, the term '*telemental health*' may be used interchangeably with other terms, like '*telepsychiatry*', '*telecounseling*' and '*telehealth*'.

modality: refers to a technological tool or method of service delivery.

> ***synchronous***: refers to modalities that enable simultaneous (or real-time) communication between patients/clients and providers, which typically takes place at pre-defined times.

> ***asynchronous***: refers to modalities that enable non-simultaneous communication between patients/clients and providers, in which takes place at times that are typically not planned or pre-defined.

> ***mixed***: refers to modalities that combine synchronous and asynchronous methods of communication.

> ***emerging***: refers to modalities that are not used widely in service delivery, or have limited research evidence supporting their effectiveness, at the time of writing.

> ***teleconferencing***: refers to telemental health services delivered via telephone.

> ***videoconferencing***: refers to telemental health services delivered via video camera-enabled technologies, including purpose-built videoconference hardware/software and internet-based software (also referred to as '*webconferencing*').

terms for complex cases

> ***co-morbid conditions***: refers to individuals who have co-existing physical and mental health or substance use diagnoses.

> ***dual diagnosis***: refers to individuals who have a developmental disability and mental health diagnoses.

> ***concurrent***: refers to individuals with a mental health diagnosis and a substance use problem or diagnosis.

literature typology

> ***literature review***: a summary of existing research and knowledge on a particular topic, which may include substantive findings, theory and/or methodological considerations.

>> ***academic literature***: peer-reviewed articles, based on research or other academic work, published in academic journals; this review excludes literature published in book, conference or thesis format.

>> ***grey literature***: written work that is published outside of academic, peer-reviewed sources; this includes reports produced by governmental or non-profit agencies, working papers, white papers, technical reports, and trade publications.

> ***systematic review***: an exhaustive literature review that aims to answer a specific research question by identifying and analysing high quality research evidence.

> ***meta-analysis***: a review of existing studies which aims to compare results and methodologies in order to make overarching conclusions regarding the agreement/disagreement between findings.

> ***study***: original research that involved the collection of data directly from patients/clients and/or service providers (also referred to in the report as a '*single study*').

qualitative: a study that involves the collection and analysis of narrative (non-numerical) data.

quantitative: a study that involves the collection and analysis of numerical data.

mixed-methods: a study that combines quantitative and qualitative data collection and analysis.

case study: a study that involves an in-depth analysis of a limited number of people.

randomized controlled trial: an experimental study which seeks to determine the efficacy of interventions by randomly assigning participants to treatment and control groups. The treatment groups receive the intervention(s) being tested; the control group receives no intervention.

discussion paper: an article that examines issues related to a particular topic based on a combination of knowledge sources, including: academic or grey literature, experiential knowledge/insight, theory and/or recent events (e.g. technological or policy developments).

policy paper: an article which focuses primarily on the policy considerations or implications of a particular technology or service delivery context.

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INTRODUCTION

In the fall of 2011, the UBC eHealth Strategy Office was contracted by the Mental Health and Substance Use branch of the B.C. Ministry of Health Services to complete a review of the telemental health and substance use literature. The research team consisted of four researchers and the Assistant Director of Research and was overseen by the Director of the eHealth Strategy Office, Dr. Kendall Ho. While reviewing the literature and writing up the findings, the research team was in regular contact with the Mental Health and Substance Use branch and continuously incorporated feedback that directed the focus and the structure of this report.

PURPOSE

The purpose of this report is to provide a scoping review of evidence-informed telemental health and substance use models and the policies that govern their success. The results of this review will be used to inform the analysis of the environmental scan (being conducted by APEX Information at the time of writing) and recommendations regarding how to best address the current and emerging needs of tele-mental health and substance use services in B.C.

The review included international literature published between 2005 and February 2012 on telemental health[1] services for people across the lifespan. Articles which focused on clinical application of modern and/or emerging technologies within established, publically-funded telemental health programs or services were included in the review. Literature reviews and systematic reviews of randomized controlled trials (RCTs) were also included. Additional aspects of service implementation captured in the review included: baseline technical requirements, and data collection frameworks and indicators for program evaluation and costing. The scope of this review excluded grey literature, single pilot studies or programs, and telemental health services which did not include direct interventions by health professionals.[2]

METHODS

This literature review was conducted in a four stage process:

1) The first stage involved systematic searches in February 2012 of peer-reviewed literature published from 2005-2012 in five major health and medicine-focused databases, including: EMBASE, MEDLINE, CINAHL, PubMed Central and PsycINFO. A total of 1,240 articles were pulled using the search terms outlined in the Literature Review Strategy (Appendix VI).

2) The database search was followed by and initial screening stage to remove articles, based on title and abstract, according to the inclusion and exclusion criteria outlined in the Literature Review Strategy (Appendix VI). A total of 515 articles were identified for inclusion following this second phase.

3) The next stage included a secondary screening, in which articles were reviewed in greater detail and rated on their degree of relevancy (highly relevant, relevant, possibly relevant, and not relevant), as outlined in the Article Rating Instruction Sheet (Appendix VII). A total of 304 articles were identified for inclusion in this phase.

4) In the final phase, the remaining articles were reviewed in detail and designated descriptive codes in a variety of categories, as outlined in the Article Classification Sheet (Appendix VIII). The codes applied to the articles were then used to extract articles related to different content categories for this analysis. In the process of reviewing the full-text articles in detail, a further 85 articles were identified for exclusion, leaving a total of 219 articles for inclusion in the review.

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[1] As noted in the Terminology Section (page vii), in this report the term "telemental health" refers to services for both clinical mental health disorders and substance use.

[2] Refer to Appendix II (page A-44) for more information about the scope and inclusion-exclusion criteria used for this review.

RESULTS

Overall, the body of literature retrieved through this review revealed that the recent literature on telemental health is dominated by applications of videoconferencing, but also included studies on the use of teleconferencing and a range of other established and emerging technologies. The review includes a range of study types that contribute to a diverse body of evidence, including: 61 qualitative, quantitative or mixed methods studies (26, 35 and 18 articles, respectively); 60 literature reviews; 28 systematic reviews; 33 policy or guideline discussion papers; and, 45 'other' types of articles (including discussion papers, case studies and comparative analyses).[3]

Studies examining the use and effectiveness of the various technologies used to deliver telemental health services spanned across many clinical applications and diagnoses; the large majority of articles (130) referred to mental health and substance use in general. Of the articles that focused more specifically on particular diagnostic categories, most (41 articles) focused on depression, anxiety and mood disorders.

Relatively few articles (28) referred specifically to the application of telemental health in substance use interventions; mentions of substance use in the literature are often included as part of a discussion of telehealth applications for mental health disorders. Within the body of substance use-specific literature, however, there is valuable information and evidence regarding successful applications of technology, such as telephone- and web-based interventions and follow up care. In order to highlight any unique considerations for the application of telemental health technologies to substance use, this report presents diagnosis-specific evidence for mental health disorders and substance use in separate sections.

Finally, the considerations for special populations, emergent areas and policy were found across the body of literature and highlight specific points for the successful application and use of telemental health services.

This literature review is organized into two main sections: Section A (page 3), which offers an overview of established and emerging technologies, clinical applications and service models used within telemental health; Section B (page 22), which reviews evidence specific to particular mental health disorders, substance use, and specific populations and contexts.

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[3] The numbers for each type of article/study type do not add to the total number of articles because some were coded as more than one type.

SECTION A: TELEMENTAL HEALTH - OVERVIEW

A1   TECHNOLOGICAL MODALITIES

Introduction

This section presents the evidence in the literature according to the technological modalities (or tools) used in the delivery of mental health and substance use services. Systematic reviews and other literature reviews have reported a general lack of rigorous research evidence on the clinical effectiveness of telemental health applications, such as tele- and videoconferencing, email and web-based applications (Krysinska and De Leo, 2007; Hailey, Roine and Ohinmaa, 2008). However, as the following section will show, promising results have been found for synchronous and asynchronous telemental health interventions that involve interaction with a professional (Barak, Hen, Boniel-Nissim and Shapira, 2008; Hailey et al, 2008).

McGinty, Saeed, Simmons and Yildrim (2006) outline a number of potential barriers to the implementation and diffusion of new telemental health technologies and services, including "cost issues, resistance to change by individuals or organizations, and technological illiteracy. … [as well as] several legal, regulatory, and technical factors…" (p.339; Hester and Miller, 2006; Cleary, Walter and Matheson, 2008). Another constraint of technology- and internet- based approaches to service delivery is that access is limited to those with reliable Internet access (Mehta and Chalhoub, 2006). These reservations are valid and require careful consideration in the development and implementation of telemental health services.[4] Regarding the issue of client technological literacy, Wilkinson, Ang and Goh (2008) conclude in their literature review that technology illiteracy has not been as great a barrier to effective therapy as originally expected by the mental health community.

The expansion in technology and outreach creates new opportunities for service delivery. However, it also creates new "responsibilities in ensuring effective, evidence-based psychological treatments across rural [and other] settings," and additional professional training in the nuanced skills and styles of practice required for effective development and delivery of e-mental health service (Nelson and Bui, 2010, p. 500; Shore, Thurman, Fujinami, Brooks and Nagamoto, 2011; Ybarra and Eaton, 2005; Miclea, Ciuca and Miclea, 2009; Bhandari, Tiessen and Snowdon, 2011). Cucciare, Weingardt, and Humphreys (2009) suggest in their systematic review that the strength of telemental health is derived, in part, from the blending of technological applications with more traditional face-to-face approaches which can help overcome the limitations of both approaches. Regardless of the specific technology being considered, "the purpose and fit of telepsychiatric [and other mental health] services in the wider care system—not the technology—should drive its introduction" (Saeed, Diamond and Bloch, 2011, p.221).

A1.1   SYNCHRONOUS MODALITIES

The review revealed that the recent literature on synchronous telemental health modalities is dominated by videoconferencing. In many cases, the terms 'telepsychiatry' and 'telemental health' appear to be synonymous with videoconferencing in the literature. The review also uncovered a more limited number of studies on telephone-based applications (likely due to the fact that telephone therapy has been in use for a number of decades and has not been a major focus of research in recent years).

A1.1.1   Video and Web Conferencing

Videoconferencing can provide a robust option where face to face service is impossible or unfeasible.

Videoconferencing can improve quality and quantity of mental health services, extending access to rural, remote and isolated populations. Diagnosis, treatment and follow-up for various mental health

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[4] Refer to the Policy and Guidelines Addendum (page A-1) for details on policy, guideline, costing and technical considerations.

areas can be enhanced, along with timeliness and reduction of transportation costs for assessment for example. While it adds the visual component, there is still a tendency for clinicians to be less satisfied with videoconferencing than patients/clients, a response related to the fidelity of non-verbal cues being diminished by the technology mediating the encounter.

It should be noted that a number of systematic reviews, literature reviews and studies expressed concern regarding the variable quality of studies and the general lack of rigorous research on the effectiveness and efficiency of videoconferencing telemental health applications for specific treatments and patient populations/disorders (García-Lizana and Muñoz-Mayorga, 2010b; Hailey et al, 2008; Modai et al, 2006; Myers, Valentine and Melzer, 2008; Richardson, Frueh, Grubagh, Egede and Elhai, 2009). Despite these limitations, the literature offers promising results that demonstrate the feasibility of the use of videoconferencing in clinical applications across a range of disorders, populations and settings (García-Lizana and Muñoz-Mayorga, 2010b; Lovell and Bee, 2011; Alexander and Lattanzio, 2009). The University of Hawai'i Rural Health Collaboration (UHRHC) program is an example which demonstrates the feasibility of shifting to a model in which videoconferencing is the dominant service modality, with face-to-face site visits as a supplement and reinforcement (Helm, Koyanagi, Else, Horton and Fukuda, 2010).

Few studies in the review referred exclusively to web conferencing, however the similarity of these two modalities makes the considerations for each similar – some studies refer to them interchangeably (e.g. Bee et al, 2008)

i) Patient/Client Outcomes

Patient/client outcomes for videoconferencing telemental health emerged in four main areas in the literature: effectiveness; patient safety and adherence to treatment; patient satisfaction with services; and other benefits.

Effectiveness

Overall, as concluded in a literature review by Westphal, Dingjan and Attoe (2010), videoconferencing is a valid manner of delivering routine services for a broad range of mental health conditions. A number of systematic reviews, literature review and single studies have demonstrated that mental health services delivered via videoconferencing are equally effective as face-to-face sessions, producing clinical and quality of life outcomes which are similar, or at least not significantly different (García-Lizana and Muñoz-Mayorga 2010b; Saeed et al, 2011; Neufeld, Yellowlees, Hilty, Cobb and Bourgeois, 2007; Hyler, Gangure and Batchelder, 2005; Wynchank and Fortuin, 2010; Richardson et al, 2009; Wootton, 2006; Grady and Melcer, 2005; Hilty, Nesbitt, Kuenneth, Cruz and Hales, 2007; Harper, 2006). Services delivered via video or web conferencing have resulted in improved mental health scores and decreased symptoms of a range of mental health disorders (Bee et al, 2008; De las Cuevas, 2005; García-Lizana and Muñoz-Mayorga, 2010b**;** McCord, 2011; Tschirch, Walker and Calvacca, 2006; Gros, Yoder, Tuerk, Lozano and Acierno, 2011; S.C. Telepsychiatry…, 2010; Urness, Wass, Gordon, Tian, and Bulger, 2006).

♦ A systematic review by Martin et al (2011) found no patient reports of negative outcomes from more frequent communication facilitated by videoconferencing.

♦ Three studies have found that videoconferencing telepsychiatry reduced or shortened Emergency Room (ER) and acute care visits for patients with severe mental illness or histories of abuse (Thomas, Miller, Hartshorn, Speck and Walker, 2005; Telepsychiatry Shown…2011; Tschirch et al, 2006)

♦ However, the literature suggests that videoconferencing may not be as effective for some forms of therapy, for patients with particularly severe conditions, or for individuals not familiar with technology (Westphal et al, 2010). For example, a qualitative comparison study of in-person and

telehealth treatment by Gros et al (2011) suggests that exposure therapy for PTSD may be less effective when delivered by videoconference than in person.[5]

Patient/Client Safety and Adherence

♦ Systematic reviews and single studies have found that treatment adherence is generally positive for mental health services delivered via videoconferencing; however, it is unclear whether adherence rates are higher than or equal to face-to-face intervention (Modai et al, 2006; García-Lizana and Muñoz-Mayorga, 2010b; Bee et al, 2008; Grady and Melcer, 2005). A systematic review by Donkin et al (2011) indicates that higher levels of adherence in online mental health are not associated with improved outcomes; the quality of interaction appears to have a stronger correlation to improved health outcomes.

♦ A systematic review and two studies found no complications or concerns with patient/client safety in the clinical application of videoconferencing (García-Lizana and Muñoz-Mayorga, 2010b**;** Modai et al, 2006; Saeed et al, 2011).[6]

Satisfaction

♦ A number of literature reviews, systematic reviews and single studies have demonstrated that clients across diagnostic groups generally express high levels of acceptance and satisfaction with mental health services delivered via videoconferencing, even in comparison to face-to-face therapy (Cruz, Krupinski, Lopez and Weinstein, 2005; García-Lizana and Muñoz-Mayorga, 2010b**;** Hyler et al, 2005; Modai et al, 2006; Nelson and Bui, 2010; Neufeld et al, 2007; Simms, Gibson and O'Donnell, 2011; Saeed et al, 2011; Tschirch et al, 2006; Martin et al., 2011; Grady and Melcer, 2005; Hilty et al, 2007; McCord, 2011; Bee et al, 2008; Urness et al, 2006; Packman and Meredith, 2011; Harper, 2006; Sharp, Kobak and Osman, 2011).
    o High levels of satisfaction have also been found in studies of vulnerable populations, including female abuse victims and incarcerated youth (Myers, Valentine, Morganthaler and Melzer, 2006; Tschirch et al, 2006).[5]

♦ It is important to note that patient satisfaction may not equate to patient preference: some studies have found that many individuals prefer in-person consultation (Cruz et al, 2005; Hyler et al, 2005); while other studies have found that individuals prefer telepsychiatry service (Saeed et al, 2011; Martin et al, 2011; Bee et al, 2008)

♦ Another factor to be cognizant of is patient/client technology literacy; one study and a discussion paper noted that individuals with limited exposure to technology may be uncomfortable with using videoconferencing and find equipment problems distracting (Cruz, et al, 2005; Shore, Savin, Novins and Manson, 2006).

♦ However, as Richardson et al (2009) caution, patient satisfaction should not be interpreted as a measure of clinical effectiveness, but rather recognized as an important component of effective patient-provider relationships.
    o A Canadian study suggests that patient satisfaction is based on different factors. For example, telepsychiatric patients may have benefited and been satisfied with reduced travel time, less work time lost, shorter waiting periods for an appointment, and simple availability of expertise (Urness et al, 2006).

Benefits

Some of the benefits of videoconferencing to patients, as identified by Hartvigsen et al (2007) based on the experience of the Norwegian Centre for Telemedicine, and a Canadian study by Urness et al (2006),

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[5] Refer to Section B (page 22) for additional information on the effectiveness of telemental health for particular mental health disorders and substance use, as well as specific patient groups.
[6] Refer to Addendum I of the Policy and Guideline Addendum (page A-4) for details on patient safety guidelines.

include: reduced need for travel, shorter wait times, more timely health benefits, increased access to specialists, and feelings of empowerment.

♦ Two studies found that patients felt empowered to participate in and/or understand clearly their treatment goals (Detweiler et al, 2011; Hartvigsen et al, 2007).

♦ The most critical advantage of videoconferencing is that it facilitates the extension of access to care to groups that are geographically remote or otherwise underserved, including people in rural and remote areas[7] or transition housing/short-term care facilities, and individuals who will not accept face-to-face treatment (Cruz et al, 2005; García-Lizana and Muñoz-Mayorga, 2010b**;** Hilty, Yellowlees, Sonik, Derlet and Hendren, 2009; Martin et al, 2011; Saeed et al, 2011; Thara, John and Rao, 2008; Thomas et al 2005; Tschirch et al, 2006; Wendel, Brossart, Elliott, McCord and Diaz, 2011; Shepherd, Goldstein, Oliver and Parle, 2008; Savin, 2006; Sharp et al, 2011).

ii) Provider Outcomes

Provider outcomes for videoconferencing telemental health emerged in three main areas in the literature: satisfaction and acceptance; efficiency and effectiveness; and, clinical confidence and reliability.

Satisfaction and Acceptance

Findings from systematic reviews, literature reviews and studies regarding provider acceptance and satisfaction with videoconferencing as a service delivery tool have been mixed (Hyler et al, 2005): most studies report general or growing acceptance of videoconferencing across a range of populations and diagnoses (Nelson and Bui, 2010; Rabinowitz et al, 2010; Savin, Garry, Zuccaro and Novins, 2006; Hilty, Yellowless and Nesbitt, 2006b; Modai et al, 2006; Cruz et al, 2005); others report lower satisfaction for providers than for patients (Richardson et al, 2009; García-Lizana and Muñoz-Mayorga, 2010a); and others report a preference for in-person treatment despite satisfaction with videoconferencing (Hyler et al, 2005; Harper, 2006).

♦ A Canadian survey conducted by Simms et al (2011) indicates that mental health workers have overall positive attitudes toward telemental health, particularly when applied in rural and remote areas.[7]

♦ In a study of a telemedicine evaluation system for children with special needs in rural Iowa, providers reported that telemedicine was more favourable than face-to-face consultations because it generated positive feedback from parents, led to higher participation rates in consultations, and was a better use of time (Harper, 2006).[5]

♦ One study of an Arizona telepsychiatry program found that a minority of providers felt that videoconferencing equipment problems were distracting and time-consuming (Cruz et al, 2005).

Professional acceptance should not be interpreted as a measure of effectiveness; however it has been identified by García-Lizana and Muñoz-Mayorga (2010b) as a key factor in successful telepsychiatry implementation.

Efficiency and Effectiveness

Three qualitative studies and two reviews of regional/national service provision found that the use of videoconferencing for patient consultation offers improved efficiency in the form of: increased provider time for other tasks, enabling them to visit more patients in the course of a day; reduced waiting times between initial assessment and treatment; and, more efficient use specialist services (Cruz et al, 2005; Rabinowitz et al, 2010; Hartvigsen et al, 2007; Detweiler et al, 2011; Packman and Meredith, 2011; Savin et al, 2006; Greenberg, Boydell and Volpe, 2006).

♦ In their literature review, Richardson et al (2009) suggest that telemental health via videoconferencing "usually requires little to no additional clinician preparation time compared to a

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[7] Refer to Section B4.3 (page 39) for more details on service provision to rural and remote areas.

traditional consultation and typically does not require significant modifications to adult protocols" (Richardson et al, 2009, p.328).

♦ A Canadian survey and a retrospective study of an Arizona telepsychiatry program suggest that the use of videoconferencing does not compromise effective patient-provider communication and therapeutic relationship (therapeutic alliance) building (Cruz et al, 2005; Simms et al, 2011).

Clinical Confidence and Reliability

The literature suggests that providers are generally confident in the appropriateness and effectiveness of videoconferencing in clinical applications.

♦ In their review of the Norwegian Centre for Telemedicine's services, Hartvigsen et al (2007) lists improved data quality, patient screening, competence in medical disciplines, and professional confidence as key benefits to providers in the application of teleconferencing.

♦ Two quantitative studies found that service providers were generally satisfied with the clinical appropriateness and rigor of videoconferencing telepsychiatry, and were confident in the accuracy of their diagnoses (Detweiler et al, 2011; Cruz et al, 2005)

♦ Hilty et al's (2006b) study of rural collaborative care programs delivered via videoconference found that Primary Care Providers' medication dosing and skills for mental health patients improved.[7,8]

While clinical confidence appears to generally be high, the lack of physical proximity and visual and auditory limitations of videoconferencing technologies represent areas of concern for some providers.

♦ A couple of earlier studies raised concerns regarding the ability of clinicians to observe facial detail and body movements via videoconferencing (Cruz et al, 2005; Grady and Melcer, 2005). However, ongoing improvements in computer and videoconferencing technology over the last two decades continue to mitigate these limitations (Nelson and Velasquez, 2011; Sharp et al, 2011).

♦ Some providers in one study expressed concern regarding the limited ability of some individuals to convey emotions via videoconference, but concluded that this would not have a significant negative impact on the effectiveness and quality of care (Savin et al, 2006).

♦ One literature review of psychological services for rural cancer patients[5] expressed a general concern that videoconferencing could disrupt the therapeutic relationship, but argued that this risk may be outweighed by the other benefits to patients and providers (Shepherd et al, 2008).

iii) Economic Outcomes

The results in the literature around economic outcomes of videoconferencing telemental health are generally positive, but inconclusive and sometimes contradictory. This is in part due to the inconsistency across studies in identifying and measuring economic indicators. A number of systematic reviews, literature reviews and studies have concluded that videoconferencing has the potential to produce cost-savings that make it a viable alternative to face-to-face service (Westphal et al, 2010; Neufeld et al, 2007; Tschirch et al, 2006; García-Lizana and Muñoz-Mayorga 2010; Telepsychiatry shown…2011; Brett and Blumberg, 2006; Richardson et al, 2009; Harper, 2006; Miller, Elliott, Long, Mazenac and Moder, 2006). Yuen, Goetter, Herbert and Forman (2011) suggest in their literature review that the wide availability and distribution of technologies (including videoconferencing, internet and mobile phones) has made it increasingly cost efficient for the health system to adopt new modalities.

♦ One of the areas in which videoconferencing offers the greatest potential cost savings is the reduction in travel time and expense for providers, making this modality most cost-effective in reaching underserved or geographically-distant populations (García-Lizana and Muñoz-Mayorga, 2010b; Hartvigsen et al, 2007; Shore et al, 2012; Brett and Blumberg, 2006; Thara et al, 2008; Rabinowitz et al, 2010; Spaulding, Belz, DeLurgio and Williams, 2010; Savin et al, 2006). As a result,

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[8] Refer to Section A3 (page 20) for more detail regarding telemental health service models.

the cost of videoconferencing is likely to be more acceptable in <u>rural or remote areas</u> that experience difficulty recruiting and retaining providers (Spaulding et al, 2010).[7]

- o A 2004 study by Ruskin et al (cited in Modai et al, 2006, p.518) "found that the cost of remote treatment was equal to that of in-person treatment if the psychiatrist had to travel 35.2 km". The greater the distance between patient and provider, the more cost-effective videoconferencing telepsychiatry (VCTP) treatment in relation to in-person treatment.

♦ Two literature reviews, three studies and two discussion papers based on telepsychiatry service delivery in the United States and Norway indicate that videoconferencing also has the potential to produce savings in terms of patient/client travel time and the costs of hospital and mental health facility admissions and transfers (Brett and Blumberg, 2006; García-Lizana and Muñoz-Mayorga, 2010b; Hartvigsen et al, 2007; Shepherd et al, 2008; Miller et al, 2005; S.C. Telepsychiatry 2010; Harper, 2006).

♦ Studies by Detweiler et al (2011) and Yellowlees, Burke, Marks, Hilty and Shore (2008a) suggest that videoconferencing can help to overcome supply and demand pressure on health care staff in short-term, acute care and <u>emergency care settings</u> (see page 39 for more information).

♦ The relative cost-effectiveness of videoconferencing may depend, in part, on the degree to which the technology is used in practice; a study of videoconferencing telemental health in Finland found that cost savings were most significant when utilization rates rose above a certain threshold (Ohinmaa, Roine, Hailey, Kuusimäki and Winblad, 2008, p.266).

♦ Contrary to the above results, Modai et al (2006) concluded that one hour of telepsychiatry treatment was more expensive than face-to-face care, and institutional and operational costs, including hospitalizations and sessions, were higher for videoconferencing services.

Measurement Challenges

The inconclusive and contradictory nature of conclusions regarding the economic outcomes of videoconferencing in telemental health reflect the difficulty of identifying and accurately measuring cost indicators, which can include not only the direct technology and operating costs, but also administrative, clinical and social outcomes (Richardson et al, 2009).

♦ Shore et al (2012) note that this is a particular challenge for programs being implemented in areas with limited or no prior access to care, as the cost burden of untreated mental health disorders can be large and diffuse.

The review revealed that cost evaluations across studies are inconsistent in terms of the indicators and calculations used. This gap was noted in a number of articles in the review, including García-Lizana and Muñoz-Mayorga (2010b) who call for more rigorous and complete longitudinal economic evaluations.[9]

A1.1.2 Teleconferencing

Simple technology solutions extend services and increase access to coaching and follow-up

Relative to videoconferencing, few articles in the review referred specifically to the use of telephones in the delivery of mental health and substance use services. This is likely due to the fact that the review was limited to articles published from 2005 to 2012, and research over that period of time has shifted from teleconferencing (a well-established modality) towards expanding and emerging modalities. The most common application of teleconferencing in this review is in the field of <u>substance use</u>, which is reviewed in <u>Section B2</u> (page 29).

Teleconferencing in mental health contexts has been used for coaching and therapy contexts and is generally found satisfactory to patients and comparable to face to face equivalents.

♦ Two systematic reviews, one literature review, and one case study review of dialectical behavioural therapy (DBT), suggest that this modality can contribute to positive outcomes and reduce the

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[9] Refer to <u>Addendum III</u> of the Policy and Guideline Addendum (page A-25) for details regarding program costing frameworks.

symptoms of a variety of <u>substance use</u> and mental health diagnoses, including <u>depression</u>, <u>anxiety</u>, <u>obsessive compulsive disorder (OCD)</u>, <u>eating disorders</u> and <u>schizophrenia</u> (Leach and Christensen, 2006; Mozer, Franklin and Rose, 2008; Koons, 2011; Wootton and Titov, 2010).[5]

♦ While teleconferencing is a well-established modality, one systematic review suggests that more evidence based on large-scale randomized controlled trials is needed to draw firm conclusions regarding the effectiveness of telephone-based interventions (Leach and Christensen, 2006).

Many of the clinical considerations in telephone-based services are parallel to those for videoconferencing. To be successful, clear definition of processes and structure of intervention is essential. For providers, the loss of non-verbal cues in therapy sessions may be perceived as less effective in being able to make a diagnosis based on full understanding of the individual's situation. Benefits include increased access to services and resource utilization. A caveat is that telepsychiatry may be linked to increased hospital referral because of clinicians' reduced sense of the whole patient.

♦ A systematic meta-analysis conducted by Bee et al (2008) found that telephone based interventions (due to its relative ease of use and availability) are a popular approach in providing general mental health interventions to <u>remote communities</u> (see page 39).

♦ One systematic review and a case study review of telephone-based DBT suggest that telephone-based interventions are most effective when they include clearly structured therapy sessions and homework tasks, and when therapists are able to consult with a team of colleagues for support (Leach and Christensen, 2006; Koons 2011).

♦ The case studies/reviews by Koons (2011) and Mozer et al(2008) express concerns regarding the lack of in-person contact, the potential for lower patient commitment, and limited provider control over the environment in which therapy take place; there is a potential for therapists to unintentionally reinforce unproductive patient behaviours, as well as concerns regarding patient safety and provider liability.[10]

A1.2   ASYNCHRONOUS AND MIXED MODALITIES

In contrast to the real-time interaction offered by the synchronous modalities discussed above, asynchronous modalities involve communications between patient/client and provider that take place intermittently and at times that are not pre-defined. These can include email, online discussion forums, and online diaries and therapy activities (Alemi et al, 2007). More modern approaches of asynchronous modalities, such as mobile phones or social networking strategies, will be covered in A1.3.

A study of telemedicine applications across disciplines argues that asynchronous modalities, specifically store-and-forward technologies, were not well suited to mental health service delivery, because the "mental health domain relies on real-time interaction rather than asynchronous communication" (Tulu, Chatterjee, and Maheshwari, 2007, p.357). However, the evidence presented in this section indicates that asynchronous modalities have the potential to be clinically effective, particularly as an adjunct to synchronous or in-person communication. In addition, they offer a level of convenience that is attractive to clients and can help to improve therapy adherence rates.

Some approaches incorporate more than one form of technology (asynchronous and/or synchronous) in service delivery; these are referred to as mixed modalities in this report. Examples of Mixed approaches often include tools that allow the client to complete assessments or therapeutic exercises via the Internet; the information produced via those activities can then inform initial and ongoing synchronous consultation (Cucciare et al, 2009). A key advantage to this approach is that it enables clinicians, in particular those who conduct brief motivational interventions, to more efficiently and effectively focus the session based on the client's personalized feedback (Cucciare et al, 2009). Furthermore, Martin et al

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[10] Refer to <u>Section A2.2</u> (page 16) for additional considerations and cautions regarding telephone-mediated treatment.

(2011) argue that "multi-modal communication" can have a positive impact on therapeutic relationships and patient outcomes, and that written communication methods can help to mitigate the limitations of visual and/or verbal-based modalities, such as videoconferencing (p. e118).

This section captures the asynchronous and mixed modalities that were identified by the literature review as being widely established or having a broad base of research evidence; these include: email, internet-based approaches and remote monitoring. Asynchronous and mixed modalities that have more limited evidence bases can be found in the Emerging Modalities section (page 14).

A1.2.1 Email

A timely tool for outreach and patient-provider dialogue; guidelines required to reduce liability issues

Research indicates that some clients want to have email contact with clinicians (Alemi et al, 2007), but there is a general lack of evidence of its efficacy. The available evidence suggests that email can be an effective tool to facilitate ongoing dialogue between clients and practitioners (Clough and Casey, 2011).

Suitability

The following examples from the literature highlight the suitability of email in various clinical contexts:

♦ A systematic review by Martin et al (2011) found that email is a suitable communication tool for practitioners and patients with an established therapeutic relationship.

♦ A review of the use of therapeutic emails in substance use recovery programs found that interventions that involve dialogue between counselor and the client, such as Motivational Interviewing, are especially well suited for online delivery (Alemi et al, 2007).

♦ A literature review/discussion paper by Mehta and Chalhoub (2006) suggests that email offers the benefits of convenience, cost-effectiveness and time-savings, as well as enabling clients and providers to more carefully and accurately construct their thoughts, feelings, questions and responses, and producing a dialogue record that can be referred to in the future.

♦ In their discussion paper, Luxton, June and Kinn (2011) identify email as an effective tool being used by organizations internationally for communicating with and supporting individuals with suicide risk, both for outreach and follow-up.

♦ While email appears to be a broadly suitable tool for patient-provider dialogue, the systematic review by Martin et al (2011) suggests it may not be appropriate for some patient groups, such as those with severe depression or dementia.[11]

Concerns

The following concerns regarding the use of email in clinical contexts were found in the literature:

♦ A literature review and a survey of psychotherapists suggests that clinicians may be reluctant or cautious to implement email as a tool for communicating with clients; this may in part be due to their unfamiliarity with the attendant legal and ethical issues (Mehta and Chalhoub, 2006; Wangberg, Gammon, and Spitznogle, 2007).

♦ Some concerns regarding email communication include: the lack of non-verbal cues, and the risk of technical failure, privacy concerns around the potential for the interception of confidential messages, and raises liability issues related to response times in a crisis situation and the potential for miscommunication (Mehta and Chalhoub, 2006; Alemi et al, 2007).
   o Mehta and Chalhoub (2006) argue that policies and guidelines should be put in place to help mitigate the risks and maintain the therapeutic relationship.[12]

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[11] Refer to Section B1 and B2 (page 22 and 29) for evidence related to specific mental health or substance use diagnoses, respectively.
[12] Refer to the Policy and Guidelines Addendum (page A-1) for a more in-depth discussion of policy considerations.

A1.2.2 Internet-based approaches

A breadth of online options offering convenient, real-time patient data collection and improved efficiency

Internet-based (or web-based) programs can include "websites that provide information about treatment resources, self-help and resources for helping others, and anonymous counselling services" (Luxton et al, 2011). Three primary forms of web-based modalities were found in the literature: e-therapy, internet Cognitive Behavioural Therapy (iCBT)[13], and Computer-Aided Psychotherapy. Each form utilizes different in therapeutic methods, but use a similar combination of an asynchronous, structured intervention program with specific clinical goals delivered via the internet and text-based (e.g. email) feedback from a mental health care professional (Abbott, Klein and Ciechomski, 2008; Ruwaard, Lange, Schrieken and Emmelkamp, 2011). Abbott et al (2008) suggest that internet-based approaches are quickly becoming a matter of consumer choice rather than clinical effectiveness.

The literature on internet-based approaches centred around five key themes: the purpose and use of this approach; clinical effectiveness and patient suitability; benefits; economic outcomes; and, implementation principles.

Purpose and use

Various web-based systems have been developed and implemented to expand existing telephone-based telemental health services, and are meant to augment, not replace face to face methods (Ybarra and Eaton, 2005; Robertson, Smith, Castle and Tannenbaum, 2006).

♦ A review of internet-based interventions in Norway and Sweden revealed the majority of the services were developed as an expansion of existing telephone services and as a direct consequence of technological development (Andersen and Svensson, 2011), indicating these services may be a natural extension, opportunistic and/or a way to expand current services offered.

♦ Dallery and Raiff (2011) argue in their literature review that "Internet-based interventions can reduce or eliminate significant barriers to treatment," such as barriers to access for special or remote populations (p.10).

Clinical Effectiveness and Patient/Client Suitability

Evidence suggests that internet CBT is an effective mode of treatment that can achieve clinical outcomes similar to that of in-person CBT.

♦ A literature review found evidence that Internet interventions result in 'modest' clinical outcomes (Siemer, Fogel and Van Voorhees, 2011, p. 9).

♦ A retrospective study on a decade of clinical application of an iCBT program called 'Interapy' reported a similar level of effectiveness as face-to-face CBT, high rates of maintained treatment gains compared to control groups, and high adherence rates (Ruwaard et al, 2011).

♦ Two systematic reviews, one literature review, one Australian study and one Dutch study of publicly-funded online, asynchronous therapy, indicate that iCBT is associated with good patient satisfaction and adherence rates, as well as positive clinical results (Ruwaard et al, 2011; Andrews, Cuijpers, Craske, McEvoy and Titov, 2010; Lovell and Bee, 2011; Ybarra and Eaton, 2005; Robertson et al, 2006).

♦ With regard to the therapeutic relationship, a systematic review by Postel, de Haan and De Jong (2008) indicates that clients and therapists are generally able to maintain a positive relationship in internet therapy.

The literature suggests that health outcomes are highly dependent on the suitability of the patient.

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[13] Also referred to as 'online CBT' or 'computer-based CBT'.

♦ Abbott et al's (2008) review of best practices in e-therapy indicates that individuals considered for internet-based interventions should have an appropriate level of literacy skills (due to its heavily text-based nature) and not have mental health conditions that are highly complex, or involve distorted perceptions of reality or risk of self-harm (Abbott et al, 2008).

♦ A literature review by Palmqvist, Carlbring and Andersson (2007) confirms that internet-based interventions are effective across a range of mental health disorders of "mild-to-moderate severity", including panic disorder, depression and PTSD (p.294).[11]

♦ Further, a literature review by Siemer et al (2011) suggests that Internet-based programs tend to be less effective for children and youth, achieving only 'small to moderate' impacts on health outcomes.[14]

While the evidence on the effectiveness of online interventions is generally promising, the systematic review by Postel, Haan and Jong (2008) indicates that the methodological quality of Randomized Controlled Trial (RCT) studies is generally weak, indicating a need for stronger evidence to support statements regarding the appropriateness and effectiveness of online interventions (Postel, Haan and Jong, 2008).

Benefits

The literature suggests that online interventions offer significant benefits to both patient and provider, in terms of convenience, accuracy and clinical outcomes.

♦ Three literature reviews, one systematic review and one review of best practices conclude that internet-based interventions are attractive to clients, offering easy, convenient and confidential access to treatment; these features can encourage greater engagement, prevent relapse, reduce feelings of stigma, and increase access for geographically isolated groups (Cucciare et al, 2009; Dallery and Raiff, 2011; Marks and Cavanagh, 2009; Luxton et al, 2011; Abbott et al, 2008; Young, 2012).

♦ For example, a web-based program called 'Common Ground' illustrates the potential for this modality to enhance patient engagement by facilitating strong patient-providers relationships and enabling shared decision making regarding treatment and medications (Deegan, 2010).

♦ Two literature reviews and one systematic review suggest that online interventions can improve treatment accuracy by enabling the incorporation of real-time patient data, which helps to inform evidence-based treatments and reduces the reliance on patient recall between visits; the longer total support time enabled by internet-based therapy can also contribute to greater patient improvement, uptake and compliance (Cucciare et al, 2009; Dallery and Raiff, 2011; Marks and Cavanagh, 2009)
    o When used as an adjunct to face to face methods, internet-based therapy can allow for more focused use of face to face time. (Cucciare et al, 2009)

♦ In their literature review, Hester and Miller (2006) caution that provider attitudes toward the use of computer- or web-based tools for treatment, rather than just for assessment, may hinder the implementation of internet-based intervention tools despite the benefits to clients.[15]
    o Providers may also have concerns about the technology mediating and becoming a barrier to the patient-provider relationships (Marks and Cavanagh, 2009).[16]

Economic Outcomes

There is some evidence in the literature that indicates internet-based interventions are cost-effective:

♦ Two systematic reviews and a literature review indicate that internet-based interventions can result in reduced live clinician support time requirements per client over time, in comparison with face-to-

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[14] Refer to Section B3.2 (page 33) for detail on specific considerations for children and youth.
[15] Refer to Addendum I of the Policy and Guidelines Addendum (page 4) for more detail on provider telehealth readiness.
[16] Refer to Section A2.2 (page 16) for additional considerations and cautions regarding internet-mediated treatment.

face therapy, thereby reducing per-client costs and alleviating the pressure on health human resources overall (Andrews et al, 2010; Calear and Christensen, 2010; Marks and Cavanagh, 2009).

♦ However, Emmelkamp (2011) cautions in his literature review/discussion paper that evidence on the cost-effectiveness of internet-based interventions (and technology-assisted therapies, in general) is lacking; he argues that studies that include such data often fail to incorporate the costs of development and maintenance, which tend to be time and labour intensive.

Implementation Principles

A few articles in the review offer guiding principles for the implementation of internet-based interventions:

♦ In their systematic review, Marks and Cavanagh (2009) identify nine factors that contribute to the success of computer-aided psychological therapy: 1) the system used; 2) the problem it is used for, and how success is defined; 3) the devices on which it is delivered; 4) the setting in which it is accessed; 5) how clients learn about and access system; 6) pre-access client screening; 7) live human support; 8) routine monitoring of progress and support; and, 9) program funding and implementation.[17]
  o Shepherd et al's (2008) literature review concurs that internet-based interventions must clear in purpose and design in order to be effective.
♦ Barak et al's (2008) meta-analysis indicates that online therapies delivered via interactive websites is more effective than static, educational websites, even if the interactivity was simply a click-along, self-help curriculum. They also conclude that publicly-accessible websites are less effective than those that require users to register and input personal information.

A1.2.3 Remote monitoring

Home telehealth enables efficient and convenient patient/client education and follow-up

Electronic messaging via devices used with phone landlines, or via the internet, allow clients to receive and answer questions about their condition, obtain educational resources and have follow-up conversations from their homes. Such systems allow clinicians to appropriately allocate face-to-face time with clients by achieving much of the clinical activity remotely.[18]

♦ One example of remote monitoring is the VA Connecticut Healthcare System's use of electronic messaging devices connected to phone landlines with a diverse psychiatric patient population (Godleski, Cervone, Vogel and Rooney, 2012). These devices allowed patients to receive and answer questions about their condition daily, and also receive educational materials about their disorder. Follow-up phone calls were done with patients whose responses prompted concern.
  o Patients reported high levels of satisfaction with the device and its ability to enhance their understanding and management of their mental health condition (Godleski et al 2012).
  o Godleski et al (2012) also found that use of the device correlated with decreased hospital and emergency room utilization rates. This reduction was attributed to the daily monitoring of the messaging program that allowed for early intervention as required.
  o The home monitoring devices also improved provider efficiency by allowing clinicians to focus on the small number of high needs patients who require daily intervention; one full-time psychiatric nurse, for example, was able to remotely monitor 90-100 patients and to collect and share information with the care team (Godleski et al, 2012).

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[17] Refer to Addendum I of the Policy and Guidelines Addendum (page 4) for more on implementation guidelines.

[18] While the literature focussing on this modality with the specific population of individuals with mental health and substance use needs is limited, there may be value if exploring further the use in conditions that are often co-occuring with this population (e.g. diabetes, cardiac conditions)

♦ A second example of remote monitoring is the Davis Medical Center eMental Health Consultation Service's use of an internet-based messaging system (Neufeld et al, 2007). The mental health status of patients using the system showed significant improvement from intake to follow-up.

♦ A third example of remote monitoring is the use of handheld devices (Palm Pilots) to administer combat stress assessments to military personal for the purpose of identifying early risk factors for Post-Traumatic Stress Disorder (PTSD) (Reeves et al, 2007)

A1.3   EMERGING MODALITIES

The review revealed a number of new technologies, which are just beginning to be researched and applied in mental health and substance use service delivery contexts. These include: online chat, networked communication technologies, video gaming and virtual reality.

While the literature on these emerging modalities tends to focus on youth[19], telemental health solutions have also been found to be effective with an older population[20]; a mixture of methods including video gaming, virtual reality, and electronic reminders and resources can lead to improved outcomes for PTSD, depression and anxiety in older adults (Preschl, Wagner, Forstmeier and Maercker, 2011).

A1.3.1 Mobile Devices and Text Messaging

Support that is immediate and sustained – can bridge a gap in care and foster self-management

A number of literature reviews suggest that mobile technologies and text messaging can be used as convenient tools for client assessment and monitoring, self-management, and ongoing communication between in-person sessions, in the transition to outpatient care, or in aftercare (Johnson, Isham, Shah and Gustafson, 2011; Clough and Casey, 2011). For example, mobile technology may bridge a gap between inpatient and outpatient treatment or follow-up after outpatient treatment. The immediate two-way contact enabled by mobile devices and smartphones (and mobile apps) also makes these tools suitable for crisis prevention and intervention (Luxton et al, 2011). Evidence regarding the effectiveness of mobile devices for specific mental health disorders is limited; however, mobile devices have shown promise with substance use.[21]

♦ One systematic review found that the use of text messages was found to be an important part in the ongoing management of the individual's condition/ illness (Ehrenreich, Righter, Rocke, Dixon and Himelhoch, 2011).

♦ A study of a student population using a mental health support service showed that text messaging offered not only a means of maintaining ongoing contact, receiving and giving information, and maintaining the on-going therapeutic relationship (Nolan, Quinn and MacCobb, 2011).

♦ A study of mobile phone use (SMS) by a youth mental health outreach service indicates that text messaging has played a significant role in quickly responding and connecting youth to mental health services (Furber et al, 2011).

Text messaging has also been used for client appointment reminders (Luxton et al, 2011).

♦ Nolan et al's (2011) study of student outreach services found that the use of text messaging resulted in a reduction in missed appointments.

♦ A study of community mental health clinics in London, England found that SMS messages are a time-, labor-, and cost-efficient way of reducing the frequency (and associated costs) of missed appointments (Sims et al, 2012).

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[19] Refer to Section B3.2 (page 33) for evidence specific to children and youth.
[20] Refer to Section B3.3 (page 36) for evidence specific to older adults.
[21] Refer to Section B1 and B2 (page 22 and 29) for evidence related to specific mental health or substance use diagnoses, respectively.

Patient/Client and Provider Satisfaction

Two articles indicate that satisfaction with this modality in clinical contexts is generally high:

♦ Ehrenreich et al's (2011) systematic review found that client satisfaction with the mobile phone interventions was generally high.

♦ Regarding provider acceptance of mobile technologies in clinical practice, Wangberg et al's (2007) survey of Norwegian psychotherapists found that they are generally open to, but cautious towards, e-therapy modalities (including mobile devices).

A1.3.2 Online chat

Convenient real-time aftercare

Online chat may be defined as synchronous communication between two or more parties in an online space, or chat room; this review focused on articles that referred to interactions between clients and providers, not communications exclusively between clients. The literature suggests that online chat could be an effective and convenient tool in the delivery of counselling and aftercare.

♦ One literature review suggests that online chat can be used as a tool to improve aftercare for outpatients, and would be most effective when implemented in conjunction with videoconferencing (Clough and Casey, 2011).

♦ Young's (2005) study of online counselling session for Internet addiction indicates that online chat can be used as a tool for improving access to counselling as a result of the convenience and flexibility of the location and timing of appointments.

A1.3.3 Networked communication technologies

Multi-channel possibilities for enhancing patient-provider communication

Martin et al (2011) define networked communication technologies as those that enable electronic connections between clients and providers, including: "social networking sites (e.g. Facebook, MySpace); mobile/smart phone; video- and tele-conferencing; Voice over Internet Protocol (VoIP) system (e.g. Skype); forums; email; short messaging service (SMS); and multi-media messaging services (MMS)" (p. e108). Wikis, "web-based application[s] for sharing and collaborating online," also have potential for use in facilitating communication between patients/clients and providers (Bastida, McGrath and Maude, 2010).

♦ These technologies, a number of which are captured in Section A1 of this report, represent a burgeoning area of telemental health delivery that can support the effective combination of self-management and clinical interaction content. The diversity of formats can enable providers to take advantage of the strengths of various communication modalities, as well as the preferences of clients. (Martin et al, 2011)
    o Martin et al's (2011) systematic review concludes that these networked technologies can increase the opportunity for patient-provider communication, which has the potential to increase individuals' motivation for change.

♦ Networked communication technologies have the potential to be an effective addition to traditional service delivery, particularly when directed towards adolescents or young adults,[19] however more research is needed to evaluate the effectiveness of these technologies relative to face-to-face consultations (Martin et al, 2011).
    o Martin et al's (2011) systematic review suggests that client satisfaction with these technologies are largely positive, and that there have been no reports of negative outcomes from more frequent communication facilitated by telehealth.

♦ Two other literature reviews refer to the use of online social networking and media sharing sites.

- o Yellowlees and Nafiz (2010) note that social-networking sites, blogs, and online groups are blurring "the lines of the traditional psychiatrist-patient relationship, with its standard progression, within a one-to-one interaction, from data collection (history and investigations), to data analysis (diagnosis), to management planning (treatment)" (p.99).
- o Luxton et al (2011) identify social networking and online video and podcasting as promising tools for suicide prevention.

A1.3.4 Video gaming

An attractive and interactive assessment and therapy tool for youth

Video gaming is an emerging therapeutic modality that has been targeted primarily towards children and youth,[19] and may help to increase client engagement during and between therapy sessions (Wilkinson et al, 2008; Clough and Casey, 2011). The literature suggests that video gaming can be used as an effective tool in the assessment and treatment of psychotic disorders, ADHD and suicide risk.[21]

- ♦ A literature review by Wilkinson et al (2008) suggests that video game therapies could be used as an effective assessment and intervention tool to aid adolescents' recovery from psychotic episodes, as well as in the reduction of ADHD symptoms.
- ♦ Luxton et al (2011) suggest that the appeal and interactivity of computer and web-based gaming give these tools the potential to be effective tools in suicide outreach and prevention for young people.
- ♦ Wilkinson et al (2008) suggest that more research is required in order to determine the effectiveness of online video game therapy, and more collaborative efforts between game engineer and therapists would help to develop the clinically effective programs.

A1.3.5 Virtual reality

An innovative and interactive tool for behavioural and cognitive therapy

Luxton et al (2011) define Virtual Reality, or "virtual worlds," as "software-based programs that provide immersive and interactive environments" (p.52). The literature indicates that virtual reality has been successfully applied in the treatment of phobias and schizophrenia, and has potential applications for other disorders.[21]

- ♦ An example of virtual worlds that has been applied in clinical setting is Second Life, a platform in which users interact with others in an online virtual space via virtual representations of themselves (known as avatars) (Luxton et al, 2011).
- ♦ While more rigorous research is required, a number of authors have identified the potential of virtual reality as an innovative application in behavioural therapy, exposure therapy and cognitive training treatment and aftercare for a range of mental health disorders (Luxton et al, 2011; Emmelkamp, 2011; Westphal et al, 2010).
  - o Two literature reviews identify studies that found Virtual Reality Exposure Therapy (VRET) and VR cognitive training to be effective in reducing the symptoms of specific phobias and schizophrenia, respectively; outcomes for VR treatment of psychotic disorders have been mixed (Emmelkamp, 2011; Westphal et al, 2010).
  - o The literature suggests that there is a lack of evidence regarding the effectiveness of virtual reality when applied to anxiety, depression and suicide prevention (Emmelkamp, 2011; Luxton et al, 2011).

A2   CLINICAL APPLICATIONS

In addition to detailing the various types of technical modalities and tools used in telemental health services, the review is further oriented to highlight ways in which telemental health can be applied across different stages of care to aid in extension of services, access to specialists and increase

communication and collaboration between health professionals. Videoconferencing, for example, has been identified as a useful tool for diagnosis, treatment, and follow-up of clients in remote areas (García-Lizana and Muñoz-Mayorga, 2010). [22,23]

The documented effectiveness and satisfaction with various technologies varies across specific clinical applications and contexts. As McGinty et al (2006) note, communication technologies may be implemented in a variety of settings, "including outpatient clinics; hospital emergency rooms; patients' homes; group homes; nursing homes; homeless shelters; hospices; schools; forensic facilities and on the battlefront," each of which have a unique set of considerations and challenges (pp.336-337).

It should be noted that no details were found in the literature pertaining to the application of telemental health technologies in the certification of patients for involuntary treatment under a Mental Health Act.

A2.1 ASSESSMENT AND DIAGNOSIS

Using technology to gather information for an assessment to make a diagnosis has been found to be an effective use of telemental health that may benefit both patients and providers; however there is a lack of research on the effect of specific settings or views on the validity of telepsychiatric assessments.

- Literature/systematic reviews and single studies indicate that the reliability and accuracy of mental health assessment is not compromised by the videoconferencing modality[22] (Nelson and Bui, 2010; Savin et al, 2006; Brett and Blumberg, 2006; Diamond and Bloch, 2010; Ciemins, Holloway, Coon, McClosky-Armstrong and Min, 2009; Neufeld et al, 2007); this includes specific diagnostic tools, such as the Mini-Mental State Examination (MMSE) (McEachern, Kirk, Morgan, Crossley and Henry, 2008).
    - o The US Department of Veteran Affairs (VA), for example, uses videoconferencing in the assessment and monitoring of suicide-risk (Godleski, Nieves, Darkins and Lehmann, 2008).
- Some literature reviews suggest that technology-mediated assessments may be more effective than in-person assessments in some contexts.
    - o The literature review by Hester and Miller (2006) suggests that computer-based assessment tools may increase client engagement and response accuracy in substance use applications.[24]
    - o Cucciare et al's (2009) literature review suggests that mixed approaches that allow clients to complete assessments via the Internet for use in their first session can be more efficient and save time during the appointment.
- In their systematic review Hyler et al (2005) argue that telepsychiatric assessments may be a necessity in situations where no psychiatrist or psychiatric sub-specialist is otherwise available (for example, in remote communities).
- Diamond and Bloch (2010) caution in their literature review that frustration and concerns regarding assessment outcomes may arise if the consulting health professional does not receive timely follow-up regarding clients.
- Diamond and Bloch (2010) also suggest that while diagnostic reliability is not compromised via telehealth, there is a lack of research on the effect of specific settings or views on the validity of telepsychiatric assessments.

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[22] Refer to Section A1 (page 3) for evidence specific to videoconferencing and other technologies.
[23] Refer to Section B4.3 (page 39) for evidence specific to rural and remote areas.
[24] Refer to Section B1 and B2 (page 22 and 29) for evidence related to specific mental health or substance use diagnoses, respectively.

A2.2   TREATMENT

As outlined in Section A1 (page 3), information and communication technologies offer new and innovative ways to engage mental health and substance use clients and support evidence-based treatment approaches.[24] These tools are most often used as an adjunct to face-to-face treatment, but may also be an effective replacement or alternative to traditional treatment or aftercare approaches. Two main themes were found in the literature regarding treatment: effectiveness across treatment models and client types, and cautions and considerations for implementation.

Effectiveness across Treatment Models and Patient Types

The literature suggests that the effectiveness of a specific technology depends upon the suitability of the treatment model being used.

♦ For example, Alemi et al (2007) suggest that email is an appropriate tool for interventions that rely on ongoing dialogue between counselor and the client, such as Motivational Interviewing with substance users.
♦ Ruwaard et al's (2011) meta-analysis indicates that cognitive behaviour therapy (CBT) is well-suited to being adapted to a web-based format.[22]
♦ Exposure therapy, on the other hand, is a form of therapy that may be less well-suited to being adapted for technology-mediated interventions (Gros et al, 2011).

The effectiveness of technology-mediated treatment methods also vary across client types. Electronic media, such as online chat, video games and mobile devices have been found to be an effective way of engaging children and youth in treatment.[25] There are, however, particular considerations in adapting telemental health programs to be developmentally appropriate.

In addition to active treatment, the literature suggests that telehealth technologies can be effectively applied in aftercare. Clough and Casey (2011) conclude that established and emerging communication technologies, such as mobile phones, text messaging and online chat can improve aftercare practices by enhancing client monitoring and offering an alternative communication link between patient and provider post-treatment.

Cautions and Considerations

A discussion paper by Lester (2006) highlights the need for providers to be aware of and responsive to the tendency for technology-mediated treatment formats to alter the patient-provider relationship and power dynamic.

♦ Lester's (2006) discussion of telephone-based therapy suggests that the distance and relative anonymity created by this modality can increase the potential for positive transference/counter-transference in psychotherapy; however, therapists must be aware of the tendency for phone sessions to become conversational in nature, and strive to maintain a therapeutic relationship with their patients.
♦ Lester (2006) cautions in his discussion paper that the use of internet-based therapy can shift power in the therapeutic relationship toward the client, which has the potential to reduce the effectiveness of counselling. In particular, continual access to a therapist may encourage dependency and preventing clients from learning independent coping skills; providers may also come to resent continuous demands from clients.

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[25] Refer to Section B3.2 (page 33) for evidence specific to children and youth.

A2.3   CONSULTATION

As a means to connect, telemental health technology enables health professionals to consult on cases with the same level of confidence as in-person consultations. Further, this clinical application of telemental health is already well established for child, adolescent and adult populations.[25]

♦ Yellowlees and Nafiz (2010) note in their literature review that "telepsychiatry consultations are well established; guidelines exist for both adult and child psychiatry; and such consultations have been demonstrated to be diagnostically valid and associated with substantial patient satisfaction" (p.98).

♦ In her review and discussion paper, Miller (2005) presents evidence that technology-enabled consultations for alcohol and substance use consultations with children and adolescents result in the same diagnosis and treatment recommendations as face-to-face assessments.[24,25]

Advantages to telemental health technology consultations include more inclusive participation, better use of time and resources, and extension of services to rural and remote areas and health professionals in need of support.[23]

♦ Harper's (2006) study of an inter-professional, team-based telemental health service[26] for children with disabilities in rural Iowa indicates that remote consultation enhanced professionals' skills and efficiency, and enabled higher patient and family participation rates.

♦ Yellowlees et al's (2008a) systematic review indicates that emergency telepsychiatry[27] via videoconferencing has good potential for use in remote consultation and disaster situations, and could also help to reduce burden on emergency departments.

♦ In their retrospective review of the University of Arizona's videoconferencing telepsychiatry consultation program, Cruz et al (2005) suggest that the continued use of the service indicates that it fills a gap in service, particularly in rural areas.

A2.4   CASE CONFERENCING AND MANAGEMENT

Using telemental health technology to help manage cases and ongoing care has shown to have benefits for both health professionals and client.

For health professionals, case conferencing via videoconference has been found to be feasible and cost-effective. In terms of case management, the technology can enable on-demand and real-time access to client data required by the health professional to provide effective ongoing and urgent interventions.

♦ A study of telemental health applications in Finland found that "patient care planning meetings via videoconferencing were similar to conventional meetings and [achieved] cost saving[s] from a societal perspective above a certain level of utilization" (Ohinmaa et al, 2008, p.266)

♦ In their literature review of telemental health for substance use treatment, Cucciare et al (2009) indicate that a key feature of internet technology is its potential to facilitate "routine collection, aggregation and reporting of … patient level data;" this can "enable clinicians to be more proactive, providing them with the information necessary to intervene with clients who are at immediate risk of relapse or other adverse consequences" (p.3).

Technology-enabled case conferencing and management also holds similar benefits for clients, particularly in terms of its facilitation of more regular and effective communication with and between the health professionals.

♦ For example, a literature review indicates that the use of videoconferencing appointments for children with disabilities allows more people (including specialists and family members) to attend

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[26] Refer to Section A3 (page 20) for details on service models used within telemental health service delivery.
[27] Refer to Section B4.2 (page 39) for details regarding telemental health in emergency contexts.

sessions and improves communication and coordination between members of the care team (Gregory, Alexander and Satinsky, 2011).[24,25,26]

♦ A systematic review and a single study indicate that text messaging can be an effective tool for remotely monitoring and management a client's condition, as well as the maintaining the therapeutic relationship (Ehrenreich et al, 2011; Nolan et al, 2011)

A3   SERVICE MODELS

The way telemental health services are delivered and integrated into other healthcare systems varies by service model. Below is a sampling of the different telemental health service models supported by implemented examples.

A3.1   COLLABORATIVE CARE MODEL

While the specific structures of collaborative programs vary, the primary goal behind collaborative care models is to build primary care providers' capacity to identify and respond to mental health and substance use clients via partnerships with specialists. This model has been particularly important in rural areas, where primary care clinicians typically have access to fewer local resources for support and referral.[28]

♦ Meyer, Peteet and Joseph (2009) contend that the opportunity to observe the process of a psychiatric interview via videoconferencing may enhance practical and case-based education for primary care physicians.

♦ Hilty et al (2006b) evaluated a collaborative telepsychiatry program conducted through rural Primary Care Provider (PCP) clinics, in which the patient consulted with a remote psychiatrist and the physician was present to discuss treatment options at the end of the session. The evaluation found that PCPs' satisfaction with the program grew over time, and their medication dosing and skills in addressing psychiatric health concerns (primarily mood, anxiety and adjustment disorders[29]) also improved.

♦ The Children's Hospital at Westmead in New South Wales, Australia has implemented a collaborative service in which psychiatrists and other clinicians provide direct service to rural patients, as well as develop a continuing relationship with rural clinicians (Starling and Foley, 2006). Starling and Foley (2006) conclude that "this model is more useful for providing skills and support to isolated rural clinicians than the alternative brokerage model where each service request is negotiated independently" (Starling and Foley, 2006, p.82).

♦ A study of a multi-professional telemental health service for children with special needs in rural Iowa found that the team process enabled group sharing of expertise, which enhanced professionals' skills and personal rapport (Harper, 2006).[30]

A3.2   STAKEHOLDER ENGAGEMENT/COMMUNITY NEEDS ASSESSMENT MODEL

The stakeholder engagement/ community needs assessment service model takes into consideration and responds to the needs of all users. Inclusive and engaging, this model often results in high patient/ community satisfaction and is used in rural programs.[28]

♦ Bhandari et al's (2011) review of the Chatham-Kent Health Alliance's (CKHA) development of a rural videoconferencing telepsychiatry service in Ontario highlights the importance of engaging community members, key technology stakeholders and health professionals in planning and

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[28] Refer to Section B4.3 (page 39) for evidence specific to rural and remote areas.
[29] Refer to Section B1 and B2 (page 22 and 29) for evidence related to specific mental health or substance use diagnoses, respectively.
[30] Refer to Section B3.2 (page 33) for evidence specific to children and youth.

implementation. The CKHA used a Participatory Action Research (PAR) model to identify and effectively address the mental health needs of underserved Ontario communities. Evaluation of the project found high rates of provider satisfaction and commitment to the service delivery model, as well as increased access to timely interventions for patients.

♦ In their review and discussion of the University of Hawai'i Rural Health Collaboration, Helm et al (2010) argue that community needs assessment and community stakeholder engagement are critical activities in the early stages of rural program development.

♦ In their case study of telehealth implementation in BC, Moehr et al (2006) argue that "the optimal approach [to telehealth implementation] appears to be one that is highly inclusive in the full involvement of stakeholders, but also well-structured and efficient in addressing their needs" (p.761).

A3.3 CONSULTATION CARE MODEL

Using technology to connect expertise to the point of care, the consultation care model enables consults over distance. This model can link not only health professional to patient, but also health professional to health professional for care and education.

♦ Pignatiello, Boydell, Teshima, and Volpe's (2008) review of the Toronto Pediatric Telepsychiatry Program (TPTP) describes the role of the consultant (i.e. the psychiatrist connecting to the point-of-care via videoconference) is to provide a formulation and make immediate recommendations for patient care. The authors report that psychiatrists participating in this service model valued that the consultative role enabled them to provide services without the long-term burden of taking on an ongoing caseload.

♦ Hilty et al's (2007) comparative study of rural and suburban primary care needs highlights the importance of adjusting interventions to suit the environment and particular patient populations. Their results suggest that rural primary care clinics have different needs, and use telepsychiatry consultation differently, than suburban clinics; the authors indicate that the consultation care model is a promising approach to mental health care in rural environments.[28]

A3.4 CLINICAL SERVICES DELIVERY MODEL

The clinical services delivery model is an example of an inter-professional model that uses the telemental health technology to connect providers to enhance care. This model is particularly useful in clinical scenarios that cut across physical and mental health issues and require the expertise of a range of health professionals or specialists.

♦ An example of this model is East Texas Tele-Mental Health Network, which brings together clinical service providers (including psychiatric nurse practitioners, family nurse practitioners and psychiatrists) via videoconference to provide evaluations, referrals, and treatment for rural victims of domestic violence (Tschirch et al, 2006).[28]

SECTION B: APPLIED TELEMENTAL HEALTH

B1   CLINICAL DISORDERS

The use of telemental health has been studied to varying degrees across a variety of clinical disorders.[31] While the level of evidence for effectiveness and satisfaction with telemental health varies for the range of different disorders and clinical settings, in general, it is accepted as a viable option. Patient suitability, however, should always be taken into consideration. The suitability of telepsychiatry, and telemental health services in general, for specific patient groups needs to be critically examined before implementation.[32] There is evidence that almost all psychiatric emergencies can be managed via telemedicine, with the exception of patients who are actively engaged in violence or self-harm, who quite clearly need to be physically restrained (Yellowlees et al, 2008a).[33]

In general, when selecting services for a patient, health professionals should recognize that individuals with some mental health problems may be less suited to telemental health than face-to-face therapy. This may include individuals with psychiatric disorders in which they experience distortions of reality, suicidal ideation, are currently a victim of violence or sexual abuse, or are experiencing a high rate of secondary, comorbid psychiatric disturbance (Abbott et al, 2008). Potential patients with limited computer access/knowledge may also be unsuitable (Abbott et al, 2008).

B1.1   DEPRESSION, ANXIETY AND MOOD DISORDERS

There is a considerable amount of evidence suggesting that technology-mediated approaches are effective in the assessment, treatment and monitoring of depressive, anxiety and mood disorders (including Obsessive Compulsive Disorder and specific phobias). However, telemental health approaches do not appear to be equally effective for all disorder types within this category, and in some cases additional research is needed to fully assess the appropriateness and effectiveness of technology-mediated interventions.[31]

Based on the review, the most promising and evidence-supported telemental health approaches for these disorders include videoconferencing and internet Cognitive Behavioural Therapy (iCBT). Email, mobile devices and virtual reality also show promise in the treatment and monitoring of specific disorders within this category, but more evidence is required to determine whether they are more broadly applicable to mood, anxiety and depressive disorders.

B1.1.1 Synchronous Modalities

The literature on synchronous telemental health services for depression, anxiety and mood disorders captured both videoconferencing and teleconferencing.

Videoconferencing

The literature indicates that videoconferencing is a broadly effective modality for patients with depression, anxiety and other mood disorders.

♦ Two literature reviews suggest that videoconference-based telepsychiatry is a feasible and effective modality in the treatment of depression (García-Lizana and Muñoz-Mayorga, 2010a; Meyer et al, 2009).

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[31] Refer to Section A1 (page 3) for evidence specific to different technologies.
[32] Refer to Addendum I of the Policy and Guidelines Addendum (page A-4) for details on determining patient suitability.
[33] Refer to Section B4.2 (page 39) for details regarding telemental health in emergency contexts.

♦ A study by McCord (2011) found that a videoconference counselling service in <u>rural</u> Texas achieved significant decline in depression scores and improved overall mental health.[34]
♦ Two studies evaluating an East Texas videoconference telepsychiatry program for women victims of domestic violence with high rates of mood and anxiety disorders, found declines in hospital and emergency room visit rates (Thomas et al, 2005; Tschirch et al, 2006).
♦ Another example of large scale adoption of this technology is the US Department of Veteran Affairs' (VA) use of videoconferencing in the <u>assessment</u> and <u>monitoring</u> of suicide-risk (Godleski et al, 2008).[35],[36]

A meta-analysis by Bee et al (2008) suggests that videoconferencing may be more effective in the treatment of anxiety than depression; the authors conclude that patients with anxiety disorders respond well to self-help supported by therapist contact via tele- or video-conferencing (by phone, video or web), while the same approach yielded a 'medium' effect for depression patients.

♦ A literature review by Wootton and Titov (2010) indicates that treatment of Obsessive Compulsive Disorder (OCD) via videoconferencing and telephone can be equally effective as face to face treatment. They caution, however, that further research is required to determine the generalizability of these results and how teleconferencing can be most effectively integrated with existing services (Wootton and Titov, 2010).

Teleconferencing

The recent literature indicates that teleconferencing can be effectively applied to patients with depression or anxiety:

♦ One literature review cites a series of US trials, which indicate that telephone-based interventions can improve anxiety symptoms (Kuehn, 2008).
♦ Two other reviews found inconclusive but promising results for telephone-based counseling services for depression, anxiety and suicide-prevention (Lapierre et al, 2011; Leach and Christensen, 2006).

B1.1.2   Asynchronous and Mixed Modalities

The literature on asynchronous and mixed modality telemental health for depression, anxiety and mood disorders focused exclusively on <u>internet-based approaches</u>. The evidence suggests that internet-based approaches – internet Cognitive Behavioural Therapy (iCBT), in particular – are effective in the treatment of these disorders:

♦ One literature review and one systematic review suggest that internet-based services for depression, anxiety and phobias, showed positive results on par with face-to-face treatment (Hailey et al, 2008; Yellowlees and Nafiz, 2010).
♦ Three systematic/literature reviews and one Australian study found that internet (or computerized) CBT showed improved outcomes and high patient adherence for a range of mood, depression and anxiety disorders (Griffiths and Christensen, 2007; Andrews et al, 2010; Lovell and Bee, 2011; Robertson et al, 2006).
   o A summary of meta-analytic reviews indicates that iCBT is more effective for anxiety than depression patients, and that OCD patients appear to respond particularly well to this form of intervention (Carroll and Rounsaville, 2010).
♦ In their systematic review, Griffiths and Christensen (2007) note that the MoodGYM iCBT program may not be suitable for anxiety or depression patients with low literacy levels. They also caution recommend that the program be adjusted before being applied in a <u>rural</u> context.[34]

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[34] Refer to <u>Section B4.3</u> (page 39) for evidence specific to rural and remote areas.
[35] Refer to <u>Section B3.3</u> (page36) for evidence specific to older adults.
[36] Refer to <u>Section A2</u> (page 16) for details on telemental health applications across different stages of patient care.

♦ Calear and Christensen's (2010) systematic review suggests that iCBT is effective for treating anxiety and depression in <u>children and adolescents</u> in a variety of settings.[37]

B1.1.3   Emerging Modalities

The literature on emerging modalities for telemental health services for depression, anxiety and mood disorders included: <u>email</u>, <u>mobile devices</u> and <u>virtual reality</u>.[31]

Email

The literature on telemental health interventions incorporating email indicate that this modality is promising, but may not be suitable for some patients with depression or at risk of suicide.

♦ A systematic review concludes that email communication may not be suitable for some patients, including those with severe forms of depression (Martin et al, 2011).
♦ A review of four studies on guided and un-guided self-help for Social Anxiety Disorder (SAD) patients concludes that self-help treatment with minimal guidance from therapists via email or <u>phone</u> has stronger effectiveness and adherence rates than unguided online self-help (Nordgreen et al, 2011).
♦ Krysinska and DeLeo's (2007) conclude in their literature review that while email and <u>web-based</u> services for suicide prevention are promising, particularly in terms of increased access, there is a lack of evidence on its clinical effectiveness for this patient group.

Mobile Devices and Text Messaging

A systematic review by Ehrenreich et al (2011) indicates that mobile devices (handheld computers) can be effectively used in the treatment of panic disorder by facilitating self-monitoring and treatment modules. The authors conclude that there is insufficient evidence regarding the application of this modality to other anxiety disorders.

Virtual Reality

Two literature reviews indicate that Virtual Reality Exposure Therapy (VRET) has been found to be effective for specific phobias (Emmelkamp, 2011; Côté and Bouchard, 2008). However, Emmelkamp (2011) indicates that there is a lack of evidence on its use in more disabling anxiety disorders. He also identifies a lack of studies on the use of Second Life in Cognitive Behavioural Therapy (CBT).

B1.2   SCHIZOPHRENIA AND PSYCHOTIC DISORDERS

The review identified relatively few articles that referred specifically to the use of telemental health for patients with schizophrenia and psychotic disorders. The technological modalities that have been applied to this category of disorders include videoconferencing, teleconferencing, internet-based approaches, remote monitoring and virtual reality.[31] While more research is needed, the outcomes achieved in the studies cited below are promising.

B1.2.1   Synchronous Modalities

The review found a few articles relating to <u>videoconferencing</u> and <u>teleconferencing</u> telemental health interventions for schizophrenia and psychotic disorders.

Videoconferencing

There has been some skepticism regarding the appropriateness of using videoconferencing with patients with psychotic disorders, due to the complex associated symptoms (such as delusions of reference and hallucinations) and the importance of observing non-verbal cues for patient assessment (Sharp et al,

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[37] Refer to <u>Section B3.2</u> (page 33) for evidence specific to children and youth.

2011). However, Sharp et al's (2011) literature review indicates that there is little evidence to support these reservations.

♦ Sharp et al (2011) argue that videoconferencing is particularly well-suited to patients with psychosis, who are often hospitalized and would benefit from connecting to specialist care without needing to travel; this benefit also applies to patients in rural areas who may not have access to specialists.[34]

♦ The evidence suggests that the effectiveness and reliability of videoconferencing assessment and treatment for psychosis is equivalent to in-person consultations, and the physical distance between patient and provider may increase patient comfort and reduce anxiety and overstimulation (Sharp et al, 2011).

  o The physical distance can also allow "patients to express strong affects that may have led to premature termination of in person sessions" (Sharp et al, 2011, p.6); this has positive implications not only for the continuation and effectiveness of treatment, but also provider safety.[38]

The literature also indicates that some patients with psychotic disorders may prefer videoconferencing; in part due to the physical distance mentioned above (Sharp et al, 2011). Children, in particular, have been found to respond well to this mode of treatment (Sharp et al, 2011).[37]

Teleconferencing

Two systematic reviews indicate that telephone-based interventions and monitoring for schizophrenic patients have showed positive (although not always statistically significant) results, including: higher medication adherence rates; lower rates of medical appointments, ER visits and re-hospitalization; shorter readmissions; and, increased community survival (Hailey et al, 2008; Leach and Christensen, 2006).

B1.2.2   Asynchronous Modalities

Two articles were found which related to asynchronous telemental health interventions for schizophrenia and psychotic disorders, including: internet-based approaches and remote monitoring.

Internet-based Approaches

A systematic review by Hailey et al (2008) cites an RCT study of internet-based programs for schizophrenia, which showed positive results, including lower perceived stress than patients receiving in-person interventions.

Remote Monitoring

The Information Technology Aided Relapse Prevention in Schizophrenia (ITAREPS) program is an example of a remote monitoring intervention delivered via a phone-to-PC SMS platform (Spaniel et al, 2008). Spaniel et al's (2008) evaluation of the program found that it is effective in long-term treatment and management of patients with schizophrenia and psychotic disorders, resulting in a significant decrease in hospital admissions and lengths of stay.

B1.2.3   Emerging Modalities

The evidence related to emerging technologies for telemental health is limited. In their literature review, Westphal et al (2010) cite an RCT study of a ten-session virtual reality cognitive training program for patients with chronic schizophrenia which resulted in improved cognitive functioning. Kim et al (2008) suggest in their literature review that the immersive experience enabled by virtual reality has potential applications in cognitive-behavioural assessment, as well as social skills and medication training, for individuals with schizophrenia.

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[38] Refer to Addendum I of the Policy and Guidelines Addendum (page A-4) for additional details regarding safety guidelines.

B1.3   EATING DISORDERS

There were several articles that offered analysis specific to telemental health for eating disorders using teleconferencing, web-based assessment and therapy, and text messaging.[31] The evidence regarding the effectiveness of these technologies for the treatment of eating disorders varies, and there are some concerns regarding the impersonal nature of asynchronous, text-based modalities.

B1.3.1   Synchronous Modalities

The review found one article on the application of teleconferencing within eating disorder interventions.

♦ In their systematic review, Leach and Christensen (2006) cite three trial studies which offer conflicting findings on the efficacy of telephone therapy in treating anorexia and bulimia. Two of the studies found significant reductions in disordered eating behaviours, though one suggests that in-person treatment is more effective than telephone interventions.

B1.3.2   Asynchronous and Mixed Modalities

The literature on the application of asynchronous and mixed telemental health technologies to eating disorders focused exclusively on internet-based approaches.

♦ In their literature review, Ybarra and Eaton (2005) indicate that moderator-led internet Cognitive Behavioural Therapy (iCBT) has been found to have positive results for women at risk for eating disorders.

♦ A study of a Swedish internet-based data collection and assessment tool for eating disorders, called Stepwise, found mixed satisfaction and buy-in on the part of providers, a number of whom expressed reservations regarding the impersonal nature of computer-assisted assessment and challenges incorporating the tool into their workload (Birgegård, Björck and Clinton, 2010).

B1.3.3   Emerging Modalities

The literature on the integration of emerging technologies into telemental health services for eating disorders focused exclusively on mobile devices and text messaging.

♦ Two literature reviews cite German and British pilot studies in which text messaging was used in the aftercare of bulimic patients (Clough and Casey, 2011; Nolan et al, 2011). The results of the two studies were mixed and inconclusive in terms of patient satisfaction and clinical outcomes; however Clough and Casey (2011) suggest that the incorporating mobile phones into aftercare may facilitate client monitoring and help patients to maintain the gains made through treatment.
  o Clough and Casey (2011) caution that the more limited aftercare offered by these SMS pilot programs may not be appropriate for patients with more severe cases of bulimia.
  o Nolan et al (2011) suggest that the impersonal nature of the automatically generated messages sent in the British study "may have limited the effectiveness of the use of text messaging as a means of managing this group" (p.109).

B1.4   DEVELOPMENTAL DISABILITIES

The literature specific to developmental disabilities focuses primarily on videoconferencing. While more research is needed, the evidence suggests that videoconferencing is acceptable and effective tool for consultations with children and older adults with developmental disabilities, and their families. Asynchronous tools like email, on the other hand, may not be suitable.[31]

B1.4.1 Synchronous Modalities

Videoconferencing has been found to be an appropriate and effective tool for interventions with children and older adults with developmental disabilities.

♦ Harper's (2006) study of interdisciplinary videoconferencing evaluations for children with special needs in rural Iowa indicates that this modality is acceptable and effective:[34,37]
  o The study found high levels of patient and parent satisfaction with distance consultations; parents reported feeling empowered by participating in the evaluations and discussing recommendations with providers (Harper, 2006).
  o The results also indicate that the clinical effectiveness and validity of videoconferencing consultations is comparable onsite evaluations for children with disabilities (including brain/neuromuscular disabilities, developmental disorders, behaviour disorders, etc.) (Harper, 2006).
♦ Gregory et al's (2011) literature review of telerehabilitation, confirms the utility of videoconferencing in interdisciplinary appointments for children with disabilities; remote consultations enable more people (including specialists and family members) to attend sessions, and can also facilitate improved communication and coordination between members of the care team.
♦ A systematic review of studies on dementia care for older adults[35] in rural areas indicates that videoconferencing is a reliable, valid and feasible tool for dementia assessment and management (Morgan, Innes and Kosteniuk, 2011).

B1.4.2 Asynchronous Modalities

A systematic review by Martin et al (2011) suggests that email may not be an appropriate intervention tool for patients with dementia.

B1.5   POST-TRAUMATIC STRESS DISORDER (PTSD)

The review found some evidence specific to Post-Traumatic Stress Disorder (PTSD), which suggests that videoconferencing and virtual reality are generally effective in interventions with PTSD patients.[31] However, it should be noted that some therapy models commonly applied to PTSD, such as exposure therapy, may not be equally effective across modalities. It should be noted that the majority of articles on telemental health interventions for PTSD are specific to a military context. More research is required to fully assess the effectiveness of telemental health for this disorder for the broader population.

B1.5.1 Synchronous Modalities

The literature pertaining to the application of synchronous in telemental health technologies for PTSD focused exclusively on videoconferencing.

♦ One literature review and one systematic review indicated that patients with PTSD respond very well to videoconferencing interventions, with possibly greater total positive effects than other mental health disorders (Barak et al, 2008; Hailey et al, 2008).
  o A study of veterans with PTSD suggests that while videoconferencing interventions show significant improvements, in-person therapy is more effective (Gros et al, 2011).[35]
♦ Gros et al (2011) caution that some forms of intervention for PTSD, such as exposure therapy, may be less effective when delivered by videoconference than in person.
♦ Todder, Martar and Kaplan's (2007) analysis of two case studies indicates that one of the key benefits of videoconferencing for PTSD and Acute Stress Disorder (ASD) patients is access to real-time specialist care without removing them from the proximity of the trauma (which negatively impacts the effectiveness of treatment). It is also beneficial in contexts where it is not safe or possible to travel, such as war zones (Todder et al, 2007).

B1.5.2 Emerging Modalities

Articles in this review pertaining to the use of emerging technologies with PTSD patients focused exclusively on virtual reality.

♦ Virtual Reality for PTSD and stress disorder treatment has primarily been used in a military context (Setz, 2011), but Rizzo et al (2011) argue that it could be repurposed to provide effective exposure therapy to civilian patients.

♦ One study of active duty soldiers and one literature review indicate that military applications of provider-facilitated VR have resulted in significant reductions of symptoms of PTSD (Reger et al, 2011; Rizzo et al, 2011).

B1.6   CO-MORBID, CONCURRENT AND DUAL DIAGNOSIS CONDITIONS

The literature on telemental health for complex conditions tends to focus on co-morbid physical/medical and mental conditions.[39] The literature suggests that telemental health delivered via phone, videoconferencing and internet have strong potential in remote counselling of this patient group.[31] This is particularly true in rural areas where primary care of psychiatric patients may be lacking (Meyer et al, 2009).[34]

B1.6.1 Synchronous Modalities

The literature on synchronous technologies applied in interventions for co-morbid conditions includes both videoconferencing and teleconferencing.

Videoconferencing

The articles related to videoconferencing suggest that this modality is effective for some co-morbid conditions, but additional research is required.

♦ Two literature reviews, by Shepherd et al (2008) and Postel, de Haan, Hein, De Jong and Cor (2008), identify videoconferencing as a promising modality in interventions with rural cancer patients.
  o Both reviews agree that additional research is required in order to make strong conclusions regarding the effectiveness of videoconferencing in this context (Postel et al, 2008; Shepherd et al, 2008).

♦ Another literature review indicates videoconferencing has been used effectively in the treatment of stuttering, a condition often co-morbid with anxiety, in children, adolescents and adults (Packman and Meredith, 2011).[37]

Teleconferencing

The evidence on teleconferencing services indicates that this technology can be effective in facilitating relationships and reducing the burden of illness.

♦ Shepherd et al's (2008) literature review telemental health for rural cancer patients indicates that research best supports the effectiveness of teleconferencing in facilitating relationships between rural health professionals and mental health specialists.

♦ A systematic review by Dorstyn, Mathias and Denson (2011) suggests that telecounseling can be beneficial for individuals adjusting to a life of physical disability.

♦ A study of telecounseling services for cancer patients and caregivers found that the participants' levels of stress/distress associated with the burden of illness were reduced (Hutchison et al, 2011).

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[39] Only three articles that met the inclusion criteria included details on patients with a concurrent diagnosis of mental health disorder(s) and substance use (see Section B2, page 29) (Eberhard, Nordstrom, Hoglund and Ojehagen, 2009; Yellowlees et al, 2008a; Miller, 2005).

B1.6.2 Asynchronous and Mixed Modalities

The literature on the application of asynchronous and mixed modalities in interventions for co-morbid conditions focused exclusively on internet-based approaches.

♦   One literature review and one systematic review argue that web-based interventions are a promising practice in the counselling of rural cancer patients, and the facilitation of effective primary care and specialist relationships, provided that the purpose and design of the intervention are clearly defined (Shepherd et al, 2008; Postel, de Haan, Hein, De Jong and Cor, 2008).
   O   Both reviews agree that more methodologically rigorous research is required to understand the impacts of this modality on patients with co-morbid conditions (Postel et al, 2008; Shepherd et al, 2008).

B2   SUBSTANCE USE

The review found relatively few studies that referred specifically to the use of telemental health for substance use interventions. This seems to be reflective of the tendency, as noted in a literature review by Baca, Alverson, Manuel and Blackwell (2007), for telecounseling for alcohol and drug dependency to be embedded within more general mental health treatment portfolios. The delivery of dedicated alcohol and drug treatment services via telehealth technologies is still in its infancy, but demand for these services is high (Baca et al, 2007).

Young's (2012) literature review of extended telehealth interventions for substance use indicates that a variety of technological modalities, including tele- and video- conferencing, internet-based approaches and text messaging, have potential as clinically effective tools for substance use intervention.[40] Johnson et al's (2011) discussion paper on the potential applications of Information and Communication Technologies (ICT) in substance use treatment suggests that technology-mediated interventions can be effective for assessment and acute care, as well as the "post-acute" phase of treatment (p.391). As noted by Leach and Christensen (2006) effective continuing care is critical in the treatment of substance use due to "the frequency of relapses and re-entry into the treatment system" (p.127).[41]

One of the key benefits of technology-mediated communications, in particular internet-based interventions, is the relative anonymity and privacy it offers (Young, 2012). This can help to overcome social barriers to treatment participation, allowing clients to communicate more openly with professionals about sensitive topics related to their substance use (Young, 2012; Baca et al, 2007). The issue of social stigma is particularly salient in rural environments (Baca et al, 2007).

It is clear that more "research remains to be done on the effectiveness and cost/benefits of ICTs as applied to the treatment of substance use disorders" (Johnson et al, 2011, p.394). However, Baca et al (2007) argue that the lack of substance use-specific research should not prevent service providers and policy makers from expanding telehealth for substance use, and suggest modelling services on established telemental health approaches.

B2.1   Synchronous Modalities

Contrary to the mental health-related evidence, the majority of synchronous approaches to substance use interventions referred to teleconferencing, rather than videoconferencing. The evidence suggests that these synchronous approaches can be used as an effective adjunct to in-person care for early assessment, treatment activities (such as goal setting), and aftercare. The use of these approaches is supported by Young's (2012) literature review, which suggests that substance use clients are more often satisfied with shorter interventions that incorporate synchronous communication technologies.

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[40] Refer to Section A1 (page 3) for evidence specific to different technologies.
[41] Refer to Section B3.2 (page 33) for details regarding telehealth treatment of substance use in children and youth.

One caution drawn from the literature is that that aftercare approaches that are not in-person may not be appropriate for individuals with multiple or complex substance use issues.

B2.1.1 Videoconferencing

The literature on videoconferencing in substance use interventions suggests that this is an effective approach to improving access to assessment, care and aftercare.

♦ Miller (2005) argues that videoconferencing has great potential in increasing access to early assessment and care for substance use for <u>rural populations</u>[42]; this is particularly important for clients experiencing <u>concurrent</u> substance use and <u>mental health disorders</u> who may require access to additional forms of treatment, including family therapy.[43]

♦ A case study provided in Yellowlees et al (2008a) describes the successful use of videoconferencing to support a client with substance use and <u>PTSD</u> in short-term planning for <u>suicide prevention</u>, and to facilitate ongoing <u>outpatient care</u>.[44]

B2.1.2 Teleconferencing

The evidence on the use of teleconferencing for substance use treatment and continuing care is generally an effective approach, but may not be appropriate for more complex cases. Client engagement can also be a concern.

♦ A systematic review by Leach and Christensen (2006) cite a study that found that a goal setting-based telephone intervention resulted in significantly reduced alcohol use in comparison to a traditional 12 Step program.

♦ One systematic review and one literature review conclude that continuing care via telephone can be an effective "step-down treatment for most patients with alcohol and cocaine dependence who complete initial stabilization treatment" (Hailey et al, 2008, p.774; Baca et al, 2007).

 o However, Hailey et al (2008) caution that telephone aftercare may be less appropriate for clients with concurrent alcohol and cocaine dependence who have made little progress in intensive outpatient programs; they suggest that twice-weekly group counseling sessions may be a more effective continuing care approach for these individuals.

♦ A study evaluating the use of a brief telephone intervention for hazardous alcohol consumption in <u>psychiatric out-patient</u> populations resulted in a decrease of alcohol consumption for half of the participants (Eberhard et al, 2009).

Teleconferencing as a tool for continuing care

♦ In their literature review, McKay and Hiller-Sturmhofel (2010) indicate that telephone follow-ups have been integrated into continuing care approaches to managing alcohol and other drug use disorders as a way to reach and retain clients in treatment long term.

♦ The Betty Ford Centre (BFC) offers an established example of the use of telephone-based counseling as a continuing care strategy for substance use (Cacciola et al, 2008). Cacciola et al's (2008) study indicated that participation in BFC's telephone-based Focused Continuing Care (FCC) program yielded positive client outcomes. However, the program face challenges in maintaining sustained client contact and engagement over a long time period (Cacciola et al, 2008).

 o Based on the findings from ongoing evaluation activities, the Betty Ford Clinic has implemented changes in practice including: increased use of treatment manuals throughout intervention; development of client documentation procedures; development of standardized client contact procedures for FCC calls (including the use of a client locator form and a minimum number of call attempts following missed sessions); clear communication regarding

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[42] Refer to <u>Section B4.3</u> (page 39) for evidence specific to rural and remote areas.
[43] Refer to <u>Section B1</u> (page 22) for evidence related to specific mental health disorders.
[44] Refer to <u>Section A2</u> (page 16) for details on telemental health applications across different stages of patient care.

the nature of the FCC program and the expectation of client participation following discharge throughout clients' residential stay (Cacciola et al, 2008).

B2.2   Asynchronous and Mixed Modalities

The literature specific to substance use interventions using asynchronous and mixed modalities focused primarily on internet-based approaches, but also included email; the specific intervention models covered include electronic screening, online motivational interventions, internet Cognitive Behavioural Therapy (iCBT), and client monitoring. One of the key benefits of internet-based approaches is the ongoing collection of real-time client data, which can enable clinicians to be more proactive and timely in their interventions with clients. In addition, Young (2012) found in this literature review that interventions incorporating client-initiated asynchronous communication tend to have higher participation rates than purely synchronous interventions.

B2.2.1 Email

A review of the use of therapeutic emails in substance use recovery programs found that interventions that involve dialogue between counselor and the client, such as Motivational Interviewing, are especially well suited for the incorporation of email (Alemi et al, 2007).

B2.2.2 Internet-based Approaches

- One systematic review and one literature review indicate that evidence regarding the effectiveness of electronic screening and brief motivational interventions for alcohol use delivered via the internet is lacking and inconsistent (Hester and Miller, 2006; Bewick et al, 2008). Bewick et al (2008) conclude that more RCTs are required to determine the effectiveness of online interventions and to understand which elements are crucial to positive outcomes and the engagement of both low-and high-risk alcohol users.
    - o Despite the lack of systematic evidence, the promising results on the effectiveness of existing trials leads Hester and Miller (2006) to recommend that such programs be developed for people interested in changing their drinking behaviour who are not currently in treatment.
- In their literature review, Hester and Miller (2006) cite a 12-month study on a computer-based motivational intervention protocol for problem drinkers, which achieved a significant and sustained reduction the quantity and frequency of drinking following intervention. The authors suggest that personalized feedback may have been a key motivator for behavioral change in this intervention (Hester and Miller, 2006).
- Two more recent articles, one systematic review and one discussion paper, suggest that internet-based therapy (such as iCBT) is effective tool for facilitating behaviour change and modification in persons with substance addictions (Gainsbury and Blaszczynski, 2011; Johnson et al, 2011)
- In the context of smoking cessation treatment, a literature review by Dallery and Raiff (2011) indicates that asynchronous, internet-based approaches to remote client monitoring can be an effective tool in abstinence reinforcement programs. The authors suggest that this approach can also be applied to other health-related behaviours, including the use of other substances.
- In their literature review, Cucciare et al (2009) suggest that the real-time client information collected via internet-based tools has the potential to make clinicians more proactive, enabling them to "intervene with clients who are at immediate risk of relapse or other adverse consequences" (p.3).

B2.3   Emerging Modalities

The few articles referring to emerging modalities applied to substance use interventions focus on mobile devices and online chat as adjuncts to more traditional treatment models. Mobile devices have been used for the delivery of text-based information and support, as well as client monitoring, and chat rooms offer an online space for professionally-moderated support groups.

B2.3.1 Mobile Devices and Text Messaging

♦ In their review of the potential of ICTs in the treatment of addiction, Johnson et al (2011) suggest that the portability of mobile technologies make them a promising tool for substance use clients, enabling convenient delivery of information or services, "immediate intervention and continuous access to support systems" (p.391). Mobile devices can also incorporate sensors that "can identify troubling times, geographic locations, or physical states" and offer real-time support (Johnson et al, 2011, p.394).

♦ A systematic review by Ehrenreich et al (2011) found that clients who received text-based mobile phone interventions for smoking cessation had significantly higher success in achieving abstinence. In addition to being effective, mobile phone-based interventions – including text-messaging, interactive voice response, Internet, and e-mail reminders – are associated with high retention rates (Ehrenreich et al, 2011).

B2.3.2 Online Chat

♦ A qualitative content analysis of online support groups for "problem drinkers" suggests that professionally-moderated online support groups may be an effective adjunct to traditional models of treatment for substance use (Cunningham, van Mierlo and Fournier, 2008).

B3   SPECIAL POPULATIONS

Three population groups that require additional considerations in the design and implementation of telemental health were identified in the literature: Aboriginal peoples, children and youth, and older adults. To ensure the success of telemental health interventions with these populations, the structure and content of programs and services should be adjusted to ensure that they are culturally and developmentally appropriate.

Stetz, Folen and Yamanuha (2011) argue in their discussion paper that the use of videoconferencing offers a valuable opportunity for professionals to reach individuals in need in their own communities and cultural environments, providing more accessible and cost-effective mental health services.

B3.1   ABORIGINAL PEOPLES

Articles specific to Aboriginal peoples in the review are focused exclusively on videoconferencing. The literature suggests that videoconferencing telemental health services are generally well accepted by Aboriginal communities, which often face significant barriers to in-person treatment. A key consideration for service delivery in Aboriginal communities is cultural competency; in order to enhance the validity and acceptance of services, cultural practices and knowledge should be incorporated into the structure and content of interventions.

♦ A Canadian survey and interview study of mental health workers who work with rural and remote First Nations communities indicates that there are strong benefits to extending high-quality mental health services to these communities via videoconferencing (Gibson, O'Donnell, Coulson and Kakepetum-Schultz, 2011).
  o Gibson et al (2011) emphasize the importance of cultural competency when providing telemental health care to First Nations communities. The incorporation of traditional First Nations practices, (e.g. sharing circles), beliefs (e.g. the Seven Teachings) and traditional healing activities into telemental health initiatives can help to facilitate trust, acceptance and use of the technology; this approach would also be beneficial to the community as a whole.
  o An example of this holistic approach is the Fort Chipewyan First Nations project in Alberta which has made use of videoconferencing for 'tele-spirituality' and traditional medicine (Gibson et al, 2011).

♦ A study of the acceptance of videoconferencing by rural Native American veterans found telepsychiatry was well received and seen as a reliable means to provide mental health services to this population (Shore, Bloom, Manson and Whitener, 2008b; Shore et al, 2008a).

♦ A retrospective study of videoconferencing telemental health delivered to on-reserve Native American veterans, and a study of support group services for Alaskan Native cancer survivors, found that the service had high utility in providing clinical support and follow up care, and in overcoming barriers to mental health treatment in rural communities (Brooks, Manson, Bair, Dailey and Shore et al, 2011; Doorenbos et al, 2010).[45]

   o Over time, Brooks et al (2011) found that community perceptions of telehealth improved and requests expanded to include family members in the continuum of care.

   o Doorenbos et al (2010) found that telehealth facilitated cross-collaboration and mental health support with other Native American cancer survivors in other states.

♦ A report on the use of videoconferencing by the Distance Consultation arm of the Rural and Remote Mental Health Service (RRMHS) in Australia indicates that demand for the services has increased steadily since its inception in 2006 (Alexander and Lattanzio, 2009).

♦ Another example of telemental health delivery to Aboriginal communities is the University of Colorado School of Medicine Center for Native American TeleHealth and TeleEducation (CNATT) videoconferencing telepsychiatry program. Savin et al's (2006) study of this program for Native American children found that community acceptance was high, despite expectations of resistance due to "mistrust of government initiatives and technology" (p.487).

   o Parents appreciated the convenience and comfort of being able to bring their children for care closer to home (Savin et al, 2006).

   o Local clinicians reported that the specialist consultations "helped significantly in the diagnosis and management of complicated patients and families" and reduced their feelings of professional isolation (Savin et al, 2006, p.486).[46]

B3.2   CHILDREN AND YOUTH

A range of technological modalities have been identified as being effective and/or attractive approaches for reaching children, youth and young adults with mental health and substance use issues. Videoconferencing and internet-based approaches appear to be the most established telemental health models used with this population group; however, services with incorporate emerging modalities hold a great deal of promise due to the wide-spread comfort and fluency this generation has with internet and mobile technologies.

However, the use of technology with this age cohort does not guarantee clinical success. A key consideration in the delivery of telemental health care services to children and youth found in the literature is the adaptation of content to suit their continuous cognitive, social and physical development (Siemer et al, 2011).

B3.2.1 Synchronous Modalities

The large majority of articles in the review specific to synchronous telemental health services for children and youth refer to videoconferencing. While the amount of evidence on the effectiveness of videoconferencing specific to children and youth is limited, client satisfaction and clinical outcomes are promising for both mental health and substance use.[47] Saeed et al (2011) argue in their review of telepsychiatry services in rural North Carolina that videoconferencing is a viable and effective modality for telemental health services across the life span. The maturity of telepsychiatry services for children

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[45] Refer to Section B4.3 (page 39) for evidence specific to rural and remote areas.
[46] Refer to Section A3 (page 20) for details on service models used within telemental health service delivery.
[47] Refer to Section B1 and B2 (page 22 and 29) for evidence related to specific mental health or substance use diagnoses, respectively.

and adolescents in Australia substantiates the viability of videoconferencing-based interventions (Smith, 2007).

The improved access to services within communities enabled by videoconferencing is one of the key benefits of this modality from the perspective of families; parents in rural areas, in particular, appreciate the reduced stress and cost of travelling to appointments with their children. Studies have also found that offering videoconference access to mental health services in school settings can improve mental health and substance use treatment rates.

The evidence on the use of synchronous technologies with children and youth centred around three key themes: satisfaction; effectiveness; and, benefits and special considerations.

Satisfaction

The literature suggests that children, youth and parents are generally satisfied with telemental health services:

♦ Five studies evaluating telemental health services for children and youth found high levels of satisfaction for both clients and parents (Savin et al, 2006; Myers et al, 2008; Harper, 2006; Lingley-Pottie and McGrath, 2008; Keilman, 2005).

♦ A survey of rural university students who had utilized telepsychiatry videoconferencing services as a supplement to the on-site Counseling Center found high levels of satisfaction; students reported that the service was very reliable, empowering, safe and convenient (Khasanshina, Wolfe, Emerson and Stachura, 2008).

Effectiveness

In their literature review, Diamond and Bloch (2010) caution that research on the overall effectiveness of videoconferencing for children and youth is limited, as most studies focus on adult clients. However, a number of studies and reviews have found positive results:

♦ An evaluation of the Hospital for Sick Children in Toronto's TeleLink mental health program indicates that this collaborative model to enhance care is clinically effective (Pignatiello et al, 2011).[46]

♦ An evaluation of university-based child telepsychiatry program in New York found that the program provided effective care to children across a wide range of psychological symptoms, living situations and ages (Lau, Way and Fremont, 2011).

♦ In her literature review, Miller (2005) argues that the reliability and effectiveness of videoconferencing for substance use treatment with adolescents is well supported.[47]

There is evidence to indicate that videoconferencing telemental health services can be effectively applied in educational contexts:

♦ Grady et al's (2011) literature review found that telemental health services provided in school environments resulted in increased treatment rates of mental health issues and substance use in school age children and adolescents.

♦ Khasanshina et al's (2008) study of rural university telepsychiatry services indicates that videoconferencing can achieve positive outcomes in the context of academic institutions with limited resources and high clinical demand.

Benefits and Special Considerations

♦ Harper's (2006) evaluation of a rural, team-to-team[46] interdisciplinary telemental health program for children with disabilities[47] found that parents reported telehealth sessions to be equally effective as on-site consultation, with the added benefit of lower costs and stress as a result of reduced travel.

♦ An evaluation a Nova Scotia program, called "Family Help," which provides paediatric mental health care services via teleconference, indicates that clients appreciated the privacy and convenience

offered by telephone-based session; this modality serves to alleviate feelings of stigma and marginalization, thereby improving attrition rates (Lingley-Pottie and McGrath, 2008).

♦ Diamond and Bloch (2010) note that the tendency for young children to move and crawl around the room (and potentially out of camera view) can be a concern when using videoconferencing with this age group.

B3.2.2 Asynchronous and Mixed Modalities

Internet-based approaches emerged as the primary asynchronous modality applied in interventions with children and youth. The literature suggests that this modality can achieve positive clinical outcomes, but may be less effective for children and youth than adults. Intervention models and content which have been adapted to be developmentally-appropriate for different age groups appear to be more likely to achieve significant positive clinical outcomes.

♦ Two literature reviews and one systematic review support the use of therapist-facilitated Internet-based interventions to "treat a range of mental disorder symptoms in adults and somatic health problems in adolescents" (Siemer et al, 2011, p.2; Griffiths and Christensen, 2007; Ybarra and Eaton, 2005).
   o However, Siemer et al's (2011) literature review suggests that Internet-based Cognitive Behavioural Therapy (iCBT) is less effective for children and youth than for adults, achieving only 'small to moderate' impacts on health outcomes; this may be attributable to the tendency for some programs to not adjust their methods and content to target children and youth. The authors indicate that video-based interventions have been found to be more effective (Siemer et al, 2011).

♦ Calear and Christensen's (2010) evaluation of three internet-based treatment, intervention and prevention programs aimed at children and adolescents (BRAVE-ONLINE, MoodGYM and Grip op je dip) found that the majority (80%) of participants showed improved anxiety and depression symptoms at follow up.
   o These programs were delivered through schools, primary care settings or mental health clinics, and included structured cognitive-based information and training on managing anxiety, QandA sessions, quizzes and games (Calear and Christensen, 2010).

B3.2.3 Emerging Modalities

The emerging modalities that arose from the literature as having specific applications with children and youth include: mobile devices and text messaging, online chat, networked communication technologies and video games. While evidence of the clinical effectiveness of these modalities is limited, the literature suggests that children and youth demonstrate receptiveness to, and even a preference for, these technology-mediated approaches to outreach, assessment and treatment.

Mobile Devices and Text Messaging

The literature suggests that mobile devices can be an effective method of connecting, and maintaining contact, with young people.

♦ A qualitative study of the use of mobile phone to communicate with and support students with mental health issues indicates that text messaging is a timely and effective method of maintaining regular contact, enhancing rapport, and fostering positive therapeutic relationships with young adults (Nolan et al, 2011). The study also indicates that text messaging can support the effective ongoing management of individuals' mental health condition (Nolan et al, 2011).

♦ Furber et al's (2011) study of the use of mobile phones by a youth mental health outreach service indicates that text messaging can played a significant role in quickly responding to youth and connecting them to mental health services (Furber et al, 2011).

Online Chat

A comparative study of telephone and one-on-one online chat services offered by the Dutch "Kindertelefoon" program indicates that children with severe emotional issues may prefer counselling sessions delivered via online chat (Fukkink and Hermanns, 2009). The results indicate that the children preferred the increased privacy of online chat, and experienced improved well-being and reduced severity of symptoms at following the intervention (Fukkink and Hermanns, 2009).

Networked Communication Technologies

While evidence of clinical results is limited, Martin et al's (2011) systematic review of networked communication technologies indicates that youth receptiveness and satisfaction with these modalities is high.

♦   In their literature review, Wilkinson et al (2008) cite an online communication platform, called STARBRIGHT, which incorporates online chat with "instant messaging, bulletin boards, art projects, contests and more" (p.377). The program has been used with chronically hospitalized children in Canada and the US, and has been found to result in decreased feelings of loneliness and reduced social withdrawal (Wilkinson et al, 2008).

Video Games

Video games have been used in mental health interventions with children for conditions such as aggression, panic disorder, ADHD, autism; Wilkinson et al's (2008) literature review indicates that this approach can result in reduced symptoms, improved behavioural patterns, increased social ability skills and reduced hyperactivity. Offline video game therapies may also be used in assessment and ongoing interventions with young people who have experienced psychotic episodes (Wilkinson et al, 2008).

♦   Wilkinson et al (2008) propose that online games, particularly "simple society games" and "elaborate online world," could be an effective component of interventions with youth, combining the benefits of offline gaming and online chat/interaction (p.378).

♦   In her position paper, Khandaker (2009) indicates that high-functioning autistic youth have been found to respond better to on-line video game therapy than traditional play therapy. More broadly, online video games can facilitate positive clinical results for children with a range of emotional and behavioural problems, including ADD, impulsivity, and autism (Khandaker, 2009).

B3.3   OLDER ADULTS

As the population ages over the coming decades, the increasing number of older adults with concurrent age-related mental health and substance use issues and physical co-morbidities will continue to increase the demand for care, and communication technologies offer a valuable tool for increasing the efficiency of care and expanding access (Westphal et al, 2010). The literature indicates that videoconferencing services for older adults have become relatively well-established; there is limited evidence regarding the effectiveness of asynchronous, mixed and emerging technologies, but existing research is promising.

Older adults have become accustomed to technologies that facilitate daily living activities, such as technologies that enable them to remain at home; as a result, it is reasonable to implement technologies in the treatment and monitoring of mental health issues with this population (Westphal et al, 2010). However, the effectiveness and accessibility of technology with older adults requires the integration of new modalities "with the existing web of supports and services," as well as the customization of the technology to suit older clients' cognitive and physical capacity (Westphal et al, 2010, p.513).

B3.3.1 Synchronous Modalities

The literature on synchronous telemental health technologies used with older adults captures both teleconferencing and videoconferencing:

♦ In their literature review, Richardson et al (2009) suggest that videoconferencing can have particular benefits for older adults who face barriers to access due to limited mobility and access to transportation.
   o In their study, Rabinowitz et al (2010) cite literature that indicates that videoconferencing services for older adults has been correlated with reduced ER admission rates, as well as shorter hospitalizations for patients with complex physical and mental co-morbidity.
   o A systematic review of studies on dementia care for older adults in rural areas indicates that videoconferencing is a reliable, valid and feasible tool for dementia assessment and management (Morgan et al, 2011).
♦ A study by Rabinowitz et al (2010) on the application of a videoconferencing telepsychiatry service in rural nursing homes indicates that patients and their families respond well to videoconferencing consultations, despite the patient's general lack of sophisticated knowledge or skill with technology. The technology used by facilities included in the study was modified for ease of use by individuals with visual and hearing impairments.
♦ Videoconferencing and teleconferencing has also been used effectively by with elderly veteran populations:
   o A discussion paper on US Department of Veteran Affairs telemental health services gives an overview of a videoconferencing-based suicide prevention program; although clinically effective, the service raised some unique legal and policy challenges with regard to patient safety and forcible detainment (Godleski et al, 2008).[48]
   o A study of exposure therapy via videoconferencing indicated that the service was effective in treating veterans with Post-Traumatic Stress Disorder (PTSD) (Gros et al, 2011).
   o A systematic review by Mozer et al (2008) found that telephone therapy is effective with older veterans and can overcome barriers to service, such as distance and social stigma.

B3.3.2 Asynchronous and Mixed Modalities

A literature review by Westphal et al (2010) indicates that telepyschiatry services, such as remote monitoring, internet-based therapy, email and videoconferencing, have can be effective in the treatment of older adults with dementia, mood disorders and mild cognitive impairment. The authors recommend further research and development of technology-based services for older adults.

B3.3.3 Emerging Modalities

A literature review by Preschl et al (2011) suggests that a mixture of methods including video gaming, virtual reality, and electronic reminders and resources can lead to improved outcomes for PTSD, depression and anxiety in older adults with mental health and/or substance use problems.

B4   EMERGENT AND SPECIAL APPLICATIONS OF TELEMENTAL HEALTH

This section explores three special applications of telemental health technologies: forensic consultations within hospital or correctional facilities; emergency consultations for acute interventions or large-scale disaster situations; and, service delivery within rural populations. The successful design and implementation of these telemental health applications must be responsive to the particular environmental and population characteristics and needs of the context in which they are delivered.

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[48] Refer to Addendum I of the Policy and Guidelines Addendum (page A-4) for details on legal and policy issues.

B4.1   FORENSICS

Videoconferencing technology has been applied in a number of countries, including Australia, the US and the UK, for remote consultations with inmates in hospitals and correctional facilities. The features and benefits of videoconferencing can enable "an expanded range of services, including neuropsychological and competency assessments, diagnosis, and treatment" in correctional settings (Richardson et al, 2009, p.330). Many of the forensics-focused articles referred to incarcerated youth, and indicate that this population group responds well to videoconferencing interventions.

Sullivan, Chapman and Mullen (2008) report that videoconferencing is the standard modality for forensic mental health services in the Australian judicial and health care system. However, they report that connectivity is piecemeal, and recommend the development of a more integrated network in order for the system to capture more patients/clients and underserved populations, including Aboriginal peoples (Sullivan et al, 2008).

The evidence on forensic applications of telemental health centres around three key themes: effectiveness and safety; patient and provider satisfaction; and, benefits and economics and human resources.

Effectiveness and Safety

◆ Two literature reviews and two studies indicate that the use of videoconferencing in forensic psychiatry is appropriate, and offers clinical effectiveness and reliability equivalent to face-to-face consultation (Khalifa, Saleem and Stankard, 2010; Sullivan et al, 2008; Morgan, Patrick and Magaletta, 2008; Brett and Blumberg, 2006)
   o Morgan et al (2008) report that there are no statistical differences between face to face and telehealth services with regard to perception of standards of care in forensic applications.
   o Remote consultations have also been found to be effective for juvenile inmates. Fox, Connor, McCullers and Waters' (2008) study of telepsychiatry services provided to youth in juvenile detention facilities found improvement in the youth's behavioural goals; the authors argue that there is strong evidence that videoconference consultation can contribute to reduced recidivism.
   o Myers et al's (2006) study of a US correctional facility found that 80% of adolescent inmates utilizing telehealth service were successfully prescribed medication therapy.
   o Khalifa et al (2010) caution that more studies are required in order to fully assess the effectiveness of videoconferencing in forensic applications.
◆ Clinician safety is a particular concern in forensic interventions, and videoconferencing has been identified as a safe method of conducting inmate assessments and interventions (Brett and Blumberg, 2006; Miller, 2008; Miller, 2005; Morgan et al, 2008; Richardson et al, 2009)
◆ In rural and remote facilities, the use of videoconferencing enables timely expert advice to courts regarding psychiatric assessments (Brett and Blumberg, 2006; Miller et al, 2005).
   o The on-demand nature of the technology is also beneficial in that it enables immediate diagnostic referrals in the event a defendant is believed to be in a mental crisis (Brett and Blumberg, 2006).

Patient/Client and Provider Satisfaction

◆ Three studies in correctional facilities indicate that inmates respond favourably to videoconferencing consultations (Morgan et al, 2008; Fox et al, 2008; Myers et al, 2006)
   o Fox et al (2008) found that young inmates felt more comfortable with services delivered via videoconference, and felt that the technology facilitated more focused time with the therapist, encouraging them to 'open up' during sessions.

- o Myers et al's (2006) study of US correctional facilities found that incarcerated adolescents appreciated videoconference counselling in part because it spared them the embarrassment of having to attend sessions in shackles.
    - o Richardson et al (2009) notes that videoconferencing may provide increased privacy, another factor that can contribute to client satisfaction.
- ♦ Two studies indicate that forensic clinicians and court officers are also generally satisfied with the incorporation of videoconferencing into their work flows, in part due to the flexibility and effectiveness of care and the (Brett and Blumberg, 2006; Fox et al, 2008)

Economics and Human Resources

- ♦ Studies indicate that forensic telemental health is a cost-effective alternative to traditional in-person service, primarily due to reduced transportation costs (similar to videoconferencing services in rural and remote areas) (Brett and Blumberg, 2006; Morgan et al, 2008; Richardson et al, 2009; Myers et al, 2006).
- ♦ Miller et al (2005) argue that the implementation of remote consultation could help to ease the human resource constraints caused by the high demand for forensic consultations.

B4.2   EMERGENCY SITUATIONS

Two key articles in the review highlighted the importance of remote access to emergency mental health services in rural areas and large-scale disaster situations. Having plans and infrastructure in place has significant implications for service quality and access in isolated communities, as well as the burden on acute care staff during public emergencies. There was some discussion in the literature of guidelines for telemental health services for acute patient crises and Emergency Department (ED) contexts.[49]

- ♦ Shore, Hilty and Yellowlees (2007b) contend that the use of videoconferencing for emergency psychiatric assessment and treatment can improve the quality and quantity of mental health services for rural, remote and isolated populations.
- ♦ In their case study discussion paper, Yellowlees et al (2008a) argue for the potential of videoconferencing as an effective modality in the delivery of emergency telepsychiatry in rural areas and disaster situations. They contend that the use of this approach could help to reduce burden on emergency departments on an ongoing basis, as well as mitigate the demand on acute services during public emergencies by providing a form of triage in affected communities.
    - o While rigorous research is needed, Yellowlees et al (2008a) report that emergency telepsychiatry has been "found to be safe and effective, as well as satisfactory to both emergency department (ED) staff and psychiatric patients treated" (p.277).
    - o Yellowlees et al (2008a) also suggest that the effective application of videoconferencing in emergency contexts can reduce costs in other areas of the health care system.

B4.3   RURAL POPULATIONS

Rural populations face unique challenges in addressing mental health and substance use issues. Studies in North America and Australia indicate that substance use and mental health disorder rates are typically equal to, and sometimes higher than, morbidity rates in urban areas, while access to support facilities or specialist care tends to be limited (Baca et al, 2007; Griffths, 2007; McCord, 2011; Thomas et al, 2005). As a result, telemental health is generally promoted as an effective way to extend and enhance services to underserved rural and remote communities (Keilman, 2005; García-Lizana and Muñoz-Mayorga, 2010b; Norum et al, 2007; Harper, 2006; Simms et al, 2011; Spaulding et al, 2010). The

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[49] Refer to Addendum I of the Policy and Guidelines Addendum (page A-4) for additional details on telemental health in patient crisis and Emergency Department contexts.

evidence supports this contention.[50] However, "success [in rural telemental health] is not routine" and requires a number of special considerations to meet the needs of each community (Keilman, 2005, p.98).

The review identified a number of special considerations for telemental health implementation in rural areas, as well as many specific examples of services implemented around the world.

Special Considerations

The literature suggests that there a number of considerations specific to rural context that need to be taken into consideration in order for a program to be effective. These considerations include: social stigma, population characteristics, and local infrastructure and resources.[51]

♦ Studies of rural areas indicate that there is often a strong stigma attached to mental health and substance use issues, which acts as a barrier to individuals seeking care (Griffiths and Christensen, 2007; Baca et al, 2007)
   o Baca et al (2007), for example, report that substance users in rural areas frequently do not seek care within their communities or rely on health care providers who do not have specialized training in addictions medicine (Baca et al, 2007).[52]
♦ Rural populations have other unique characteristics that need to be taken into consideration with mental health service provision: smaller populations increase the occurrence of dual relationships and social boundaries, requiring a heightened sensitivity to issues of development and family functioning; cultural awareness and knowledge particular to each local context will "influence referral and support responses;" and, the higher rate of firearm ownership "affects risk assessment and emergency management" (Richardson et al, 2009, p.330; Hilty et al, 2009).
♦ The operational and infrastructural costs of implementing videoconferencing may also act as a barrier to the development of telemental health services in rural areas (Toperczer, 2011).
   o CAREpartners of Georgia has implemented a cloud-based technology called 'Nefsis', which requires much lower hardware and software costs, to overcome this barrier (Toperczer, 2011).[53]
♦ As mentioned in the videoconferencing section (page 3), the implementation of new technologies in remote areas may serve to increase service demand and costs to the system by providing care to "patients who previously were unable to gain access to treatment" (Shore and Manson, 2005, p.980).

Specific Programs and Services

Bee et al's (2008) systematic meta-analysis of RCTs indicates that telemental health interventions in rural areas using a range of modalities – including videoconferencing, teleconferencing and web-based systems – had demonstrable positive clinical affects. A number of examples of telemental health implementation in rural and remote areas were found in the literature:

♦ A study of telemental health implementation by Alberta Health Services indicates that uptake has been positive in most rural areas of Alberta (Hailey, Ohinmaa, Roine and Bulger, 2007). Hailey et al (2007) report that telemental health accounts for just 8% of all telehealth services combined in the region, but is a sustainable and successful service. Utilization rates in Alberta were higher than in other Canadian provinces and also higher than the rates found in Finland (which has a comparable sample population) (Hailey et al, 2007).
♦ In their review of service models in rural primary care, Hilty et al (2006a) cite a UC-Davis telepsychiatry/psychology program evaluation that found videoconferencing consultations were

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[50] Refer to Section A1 (page 3) for more general evidence regarding specific technologies.
[51] Refer to Section A3 (page 20) for details on service models used within telemental health service delivery.
[52] Refer to Section B1 and B2 (page 22 and 29) for evidence on specific mental health or substance use diagnoses, respectively.
[53] Refer to Addendum III and IV of the Policy and Guideline Addendum (pages A-25 and A-27) for details on costing frameworks and baseline technical requirements.

successful in treating alcoholism, depression and anxiety; consultations increased to 120% over the first year of implementation.[50,52]

♦ An environmental survey of rural telemental health care clients and stakeholders in Texas found that clients were very satisfied with the implementation of telepsychiatry, and providers changed their perspectives on how to deliver health care to their clients (McCord, 2011). The program, co-developed by Texas AandM University, local health authorities and key stakeholders, serves as an excellent example of community collaboration in mental health care capacity building and innovation (McCord, 2011).

♦ The study of a telepsychiatry program for rural victims of domestic violence at the East Texas Woman's Shelter, found high levels of patient and provider satisfaction and a sharp reduction in mental hospital admissions and emergency room visits (Thomas et al, 2005). As a community-university partnership, this program offers another excellent example of clinical integration and community collaboration (Thomas et al, 2005).

♦ The CAREpartners of Georgia program found that rural patients, children[54] in particular, responded positively to telemental health consultation; the implementation of videoconferencing service eliminated long wait and travel times to see a psychiatrist, and allowed staff to respond and obtain care for people in crisis fairly immediately (Toperczer, 2011).

♦ The University of Hawai'i Rural Health Collaboration (UHRHC) program is an example which demonstrates the feasibility of shifting to a model in which videoconferencing is the dominant service modality, with face-to-face site visits as a supplement and reinforcement (Helm et al, 2010).

♦ A systematic review of two Australian web-based programs, MOODgym (an online Cognitive Behavioral Therapy (CBT) program) and BluePages (depression information website), concluded that both programs were effective in improve anxiety and depression symptoms, and should be included in the rural GP tool kit (Griffiths and Christensen, 2007).[50]

♦ In their review of telehealth implementation in Norway, Hartvigsen et al (2007) indicated that videoconferencing in psychiatry has primarily been used in the Northern, and primarily rural, region of the country. Expert informants from Helse Nord (the Northern Region Health Authority) indicate that telepsychiatry is well-suited for large-scale implementation" (Hartvigsen et al, 2007, p.86).

♦ A retrospective study of telemental health delivery to military personnel in a rural setting found that participants' comfort level with the videoconferencing technology and the therapeutic alliances established between provider and patient, enabled the treatment of sexual abuse, psychosis, and suicidal or homicidal ideation (Grady and Melcer, 2005).[52]

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[54] Refer to Section B3.2 (page 33) for evidence specific to children and youth.

SUMMARY

In the overall realm of telemental health and substance use services, video conferencing has been strongly established, both in practice and in the literature. To date, there have been many studies examining the use of videoconferencing across a broad range of mental health disorders with evidence collected supporting its feasibility. Videoconferencing is a robust option to extend services when face-to-face is service is not possible And, while client and provider satisfaction with this modality is mixed, acceptance is growing and there is evidence of clinical effectiveness. There has been, however, some concern noted in the literature regarding the variable quality of the clinical effectiveness, efficiency and cost evaluation research on videoconferencing; however this mostly related back to inconsistency in the indicators used in the studies.

Teleconferencing, a much simpler technology, is also well used and integrated into the clinical context as a way to extend care in a similar fashion to videoconferencing and is also heavily relied on for ongoing management and follow up care.

While less pervasive in the current literature, studies on the use of asynchronous modalities in telemental health and substance use services have shown some evidence in feasibility, suitability, and even effectiveness. The strength of these approaches has been in client satisfaction and relationship building between the client and provider. More research is needed, however, to understand how technologies like email and other internet-based approaches can augment and help deliver traditional face-to-face care and follow-up treatment.

As new technologies emerge, new opportunities in telemental health and substance use will develop. Early research on using mobile devices, networked communication technology and video gaming in telemental health in general, and in substance use in particular, has been promising. Bringing in support that can be immediate and sustained has shown to be effective for ongoing management for substance treatment. With the rapid development of these new technologies, future research will be needed to uncover the underlying principles of how to optimally implement and use these technologies in telemental health and substance use care.

The application of these technologies, especially videoconferencing, for assessment, diagnosis, treatment, consultation, and management, in general, has proven to be a viable alternative to face-to-face methods. In some cases the telemental health alternative has even increased accuracy and efficiency, while for other disorders it may not be as ideal. Practice contexts, clients and clinical tools can vary, and all of this should be kept in mind when using these technologies.

The same sentiment applies to using telemental health technologies for clinical disorders and substance use services or with special populations. While there is adequate evidence with examples to support the use of different technologies with a range of disorders, substance use cases, and special populations in particular, there is no definitive evidence or statements about how to apply telemental health technologies or the level of clinical effectiveness that could be expected overall. While the body of literature does overall show promise and possibilities, variation across individual studies makes it difficult to make overall conclusive assertions.

While the findings across the different technologies, applications, disorders and substance use contexts vary, there is an overriding principle of keeping the individual client variables in mind. Client suitability always needs to be considered when using any type of telemental health or substance use service. Policies need to align with this principle and should always be only one piece of an overall service delivery model.

POLICY AND GUIDELINES ADDENDUM

FOREWORD

The use of technologies in mental health and substance use service delivery is a growing area of interest. Although technologies such as teleconferencing and videoconferencing have been used widespread and with great success in mental health and substance use service delivery, programs and services utilizing communication technologies in these spheres are, for the most part, still developing. The policies and guidelines represented in this document have been compiled from literature on telemental health and telemedicine/telehealth more widely, and are intended to provide a conceptual framework to guide program development, implementation and delivery in the area of mental health and substance use service delivery.

Thirteen (13) Principles of Telemental Health and Substance Use Service Development and Delivery: A Change Management Framework	
Principles	**Key messages and practice points**
Principle 1. Determine the need for services and whether telemedicine is an option for meeting that need. *(see page A-4)*	♦ Neither delivery model (telemental health nor face-to-face interventions) alone can adequately constitute an entire system of care. Evidence supports telemental health (and telehealth more widely) complementing traditional service delivery models as an integrated and comprehensive system of care for clients, with either delivery mode being more dominantly used than the other depending upon needs and preferences of particular contexts.
Principle 2. Determine whether the service can be sustained long-term. *(see page A-5)*	♦ Recognize that the sustainability of a program or service is dependent, in part, on continued support (i.e. adequate funding and infrastructure) as well as cultural/organizational adoption into clinical practice.
Principle 3. Determine the client population, the model of health service delivery, and services to be offered. *(see page A-8)*	♦ Do not consider technology use in telemental health and substance use service as uniform. Some technologies serve certain diagnostic or therapeutic measures better than others depending on the disease entities, client population, or stages of management.
Principle 4. Determine the infrastructure (technical and organizational/institutional) needed to support the services provided. *(see page A-9)*	♦ Telemental health presents new challenges to practitioners in terms of technological competence, liability and malpractice. Professional training, integration or positive change in clinician workflow, along with regulatory policies such as remuneration or innovative funding formulae is necessary to overcome these challenges.
Principle 5. Determine legal and regulatory requirements and issues. *(see page A-11)*	♦ The successful conceptualization, development and implementation of telemental health programs and services needs to be guided carefully by a standardized framework of regulatory policies, practice procedures and outlined best practices. Risks and medico legal issues will need to be carefully managed.
Principle 6. Establish management strategies for the telehealth service. *(see page A-13)*	♦ Successful introduction of telemental health services needs stepwise and methodical implementation, considering the clients' suitability, health professionals' readiness, health system work flow and administration, as well as existing health policies (e.g. medico legal, funding, privacy, consent, technological comfort etc.). ♦ The actual integration of technologies in practice should be thoughtfully considered throughout the assessment, diagnosis, treatment, and follow up journey of patients/clients in the healthcare system.

Principles	Key Messages
Principle 7. Establish evaluation mechanisms, including quality and clinical outcome indicators. *(see page A-13)*	♦ Adequately evaluate outcomes, satisfaction, costs (client, referring provider, and specialist), and the program (coordinator, technical staff, and administration) to make improvements on lessons learned.
Principle 8. Foster rapport, confidence, and collaboration with staff at the client site. *(see page A-13)*	♦ Health professionals, together with clients, need to be involved and brought on side to implement and engage in telemental health effectively. Involvement of both health professionals and clients to inform telemental health policies will contribute to smooth integration of telemental health into existing services
Principle 9. Establish informed consent and assent procedures. *(see page A-14)*	♦ Informed consent needs, in the very least, needs to delineate a description of telemental health and/or substance use services; security risks and safeguards; therapeutic benefits, risks, and limitations; general ground rules; client contingency plans; and legal issues.
Principle 10. Plan and arrange the physical setting and the virtual relationship to produce an optimal client encounter. *(see page A-15)*	♦ Community and client engagement will drive increased adoption, as clients often welcome telemental health services with higher satisfaction compared to clinicians in the literature. Awareness building, consultation and in certain circumstances involving clients to co-design services, and continuous feedback are important approaches to ensure maximal client involvement towards smooth transition of services between traditional and electronic and vice-versa.
Principle 11. Determine whether youth can be interviewed alone, and if not, identify potential alternative procedures to conduct a mental status examination. *(see page A-15)*	♦ Because there are additional legal and ethical considerations, consent procedures for youth and adolescents are important to consider. As with traditional care, the consent process should involve the parent or guardian.
Principle 12. Establish procedures for prescribing medications. *(see page A-15)*	♦ There is a paucity of research and literature in the areas of prescribing medication and establishing procedures for interviewing youth in the context of telemental health.
Principle 13. Establish procedures for interim care between scheduled sessions, including procedures for emergency or urgent care. *(see page A-15)*	♦ Comprehensive assessment of potential risks and risk management planning are vital to ensure that contingencies are available when the unexpected happens. Technology failure, clinical emergencies when clients or families are in crisis are among the potential risks that need to be considered.

ADDENDUM I: GUIDELINES, POLICY AND SYSTEM ADMINISTRATION

Section 1   Principles, Guidelines and Best Practices Guiding Telemental Health Development and Delivery

The following thirteen (13) principles have been identified in the body of literature (Myers and Cain, 2008; Nelson and Bui, 2010). The principles are intended to guide the conceptualization, development and implementation of telemental health services and programs. Identified best practices and success factors are listed under each principle in an effort to systematically guide telemental health development and implementation in line with existing regulatory and legal frameworks, professional and ethical practice, and quality evidence-based clinical care.

Principle 1.   Determine the need for services and whether telemedicine is an option for meeting that need.

♦ **Need for Services:** perhaps one of the most influential predictors of successful telehealth diffusion is recognizing the need for services and understanding how telehealth can overcome existing barriers (Brooks, Manson, Bair, Dailey and Shore, 2011).

♦ **Integrating Telehealth into Clinical Practice:** the body of literature reviewed indicates that technology-based delivery models/telemental health are in a position to enhance traditional delivery models (e.g., face-to-face settings), but not replace the delivery of health care (Pignatiello et al, 2011). Telemental health (and telehealth more widely), together with traditional service delivery models will constitute an integrated and comprehensive system of care for clients, with either delivery mode being more dominantly used than the other (Miller, 2005; Gorini, Gaggioli, Vigna and Riva, 2008; Helm, Koyanagi, Else, Horton and Fukuda, 2010; Sulzbacher, Vallin and Waetzig, 2006; Ybarra and Eaton, 2005; Pignatiello et al, 2011). Telemental health is not just an alternative to traditional care, but also provides the opportunity to address specific problems in care delivery as an integral part of the mental health system (Thomas, Miller, Hartshorn, Speck and Walker, 2005).

♦ **Provision of Technologies in Health Care:** Communication technologies are rapidly changing the patient-provider relationship; a more collaborative relationship is necessary ("participatory medicine") and smart, user-friendly platforms are needed to facilitate this shift. With specific consideration for the development and provision of technologies, two guidelines should be followed: 1) the complementarity principle – computers do well what humans do badly, and vice versa; 2) it is essential to redesign business processes before introducing or developing new software environments (Yellowlees and Nafiz, 2010).

♦ **Time Commitment:** there is a need for more realistic time allotment for the project, in particular for the development of mature proposals and for the development of an administrative infrastructure of the project selected for funding, as well as for attainment of maturity of project specifications and design and the accompanying evaluation. Projects of this complexity should be allotted at least 5 years, including at least one for preparation, planning and thorough assessment of needs (Moehr et al, 2006).

♦ **Service-Environment Match:** it is considered best practice to match the intervention/service to the appropriate environment e.g., rural/urban etc. (Hilty, Nesbitt, Kuenneth, Cruz and Hales, 2007). On a larger scale, one must determine how much benefit the service will bring to the population (Hilty et al, 2007; Moehr et al, 2006; Cash, 2011).

♦ **Service-Patient Match:** clinical practice improves by being patient-focused (Leavey, Flexhaug and Ehmann, 2008). Therefore, one must ensure that patients' clinical needs can be met through this type of service and is flexible enough to be tailored to meet patient needs (Leavey et al, 2008; Hester

and Miller, 2006). One study suggests that the effectiveness of telemental health initiatives may be tied to interpersonal connectedness, alternative problem solving, and referral to appropriate services, all of which necessitate flexibility and adaptability to meet patients' needs (Krysinska and De Leo, 2007). The need for flexibility appears critical for the successful implementation of telemental health (Brooks et al, 2011; Krysinska and De Leo, 2007; Shore et al, 2012).

Principle 2.   Determine whether the service can be sustained long-term.

P 2.1   Multistage Implementation

The proper implementation of a program may determine its success in the long-run. It is crucial to recognize that implementation is an ongoing multistage process that will include barriers and resistance to change (Gotham et al, 2008). In order for an implementation to be successful, implementation and re-evaluation of a service or program must continue at each stage of implementation (Gotham et al, 2008). The reviewed literature recommends several implementation models, one specific to rural populations:

Guidelines for Program and Service Development

The following six principles are the groundwork for a holistic framework for the development of eHealth technologies: 1. eHealth Technology Development is a Participatory Process; 2. eHealth Technology Development Involves Continuous Evaluation Cycles; 3. eHealth Technology Development is Intertwined With Implementation; 4. eHealth Technology Development Changes the Organization of Health Care; 5. eHealth Technology Development Should Involve Persuasive Design Techniques; 6. eHealth Technology Development Needs Advanced Methods to Assess Impact (van Gemert-Pijnen et al, 2011).

Implementation Models

Stages of implementation: 1) exploration and adoption, 2) program installation, 3) initial implementation, 4) full operation, 5) innovation, 6) sustainability (Gotham et al, 2008).

♦ ***Implementation model for rural application:*** 1) needs identification, 2) infrastructure survey, 3) partnership organization, 4) structure configuration, 5) pilot implementation, 6) solidification. This model was created specifically for use with Aboriginal populations, but can be applied to service development with other populations. This model was developed to implement and sustain a telepsychiatry service, but can be used across all areas of mental health (Shore and Manson, 2005).

A User-Centered Telemental Health Program Development Model

Bae et al (2009) developed a user-centered telemental health program in four phases:

1) Needs Assessment – literature review and scale development; study of existing websites; = community and clinical surveys to establish needs for depression management.

2) Analysis – expert panel prioritized information needs and identified solutions; intervention content; pilot testing.

3) Development – identification of user culture, interface needs, task analysis; integration of web content, task requirements, and interface design; pilot testing with representational cases and usability heuristics.

4) Application Release – rollout of application to targeted audience; ongoing evaluation of use patterns and application efficiency. This development model is built on feedback processes, where each phase feeds into and informs the next (Bae et al, 2009).

Phases in a Telehealth Program Start-up

1) Facilitation - drafts the initial vision and outcome expectations documents for the telemedicine and telehealth program, aimed at providing the outside consultant with local information and perspective.

2) Consultation - helps design the telemedicine and telehealth program; lists and prioritizes key tasks including the recruitment of a permanent director.

3) Recruitment - recruitment of the permanent director for the program. The director typically becomes a "champion" for the program, although this role should be shared with key government officials and high profile community leaders. There are many other possible candidates for the "champion" role.

4) Planning and Implementation - move from concept through start-up and ramp-up of the new telemedicine and telehealth organization (Weinstein et al, 2008).

Recommendations

The literature and above models provide evidence that for successful implementation, pilot studies should be carried out to assess the value of the proposed system (Sokol and Car, 2006; Gotham et al, 2008; Shore and Manson, 2005 Cartreine, Ahern and Locke, 2010; Saeed, Diamond and Bloch, 2011). Also, conduct a thorough needs assessment in the region that the program is planning to serve (Hilty, Yellowlees, Sonik, Derlet and Hendren, 2009).

P 2.2   Sustainability

A telemental health service or program can have successful implementation, but a successful implementation alone will not guarantee the program's long-term success. The body of literature indicates that the sustainability of a program or service is dependent, in part, on continued support as well as cultural/organizational adoption into clinical practice.

Continued Support

The sustainability of telemental heath programs is dependent not only on adequate funding and infrastructure,[55] but also strong support by state-level staff, contracting with an external purveyor for ongoing technical assistance at the agency level as well as training of front-line clinicians, and an implementation team comprised of stakeholders at multiple levels. It is critical to recognize that successful and sustainable telemental health programs require continuing support (Gotham et al, 2008).

Fostering Cultural Adoption and Utility in Clinical Practice

Fostering cultural adoption and utility in the workplace will ensure sustainability of the telemental health service in the long-run. There must be specific consideration for staff attitude and buy-in, achieving e-competence (i.e. technological competence) through professional training, and educating professionals about cultural recognition and appropriateness.

P 2.3   Maximizing Utility in Clinical Care

For successful adoption, telemental health services must be integrated into current processes of delivery and routine procedures make it natural for clinicians to give care in the new way (McGinty, Saeed, Simmons and Yildrim, 2006). Telehealth applications must be planned carefully so that staff perceives them as useful in their work, as improving access to and quality of care, and as having a successful outcome (McGinty et al, 2006; Marks and Cavanagh, 2009). Telemental health specifically must be seen as a mode of service provision similar to primary and specialized health care rather than as a technical tool (Vuononvirta et al, 2009; Ohinmaa, Roine, Hailey, Kuusimäki and Winblad, 2008) and is implemented in such a way that overcomes workflow challenges (Gregory, Alexander and Satinsky, 2011). This will ensure that the services are adopted easily in health-care service delivery and will ultimately foster expansion of telemental health applications in the health-care system (Ohinmaa et al, 2008).

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[55] Refer to Principle 4, P 4.1 and P 4.2, page A-9.

P 2.4   Staff Attitude and Buy-in

There is wide agreement in the body of literature that provider attitude, acceptance of and willingness to use technology-based tools constitute a barrier to the uptake of telemental health services in clinical practice (Hester and Miller, 2006; Jones, Leonard and Birmingham, 2006; Khalifa, Saleem and Stankard, 2008; Vuononvirta et al, 2009). However, there is disagreement as to whether provider attitude and acceptance is a definite barrier to telemental health adoption (Vuononvirta et al, 2009). Regardless, provider attitude and acceptance of technological tools needs to be address if telemental health delivery is to be successful and services sustained. Resistance to change (from individuals and organizations), lack of experience or training, fear of technology, concerns about the effect on communication, the building of relationships, and confidentiality are some of the barriers that need to be overcome (Jones et al, 2006; Gregory et al, 2011; McGinty et al, 2006). Efforts must be taken to promote telemental health concepts, technologies and practices and increase both manager and clinician buy-in in order for these delivery models to be successful (Saeed et al, 2011). The literature recommends that program staff and managers take into account the diverse attitudes of health professionals, because different people require different actions to adopt telehealth in their work (Vuononvirta et al, 2009).

P 2.5   Achieving e-Competence through Professional Training

Technical Know-How

It is important for clinicians to be aware that competence in telemental health services will require considerably more knowledge of electronic communication portals than that used in traditional practice. Professional training is needed in telemental health technologies and practices to ensure that clinicians understand how to use the technology, feel comfortable using the technology and feel competent to delivery proper care using these technologies (Harris and Younggren, 2011; Nelson and Velasquez, 2011; Simms, Gobson and O'Donnell, 2011; Thara, John and Rao, 2008; Miller and Nelson, 2005; Miller, 2006; Gregory et al, 2011; Hilty et al, 2009; Fraser, 2009; Pignatiello et al, 2011). There is evidence that standardized and ongoing training (e.g. tech 'refreshers') can reduce barriers to telemental health adoption, especially uptake and perceptions of effectiveness (Simms et al, 2011).

Applied Know-How

Clinicians would further benefit from academic instruction, professional training or collaboration with researchers in how best to apply clinical knowledge and expertise within technology-based delivery models (Abbott, Klein and Ciechomski, 2008; Midkiff and Wyatt, 2008; Finn and Bruce, 2008; Shore, Thurman, Fujimani, Brooks and Nagamoto, 2011; Cartreine et al, 2010; Saeed et al, 2011; Hilty et al, 2009; Thomas et al, 2005; Pignatiello et al, 2011). This type of training would be valuable in helping professionals develop skills in telemedicine, improving access to competent, knowledgeable care, and setting standards to improve the quality of mental health and substance use care for clients (Shore et al, 2011; Fraser, 2009). For example, clinicians need to be adequately trained and able to communicate knowledge, empathy and positive reinforcement and encouragement to clients (Abbott et al, 2008; Midkiff and Wyatt, 2008). Along with formal training, it is recommended that professionals stay current with the literature and conduct competent chain analyses (Koons, 2011).

Addressing patient/client acceptance

Even with decreased travel time and expenses, some clients may have a preference for in person care and may not accept the use of telemedicine for care delivery. Providers should be aware of this, acknowledge these concerns and provide ample education to both clients and staff (Gregory et al, 2011). Clients, as well, must perceive technology as increasing access to care, improving the quality of care and as having a successful outcome (McGinty et al, 2006).

P 2.6   Increasing Cultural Recognition and Appropriateness

Certainly at the development level, telemental health programs need to consider cultural norms and strategies around non-verbal cues such as body language, posture, facial expression and eye contact (Wynchank and Fortuin, 2010). However, these same considerations are needed at the clinical service delivery level. The literature stresses the importance of educating professionals about and establishing practice standards around cross-cultural recognition and cultural appropriateness e.g., language, social class, culture/religion etc. (Koocher, 2009; Savin, Garry, Zuccaro and Novins, 2006; Yellowlees, Marks, Hilty and Shore, 2008b; Kriechman, Salvador and Adelsheim, 2010; Leavey et al, 2008; Fraser, 2009). Practitioners must be aware of the cultural impact on clinical process and cultural adaptation of the client site (Shore et al, 2012). This is no less true of rural application, where cultural appropriateness, geographic isolation and cultural factors unique to rural communities must be considered when planning technology-enabled rural mental health services and programs (Yellowlees et al, 2008b) or when clinical care is focused on children and adolescents (Leavey et al, 2008). This type of training is of particular importance to telehealth service delivery as clients may access a wide range of professionals with different backgrounds (Savin et al, 2006).

Principle 3.   Determine the patient population, the model of health service delivery, and services to be offered.

P 3.1   Defining the Target Population and Service Delivery Model

Service Definition

The first step in any telemental health endeavor is to define what you want to do and how you will do it. This process is essentially business planning: determining what services will be offered, to whom they will be offered, and the technology used to offer them. There should be specific consideration for:

a) Under which clinical application will your service fall (assessment, treatment etc.)?

b) Will the services provided include diagnoses or prescriptions?

c) What is the client population (e.g. patients with schizoaffective disorder or major depression)?

d) Will you be providing consults to general clinicians/hospital emergency departments during hours when the appropriate professional is in the hospital? (Cash, 2011).

Determine Patient/Client Suitability for Delivery Model

Providers must recognize that patient needs (clinical and communication needs) may be different depending on the delivery model and that not all clients are suitable for telemental health services – and not all telemental health services are suitable for all individuals. Providers must exercise a high degree of care when determining whether individuals are suitable for technological interventions versus traditional models and must assess client suitability prior to implementation or delivery (Mozer, Franklin and Rose, 2008; Marks and Cavanagh, 2009; Abbott et al, 2008; Yellowlees, Burke, Marks, Hilty and Shore, 2008a; Harwood et al, 2011; Hilty et al, 2009). Providers may require additional training or exposure to research evidence on what client characteristics make telemental health a suitable intervention (or not). Client characteristics such as, mental and physical health status, type or severity of mental health disorder or substance use, experience/comfort with technology, access to technology, age and level of trust should be considered when assessing an individual's suitability for the delivery model (Abbott et al, 2008; Simms et al, 2011; Gournaris, 2009; Godleski, Nieves, Darkins and Lehmann, 2008).

The following best practices are important to consider when determining whether the provision of telemental health services for the client is consistent with good ethics and practice standards:

1) Service is provided in the context of an existing treatment relationship;

2) The location of the client makes access to in-person treatment difficult;

3) Remote practice offers practical advantages over in-person service; and,

4) The client has made an informed choice to undergo remote treatment (Harris and Younggren, 2011).

One specific method of determining client suitability for the delivery model is to utilize a clinical coding mechanism. This mechanism suggests coding and matching technologies with client needs; for example, technical/technological application and clinical confidence recommendations based on the literature/evidence (Grady et al, 2011).

Principle 4. Determine the infrastructure (technical and organizational/institutional) needed to support the services provided.

P 4.1 Technical: Appropriate Equipment and Technological Specifications

Technology Selection

To ensure an efficient intervention using telehealth, providers must identify a suitable technology for the type of service they intend to provide (Thara et al, 2008). Technology selection will be dependent on the larger infrastructure/network needs, availability, cost and other factors.

Infrastructure Development/Integration

The development of telemedicine systems in Nordic countries shows that a directed, systematic government policy aiming to increase investment in technology for health care can be successful in integrating telemedicine into a larger electronic records system and can enhance networking and collaboration within the health-care system (Ohinmaa, 2006).

Infrastructure Integration

The explicit provision of a communication infrastructure among all funded projects would enable a sustainable provision of the developed services, as well as their ultimate mutual integration (Moehr et al, 2006).

P 4.2 Organizational/Institutional: Stakeholder Engagement, Leadership and Care Coordination

Inter-Organizational Engagement: A Network of Organizations/Systems

System Coordination

The literature points to the importance of formal and informal care coordination within and between medical systems of care for clients. Increasingly, electronic medical record serves as important communication tool for care coordination (Shore et al, 2012). An understanding of workflows and preferences of stakeholders in an application domain beyond the mere medical issues and skills is important for successful coordination (Moehr et al, 2006).

Organizational Collaboration

The optimal approach to telemental health implementation appears to be one that is team-based and highly inclusive in the full involvement of stakeholders (Saeed, 2011; Shore et al, 2012). In short, multi-organization collaborations are essential, possible, and desirable. The right configuration of organizational partners is critical with clear roles, responsibilities, and processes of communication. Overall administration structure needs to be consistent and efficient but with enough flexibility to meet the needs of individual client sites and of the stakeholders involved (Shore et al, 2012; Moehr et al, 2006). Successful service delivery is dependent on integrating telemental health services into existing health-care programs (Thomas et al, 2005). Also, the formation of regional consortia to pool expertise and develop practice guidelines is a practical and beneficial strategy (Saeed et al, 2011).

Urban-Rural Care Coordination

Successful utilization has been documented in service models that encourage urban clinicians to develop continuing relationships with rural clinicians as well as provide direct services. This type of service model is useful in improving the distribution of clinical expertise (Pignatiello et al, 2011) as well as for providing skills and supporting isolated rural clinicians (Starling and Foley, 2006).

Engaging (Rural) Community Stakeholders

In rural service delivery, community needs assessments are important as is engaging community stakeholders early on in program development. Engaging community stakeholders such as churches, schools, law enforcement, and the judicial system will help to reach those families who likely require services (Wendel, Brossart, Elliott, McCord and Diaz, 2011; Helm et al, 2010; Shore et al, 2008b). Fostering a relationship between organizations providing telepsychiatry services and the community in which these services are located is as important as the provider-patient relationship (Shore et al, 2008b).

Intra-Organizational Engagement: A Network of Teams

Organizational Barriers

The absence of local/site champions, along with other administrative and organizational processes (difficulties with reimbursement, concerns regarding changes to referral processes and practice routines) have been identified as possible barriers to the uptake of telemental health (Hailey, Ohinmaa and Roine, 2009). There is evidence that strong leadership and ongoing communication can be an asset in leading projects of this magnitude to success (Moehr et al, 2006).

Organizational Assessment

Organizational factors including organizational readiness to change affect implementation and can be directly addressed (Gotham et al, 2008).

Collaborative Implementation

An implementation team should be comprised of stakeholders, staff and change agents at multiple levels (Gotham et al, 2008; Thara et al, 2008). Support of upper-level staff, including firsthand experience with instruments and processes being implemented, is important for widespread acceptance. Focusing implementation efforts at individual staff, agency, and system levels increases efficiency and smoothness of implementation (Gotham et al, 2008). Informal evaluation in one study suggests that primary care staff appreciate the education, support and guidance in working with very difficult or complex situations (Pignatiello et al, 2011).

Success Factors for Implementation

At the site level, common denominators of successful telemental health programs include: mutual incentives for primary care and specialty partners (e.g., improved quality of care); commitment from physicians, staff, and administration to pursue telemedicine and alternate modes of consultation; systematic or multiple interventions that meet the needs of the site; a system approach for the primary-care system to monitor the flow of patients and measure outcomes; and consultants who are able to bridge the differing approaches that may be unique to rural primary care and urban academic settings and to specific cultural groups (Hilty et al, 2006a).

Engaging Local/Site Champions

The initiation and maintenance of successful telehealth activity requires local champions and collaborators to lead programs and encourage health-care professionals to use telemental health in their daily practice (Ohinmaa et al, 2008; Hilty et al, 2009; Shore, 2007; Thara et al, 2008).

Principle 5.   Determine legal and regulatory requirements and issues.

P 5.1   Regulatory Requirements: Policies, Guidelines and Codes of Practice

Best practices of applied telemental health call for telemental health guidelines, policies and codes of practice to be integrated into a framework of existing standards, regulations and policies, with (national) government guidance and regulatory institutions (Nelson and Velasquez, 2011; Paing et al, 2009; Midkiff and Wyatt, 2008; Moehr et al, 2006). According to best practices identified in the literature, a national governance structure would be the optimal platform for providing the strategic and operational direction towards supporting and sustaining telehealth initiatives (Shearer and Macaulay, 2005; Nelson and Velasquez, 2011; Paing et al, 2009; Midkiff and Wyatt, 2008; Weinstein et al, 2008). It is recommended to review existing policies and guidelines and incorporate new procedures tailored specifically for telemental health services (Gournaris, 2009; Harris and Younggren, 2011).

The development of comprehensive and standardized guidelines is necessary to ensure adequate care and to improve the efficacy of the telemedicine client examination (Yellowlees et al, 2008a; Wynchank and Fortuin, 2010; Ybarra and Eaton, 2005; Helm et al, 2010; Hailey et al, 2009; Kriechman et al, 2010; Gregory et al, 2011). These guidelines are critical when considering telehealth service delivery and need to be established at the outset of a program (Miller, 2005; Moehr et al, 2006) Establishing an evidence base and quality improvement guidelines will ensure conformity with best practices in telemental health services and will inform future guidelines. (Myers and Cain, 2008; Gournaris, 2009)

Guidelines must consider a range of administrative, clinical and technical issues. Guidelines should outline roles, responsibilities, communication, and procedures in the following areas (Yellowlees, Shore and Roberts, 2010; Gournaris, 2009; Gregory et al, 2011; Finn and Bruce, 2008):

♦ **Standard operating procedures and protocols** – licensing/jurisdictional practice regulations, billing, client rights, quality improvement/performance management, liability;

♦ **Clinical specifications** – standard of care, professionalism, adequate and continual education and training, client education, client assessment, client selection criteria;

♦ **Guidelines addressing general telemental health practice issues** – consult request data, cultural competency, technological guidelines, client education, administrative procedures;

♦ **Psychiatric emergencies** – emergency protocols/procedures and determination of roles and responsibilities, legal requirements around reporting safety concerns to local authorities, civil commitment regulations, clinician control over situation and client safety;

♦ **Guidelines for special groups/populations** – children, elderly populations, Indigenous populations, rural populations;

♦ **Ethical considerations** – ethical statements, client rights and responsibilities, resolution processes, conflict of interest, privacy and confidentiality, informed consent;

♦ **Technical specifications** – transmission speed and bandwidth, image store/retrieval;

♦ **Physical location/room requirements** – room set-up, room lighting, backdrop, ergonomic; and

♦ **Administrative issues** – technical readiness of organization, policy related steps.

P 5.2   Legal Requirements: Licensing, Jurisdictional Practice and Professional Liability

The shift from traditional face-to-face delivery models to virtual or remote delivery models is associated with new legal challenges for professionals. Existing regulations around licensing and jurisdictional practice are becoming increasingly blurred with the utilization of cross-border application and the diverse professional responsibilities in health-care settings, and registration and liability requirements that vary between different states and countries present unique challenges and barriers to the implementation of telemental health services (Ohinmaa, 2006; Barlas, 2010; Paing et al, 2009). In addition, technological failure and the delivery of inadequate care comprise new areas of liability and

malpractice for health care professionals who utilize these service models (Sullivan, Chapman and Mullen, 2008).

Licensing and Jurisdictional Practice

Licensing Requirements

It is pertinent that providers and professionals are familiar with and understand regulations (pertaining to licensure, involuntary detainment, commitment proceedings, practice limitations etc.) at all levels (local, regional and national) and must act within the jurisdiction within which they are licensed and practicing (Sullivan et al, 2008; McGinty et al, 2006; Barlas, 2010; Gregory et al, 2011; Fraser, 2009). Clinicians must understand and stay abreast of relevant regulations and laws when offering telehealth services that often transcend jurisdictions; failing to do so, may result in legal issues for clinicians (Mozer et al, 2008; Gournaris, 2009; Godleski et al, 2008; Harris and Younggren, 2011; Koocher, 2007; Griffiths, 2009; Cash, 2011; Miller, 2005; McGinty et al, 2006; Fraser, 2009).

Strategies for Licensing

The application of telemental health across jurisdictions creates a dilemma for licensing and this dilemma has been largely unaddressed in the literature (Richardson, Frueh, Grubaugh, Egede and Elhai, 2009). However, discussions around potential strategies to mitigate this dilemma were presented in several articles. One option is to allow licensing boards to take a more flexible position and to examine complaints and/or legal issues on a case-by-case basis. For example, boards would look at professional's compliance with and competence to practice within the standards developed by various external bodies for remote and interstate practice as well as assess whether the interventions were well managed and administered. (Harris and Younggren, 2011)

Another strategy has been to either allow temporary service provision across state boundaries or to mandate professionals to be licensed in the jurisdictions captured by cross-border service provision (Harris and Younggren, 2011; Holmes, 2008; Miller et al., 2005; Myers and Cain, 2008; Nelson and Bui, 2010). Along those lines, states may adopt professional licensure to permit distance therapy across state lines or professional certification for distance therapists (Cartreine et al, 2010). Some authors suggest that the implementation of telemental health services appear to be confined to larger mental health service organizations and networks, which are typically governed by pre-existing standards of professional and ethical practice, including professional codes of conduct (Richardson et al, 2009). While others simply call for more uniform policies around licensing and credentialing that develop ways to overcome these issues (Barlas, 2010). However, the bottom line issue is and must be how the client is protected (Fraser, 2009).

Special Considerations for Aboriginal Populations

It is important for clinicians to understand the jurisdictional and state regulatory matters that determine the relationships between Aboriginal/First Nations communities and the regional government, as this relationship will determine what mechanisms of civil commitment (e.g., licensure, initiation of commitments and the commitment process) are employed in any given community. Clinicians should familiarize themselves with the history of sovereignty and civil commitment legislation as well as the history, social and cultural contexts of the specific community/communities in which they work (Shore et al, 2008b).

Professional Liability and Malpractice

Providing Good Clinical Care

Prior to utilizing telemental health services, clinicians must decide whether the delivery of good clinical care and benefit to the client is possible (Cash, 2011; Perry, Beyer and Holm, 2009). The practitioner should have some reasonable basis for confidence that the services rendered will prove effective and should take steps to monitor the client's progress as a way of ensuring a successful outcome (Koocher, 2007). Best practices outline that clinicians should specifically discuss their planned services with the

client and confirm mutual agreement to the terms in written form. There must be clear agreement surrounding the clinical and administrative responsibilities; in addition, the agreement should cover all of the usual issues discussed in a therapeutic contract (e.g., access to the practitioner, billing, and what to do in emergencies) and should state by mutual consent what jurisdiction's laws will apply (Koocher, 2007; Kriechman et al, 2010). An outlined and mutual understanding will contribute to ethical practice and ensure that clinicians are answerable for the quality of telemental health services that they deliver and will help to mitigate professional liability issues such as abandonment or negligence (Kanapaux, 2005; Miller, 2006; Koocher, 2007; Helm et al, 2010).

Strategies to Minimize Liability

The risk of liability issues can be further minimized by using sound clinical judgment regarding client selection, recognizing the limitations of telemental health practice and adjusting clinical care accordingly, by conducting assessment using established elements of face-to-face assessment, and by planning for contingencies in the case of technological interruption or dangerousness of the client (Godleski et al, 2008; Gregory et al, 2011).[56]

Liability/Malpractice Coverage

There is historical resistance by malpractice insurance carriers to cover telehealth (Miller, Clark, Veltkamp, Burton and Swope, 2008). Therefore, prior to utilizing telehealth/telemental health services, it is pertinent that professionals clarify liability/malpractice issues related to client consultation and clinical responsibility with their employers/insurers and whether their work is covered by indemnity (Khalifa et al, 2008; Miller, 2005; Gregory et al, 2011; Fraser, 2009; Sullivan et al, 2008; Paing et al, 2009). It is recommended that a contract be drawn to ensure that all involved are aware of and comfortable with their legal responsibilities (Kriechman et al, 2010).

Principle 6.   Establish management strategies for the telehealth service.

There is a need for further review/synthesis of the literature to establish best practices relating to management strategies for telehealth service. Research unearthed thus far suggests that the following management tasks are essential to ensure an efficient intervention using telehealth: establishing peripheral delivery (telepsychiatry) centers and ensuring case documentation and accountability (Thara et al, 2008).

Principle 7.   Establish evaluation mechanisms, including quality and clinical outcome indicators.

Program evaluation is an important success factor to not only gauge effectiveness, but to make improvements based on lessons learned. There is a demonstrated need to adequately evaluate outcomes, satisfaction, costs (client, referring provider, and specialist), and the program (coordinator, technical staff, and administration) (Hilty et al, 2009).[57]

Principle 8.   Foster rapport, confidence, and collaboration with staff at the patient/client site.

P 8.1   Inter-professional Consultation and Collaboration

Seeking Team Consultation and Validation

It is integral that clinicians form good working relationships in order to successfully implement telemental health services (Hilty et al, 2006a). Consultation, support, validation and problem solving

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[56] Refer to Principle 13, P 13.2, page A-15.
[57] Refer to Addendum II. Data Collection Frameworks and Indicators for Evaluation (page A-23) for outlined best practices.

from other staff at the client site can greatly enhance the effectiveness of telemental health service delivery, and may, in certain cases, be crucial to delivering effective clinical care (Koons, 2011; Harris and Younggren, 2011). Consultation with colleagues supports the decision to engage in this type of practice was reasonable and consistent with what others would have done under similar circumstances, which may lead to more consistent/standardized clinical practice in the long-term (Harris and Younggren, 2011).

Program Consultation

There should be regular program consultations to discuss clinical, program-wide and community issues. As well, it is important to establish an overall framework of Quality Standards Program of clinical activities, which includes the creation of modules and processes, targeting specific selected components, collating and circulating findings to the program, consultants and stakeholders, and making necessary adjustments (Pignatiello et al, 2011).

Principle 9.   Establish informed consent and assent procedures.

P 9.1   Informed Consent

There is some debate as to whether therapy delivered via teleconferencing is so fundamentally different from face-to-face consultation that it requires informed consent (typically not required for phone or in-person therapy) (Hilty et al, 2009). Although, some provider's argue that professionals should consider the limitations of telepsychiatry and whether written consent should be required for participation (Jones et al 2006), the literature largely points to the need for and importance of obtaining informed consent from clients prior to utilizing telehealth and telemental health services (Khalifa et al, 2008; Baker and Bufka, 2011; Norman, 2006; Ybarra and Eaton, 2005; Gournaris, 2009; Gregory et al, 2011; Hilty et al, 2009; Tschirch, Walker and Calvacca, 2006; Fraser, 2009; Midkiff and Wyatt, 2008). Obtaining informed consent is especially important when providing telemental health services as there is a greater risk for miscommunications or misunderstandings that may be experienced negatively by the client and potentially construed as abandonment or negligence (Baker and Bufka, 2011) and is pertinent for ethical practice (Midkiff and Wyatt, 2008). Informed consent is not a one-time thing, it should be performed continuously. (Gournaris, 2009)

Process of Informed Consent

Informed Consent needs to, in the very least, delineate the following:

♦ **Description of telemental health services:** explanation of how telehealth services differ from traditional (face-to-face) delivery models; technology requirements for participation; review of fees and incidental charge rates for different communication types.

♦ **Security risks and safeguards:** anticipated limits to confidentiality (e.g. potential risks of unsecured communication); encryptions methods; storage and access to client information; possible safeguards; develop a procedure for verifying the client's location during each session (e.g., ensuring the identity and age of participants with photo ID, for licensure purposes, parental consent, policies for minors etc.); privacy of the therapist (forwarding emails etc.) disclosure of whether recording will take place (and obtaining client consent prior to dissemination of those recordings).

♦ **Therapeutic benefits, risks, and limitations:** the therapeutic consequences of the lack of non-verbal cues and possible difference in interpretation; potential risks, drawbacks and benefits of the available treatment options; what they can expect from therapy (e.g. frequency of contact, amount of information shared, etc.).

♦ **General ground rules:** client's right to withdraw consent without affecting access to care; methods and policies for offline and between-session communication; process for termination of the professional relationship; appropriate expectations, including turnaround time.

♦ **Client contingency plans:** possibility of technology failure and alternative procedures; emergency procedures; availability for emergencies on weekdays, evenings and weekends; client's understanding of provider's location, license information and training/qualifications.

♦ **Legal issues:** description of provider's legal reporting requirements; complaint procedures; understanding and disclosure of which state or board regulated consent rules and regulations apply to the client's care. (Cash, 2011; Abbott et al, 2008; Barnett, 2011; Baker and Bufka, 2011; Miller, 2005; Saleem, Taylor and Khalifa, 2008; Ybarra and Eaton, 2005; Kriechman et al, 2010; Gournaris, 2009; Dallery and Raiff, 2011)

Principle 10. Plan and arrange the physical setting and the virtual relationship to produce an optimal patient/client encounter.

The literature suggests careful planning of the location, equipment, infrastructure and room set-up as it can greatly enhance the quality of clinical interaction (or decrease the quality) and increase the willingness of clients to utilize these service models (or decrease their willingness) (Jones et al, 2006; Thara et al, 2008).[58]

Principle 11. Determine whether youth can be interviewed alone, and if not, identify potential alternative procedures to conduct a mental status examination.

There is limited literature surrounding interview procedures for children and youth. The body of literature does not identify specific guidelines or best practices for interviewing children or youth within the scope of telemental health delivery. Rather, the literature indicates that consent for treatment by telemental health services should involve the parent or guardian, as with usual care (Hilty et al, 2009).[59] Consent procedures for youth and adolescents are important to consider in clinical care settings, as there are related legal and ethical considerations. This is an area that warrants future study/research.

Principle 12. Establish procedures for prescribing medications.

Very few studies addressed prescribing medications in the context of telemental health service delivery. Only one study raised issues around prescribing for clients who have not been seen in person (Sullivan et al, 2008). The body of literature does not identify guidelines or best practices for prescribing medications within the scope of telemental health delivery. It is, however, an important procedure to consider in clinical care settings. This is an area that warrants future study/research.

Principle 13. Establish procedures for interim care between scheduled sessions, including procedures for emergency or urgent care.

The benefit of telemental health is that it can provide efficient and near instantaneous access to information that is not limited to conventional business hours. This is important because crises frequently emerge in the absence of healthcare providers and technology-based applications can provide solutions when conventional resources are not available (Luxton, June and Kinn, 2011). Assessment procedures and protocols must be in place to deal with emergencies and should be established at the beginning of a therapeutic alliance between a client and professional (Norman, 2006; Mozer et al, 2008; Miller, 2005; Fraser, 2009; Mehta and Chalhoub, 2006). The emergency protocols should offer a clear delineation of roles and responsibilities as well as determine the "tipping point" for emergencies when other staff and resources are brought in to assist. As well, the protocols should specify contacts for handling and after hours emergency coverage procedures (Shore, 2007; Shore et al, 2008b), and if necessary, links to local services and emergency local health care contacts (Fraser, 2009).

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[58] Refer to Addendum IV. Baseline Technical Requirements for Effective Application (page A-27) for outlined best practices.
[59] Refer to Principle 9, P 9.1, page A-14.

P 13.1 Risk Assessment and Prevention

Ongoing risk assessment is needed and should be conducted. Two broad strategies are recommended across technology-based service delivery models: 1) appropriate use and integration of IT staff in all stages of the project; and 2) engagement in a wide-ranging discourse about security issues in eHealth interventions (Bennett, Bennett and Griffiths, 2010).

Technical

♦ Equipment malfunctions and clinicians who do not fully understand how to operate equipment are types of negligence particular to telehealth (Sullivan et al, 2008). The professional must take into account several important administrative procedures in preparation for telemental health services (e.g. equipment tests). This is especially important when the therapist is connecting with a new video site (Gournaris, 2009). Also, providing clinicians with thorough technology training will help to mitigate this risk (Miller, 2006).[60]

♦ Clinicians must ensure that clients are comfortable and competent enough to utilize video technology as a communication tool (Gournaris, 2009). They must continuously monitor the clients' ability to participate in telehealth activities, confirm their understanding of their responsibilities in the use of telehealth equipment and conduct evaluations with clients regarding their ability to care for themselves in the event of equipment failure (Miller et al., 2006). Training in the use of equipment may be necessary for the client (Miller et al., 2006). As well, clinicians should educate clients and caution them about the vulnerabilities associated with using electronic communications (Koocher, 2007; Miller et al., 2006).

♦ Technological redundancies should be built into the system and back up technology plans should be in place to mitigate the risk of technology failures (Luxton, Sirotin and Mishkind, 2010).

Patient/Client-Provider Interactions

♦ Therapy delivered to clients in remote sites reduces the ability of care providers to ensure the safety of clients following treatment sessions. Also, clinical staff are not able to respond to emergencies or adverse events (e.g. self-harm or harm to others) when they are not in the same location. Providers should consider screening clients for risk of harm prior to commencing remote consultation, continually monitoring clients of safety risks, and develop a safety plan to mitigate risks (Luxton et al, 2010).

♦ Providers should understand the complex risk interactions resulting from clients receiving treatment from multiple professionals in multiple locations (Miller et al., 2008).

♦ Clinicians should be mindful of the boundary and distance issues that can arise during telepsychiatric commitments, and consider the role they may need to take to help preserve local relationships (Shore et al, 2008b).

♦ The support of other health care professionals present at clients' site to deal with such emergencies should be sought before they arise (Khalifa et al, 2008). If possible, the additional health care professional should be present for at least part of the session (Norman, 2006).

P 13.2 Contingency Planning

Equipment/Technological Failure

Even the best technology sometimes fails. Risk management strategies are important to avoid professional liability issues (abandonment and negligence) (Miller, 2006). Ethical clinicians must consider a contingency plan to deal with technology failures (Cash, 2011; Godleski et al, 2008; Gournaris, 2009; Harris and Younggren, 2011; Fraser, 2009). A contingency plan should outline, for example, that

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[60] Refer to Principle 2, P 2.3, page A-5.

appropriate measures be in place to ensure continuity of care with the client if the equipment fails, such as making a direct telephone call, emailing, instant messaging, text messaging etc., in every effort to re-connect with the client (Gournaris, 2009; Khalifa et al, 2008). Disclosure, letters of agreement, and letters of understanding should be used in contingency planning (Miller et al., 2006).

Technological Limitations and Diagnostic Inaccuracies

Professionals must consider the abilities/non-verbal cues lost or misleading with technological platforms e.g., the ability to see, touch, smell the client or confirm that the client is the individual in question etc. (Cash, 2011; Mehta and Chalhoub, 2006; Hilty et al, 2009; Krysinska and De Leo, 2007; Todder, Matar and Kaplan, 2007; Finn and Bruce, 2008), and the implications these limitations may have for clients' perception and diagnosis e.g. inaccuracy in diagnosis made through video link (Hilty et al, 2009; Sullivan et al, 2008). [Though, research into diagnostic reliability demonstrates that accuracy of diagnosis through videoconferencing is comparable with face-to-face interviews and the experience is satisfactory for the client] (Sullivan et al, 2008). Professionals must be prepared and have a contingency plan to interview clients in person if necessary (Khalifa et al, 2008).

Patient/Client Emergencies/Severity and Self-Harm

Clinicians must have contingency plans for cases of mental health that are too severe to deal with over the internet/telephone etc. (Griffiths, 2009) as well as for clients who display strong affective or behavioural states or threatens (self) harm or suicide upon commencement or conclusion of a session (Shore, Hilty and Yellowlees et al, 2008b; Khalifa et al, 2008; Hilty et al, 2009). The need for an emergency contingency plan is supported by evidence that suggests suicide and hospitalization could be potentially prevented with a video emergency session, and professional's competency in dealing with unexpected crises (Gournaris, 2009).

A comprehensive contingency plan will also plan for the need for security or police back-up in handling extreme cases (Godleski et al, 2008). Professionals must be aware of how clients may then interact with site staff and law enforcement and should provide information on: the current situation; the client's type of diagnoses and how these could specifically impact interaction with law enforcement; contact information for "in situ" support and information for law enforcement during interaction with clients; and information on mental health follow-up, resources and support for clients (Shore et al, 2007b).

Section 2   Professional-Patient/Client Guidelines

Professional-Patient Rapport and Therapeutic Alliance

Professional-patient rapport in telemental health delivery models is quite different than in traditional face-to-face delivery models (Sullivan et al, 2009; Hilty et al, 2009; Fraser, 2009). The rapport developed between the psychiatrist and client is more difficult to establish with a video image, and this may impact upon the service rendered; diagnosis may be more difficult, subsequent adherence to treatment recommendations diminished, or the quality of psychotherapeutic intervention reduced (Sullivan et al, 2008; Hilty et al, 2009; Fraser, 2009).

Despite these difficulties and lacking non-verbal communication, the literature indicates that establishing a rapport and strong therapeutic alliance is critical in assessment, diagnosis and maintain the patient-provider relationship and that a positive therapeutic alliance may not be dependent on a client and clinician being co-located (Grady et al, 2011; Griffiths, 2009; Shore et al, 2012; Hilty et al, 2009; Bee et al, 2008). Building professional-patient rapport will help foster engagement and trust from clients (Shore et al, 2012). Also, it is best practice to thoroughly assess clients and establish therapeutic rapport with the clients in person before introducing them to telemental health therapies (Mozer et al, 2008).

Section 3   Other Ethical Considerations

Telemental health and its requisite technology have grown over time to provide high-quality care to clients, but there are many inherent risks and ethical, security, and privacy issues that are still unresolved regarding the patient-provider relationship, transmission of data, and technological errors (Yuen, Goetter, Herbert and Forman, 2011; Nelson and Bui, 2010; Mehta and Chalhoub, 2006). Professionals must carefully consider issues such as informed consent,[61] professional guidelines (including professional codes of ethics and administrative policies and procedures) client confidentiality, contracting and competence, security, control (e.g. regulation of practice and data access/storage), conflict of interest and processes for resolving ethical issues before using telemental health services (Baker and Bufka, 2011; Koocher, 2007; Yellowlees et al, 2008a; Todder et al, 2007; Tschirch et al, 2006; Richardson et al, 2009; Caffery and Smith, 2010). Failure to consider ethical issues may have implications for client safety and trust, which, ultimately, has implications for treatment compliance and effectiveness (Luxton et al, 2010; Caffery and Smith, 2010). The successful management of ethical and liability issues are essential for the sustainability of telemedicine in general and telepsychiatry in particular (Miller et al., 2008).

Security and Privacy

The literature points to the need to continuously educate all clients at both initial and follow-up visits about confidentiality issues. Continued and open discussion with the client will help to alleviate concerns and fears (Shore et al, 2006).

Physical Safeguards

♦ If personnel or visitors enter the professional's room beyond the client's field of vision, it is the responsibility of professionals to inform the client (Gournaris, 2009; Norman, 2006; Sullivan et al, 2008).

♦ Professionals should consider interruption prevention strategies that may compromise the client's privacy. Examples include, the use of "session in progress" signs; restricting the access of others to the designated treatment area (e.g. avoiding the use of visual and audio transmission in shared spaces); and appropriately sound proofing rooms where treatment occurs (Miller, 2005; Sullivan et al, 2008).

Technical Safeguards: Data Protection/Encryption

♦ The creation of minimum standards for security and data encryption can help to mitigate these risks is important (Sullivan et al, 2008; Tschirch et al, 2006). For telephone-based interventions, providers should consider the implementation of a password system that would enable greater control over access to client information (Sokol and Car, 2006). For email and web-based interventions, providers must consider using: passwords, digital signatures, firewalls, encryption, a disclaimer of site security, closed networks (and confining patient-therapist communication to those closed networks, secure servers (password protected), user-authentication for remote access to account, virtual private networks (VPN), keeping clients' and professionals' private and secure, backup and recovery systems; secure messaging systems, checking continually for system glitches/component compatibility as well as keeping virus software up-to-date (Baker and Bufka, 2011; Finn and Bruce, 2008; Griffiths, 2009; Miller et al., 2005; Abbott et al, 2008; McGinty et al, 2006; Fraser, 2009; Gregory et al, 2011; Mehta and Chalhoub, 2006; Richardson et al, 2009; Caffery and Smith, 2010; Bennett et al, 2010; Gorini et al, 2008).

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[61] Refer to Principle 9, P 9.1, page A-14.

Technical Safeguards: Data Transmission and Retrieval

♦ In telemental health service delivery, accessing client information over the telephone, internet should be as easy or difficult as accessing client's medical notes in person (Sokol and Car, 2006).

♦ It is important that clients' care records are obtained prior to the interview via fax or post. In addition it is vital for the health care professionals to familiarize themselves with video link equipment prior to conducting the interview (Khalifa et al, 2008).

♦ The electronic transmission of client data has a far greater potential for infringement of client privacy and confidentiality, particularly as it crosses state/provincial (Norman, 2006). Providers must practice diligence in providing (e.g. copying tele- or video-conference proceeding to hard media for dissemination) and receiving (e.g., Electronic Medical Records) accurate identifying information on a client. Preventative measures must be taken and appropriate procedures in place to avoid interception/breach of electronic communication streams (Sullivan et al, 2008; Shore et al, 2012) as well as protect clients' confidentiality and accuracy of information (Helm et al, 2010; Bennet et al., 2010). One such measure is to require providers to undergo training regarding storage and retrieval of data; medico-legal and ethical issues related to maintaining client privacy (McGinty et al, 2006; Todder et al, 2007).

Section 4   Financing

Existing Funding Structures

♦ Currently, financially sustainable telepsychiatry programs, especially those in the private sector in the United States, are contractually based (Palmer, Myers, Vander Stoep, McCarty, Geyer and Desalvo, 2010).

♦ Economic factors associated with the AIANP telepsychiatry clinics have not yet been thoroughly examined. The clinics are supported by a mix of grants and payments by partner organizations (Shore and Manson, 2005).

♦ What has given the OMH project staying power is that it is staffed by salaried employees, who devote part of their workday to running the system (Kanapaux, 2005).

♦ In both Norway and Sweden, public authorities own, finance, and deliver traditional mental health services almost exclusively. However, our study determined that voluntary organizations deliver many of those services. Most services within the voluntary sectors are financed partially by the public support. However, government is cautious about taking full responsibility for new services, thus reducing public responsibility. Therefore, e-mail services could reinforce the ideology behind self-help movements and consumerism or strengthen the individualization of mental health and reduce public responsibility (Andersen and Svensson, 2011).

♦ New Public Management provides modern health policies and generates more project-based funding for the traditional social service model in the Nordic welfare states (Matties, 2006).

Requirements for Funding

♦ In order for payors to embrace telepsychiatry, standards of practice must be developed that are reasonable, fair and replicable and clinicians must be answerable for the quality of services that they deliver (Kanapaux, 2005).

♦ Another important consideration learned from other countries is how much government money is used to build infrastructures such as broadband networks or statewide cooperative systems that provide scheduling support (Ohinmaa, 2006).

♦ Coordination between multiple agencies may likely be the strategy needed to finance the infrastructure needed for telemental health services (Miller, 2005).

♦ Providers must work out funding rules that fit existing healthcare arrangements or negotiate alterations to those rules as needed. For example, where funders currently reimburse only face-to-face, not phone or email, contact and do not pay for use of the CP itself even when it is far more cost-effective. Funding is a major block to the free offering of computer-aided psychotherapy to all comers from anywhere (i.e., computer-aided psychotherapy without borders) (Marks and Cavanagh, 2009).

Section 5   Administration

Billing and Reimbursement

The review of the literature indicates that billing and reimbursement are areas within telemental health that are under-researched. Limited research in these areas may be a result of varying healthcare jurisdictions and policies across states/provinces and countries. Further research is necessary.

♦ The literature points to the need for a needs assessment to be conducted in order to develop a consistent financially sustainable model for telemental health services/programs. Such an assessment is necessary, as reimbursement and billing procedures differ according to jurisdiction and regulations (Palmer et al, 2010). Needs assessments must be site or community specific before assuming that a telemedicine system will generate a specific dollar amount for the local economy (Whitacre, Hartman, Boggs and Schott, 2009).

♦ The lack of a comprehensive and integrated reimbursement system has been shown to restrict the rapid and widespread implementation of technology-based applications (Ohinmaa, 2006; Gregory et al, 2011; Johnson, Isham, Shah and Gustafson, 2011). It has further been shown to result in the under-utilization of telehealth services and programs (Ohinmaa, 2006). This points to the need for consistent, comprehensive reimbursement policies for telehealth services to be utilized and successful (Baker and Bufka, 2011; Miller, 2005). Clinicians need to ensure that their work is recognized and billable under such a system (Miller, 2005; Sullivan et al, 2008). Payer policies are also very important to consider when considering telehealth programs and services (Baker and Bufka, 2011).

♦ Reimbursement requires the support of regulatory health bodies and the recognition from these health bodies that telehealth is a valid alternative to traditional service delivery models (Ruwaard, Lange, Schrieken and Emmelkamp, 2011; Johnson et al, 2011). In order to overcome the challenges of both onsite and televideo billing for mental health services, it may be necessary to adopt legislative requirements that televideo services be reimbursed as onsite benefits. Another option is to devise a contractual agreement to cover both the psychologist's time and related costs (e.g. line charges, office management etc.) (Nelson and Velasquez, 2011).

♦ Billing and reimbursement is integral to the sustainability of telemental health services, including the sustainability of televideo-based interventions (Nelson and Velasquez, 2011). New models to overcome some financial obstacles (e.g., billing and reimbursement) are needed (Hilty et al, 2009).

♦ The American Psychiatric Association's Resource Document on Telepsychiatry via Videoconferencing has suggested two general principles that should guide billing and reimbursement practices: (1) reimbursement for telepsychiatry services should follow customary charges for the delivery of the appropriate Current Procedural Terminology (CPT) code(s); (2) a structure for reimbursement of collateral charges, such as technician and line time, should be identified (McGinty et al, 2006).

♦ The Norwegian Centre for Telemedicine (NST) has, over the past two decades, contributed to the development and implementation of telemedicine and eHealth services in Norway. From 2002, NST has been a WHO Collaboration Center for telemedicine. In August 1996, Norway became the first country to implement an official telemedicine fee schedule making telemedicine services reimbursable by the national health insurer (Hartvigsen et al, 2007).

Challenges and Future Considerations for Reimbursement: Infrastructure

Third-party payment, or fee-for-service, is generally comparable to traditional care but will likely not cover the costs associated with infrastructure development and maintenance (Myers and Cain, 2008; McGinty et al, 2006). Currently, these costs are typically non-reimbursable (McGinty et al, 2006). Adequate reimbursement must cover the costs of purchasing equipment, its upkeep, line charges, technical support, space for the equipment and clinical sessions, additional staff, and professional fees (Myers and Cain, 2008). This indicates the need to identify a structure for reimbursement of collateral chargers, e.g. technician and line time (McGinty et al, 2006). Grant funding is helpful during start-up, especially if it covers equipment purchase, but will not sustain a service. Contracts that reimburse a set rate for the psychiatrist's time and cover the ancillary costs (e.g., line charges, office management) seem to be the most cost-effective and predictable for the provider (Myers and Cain, 2008).

Scheduling/Appointments

The literature points to the effectiveness of technologies as administrative tools. For example, text messaging (SMS) has been shown to be an effective technology in the scheduling of appointments (Nolan, Quinn and MacCobb, 2011). Specifically, the literature indicates that clients are less likely to cancel telepsychiatry appointments than in other service delivery models (e.g., face-to-face). So, not only is telepsychiatry effective for general administrative planning and scheduling, it fosters appointment adherence and reduces appointment cancellations/no shows, which has significant cost savings for the provider (as no-shows and cancelled appointments are not reimbursed by insurances and other third part payors) (Leigh, Cruz and Mallios, 2009).

This type of applied technology seems to fall in line with best practices in the scheduling of telepsychiatry appointments: making arrangements for the time and room have to be easy with appointments minimal amount of coordination time; dedicating a block of time to telepsychiatry at the beginning of the day, right after lunch, or at the end of the day; [for professionals] staying within designated appointment times so as not to delay other psychiatrists or clients; and building in flexibility to better accommodate client needs (Wagnild, Leenknecht and Zauher, 2006).

Referral Process

There is limited information in the literature regarding referral processes; however, there is evidence to suggest that telemental health programs and services expedite and improve the rural process, particularly for rural sites that lack consistent access to other clinicians (Mental Health Weekly, 2010). Below, are some of the processes that have been used by programs and sites in Canada (Toronto), Australia, the United States and the United Kingdom:

♦ **Toronto Pediatric Telepsychiatry Program, Canada:** referrals for direct clinical consultation are accepted from clinicians at community mental health agencies who act as overall case managers. Within the current mandate, referrals initiated by physicians are redirected through the local children's mental health agency, where available. Direct physician referrals are accommodated only under exceptional circumstances (Pignatiello, Boydell, Teshima and Volpe, 2008).

♦ **Australia:** the size of Western Australia makes it imperative that referrals to the secure hospital in Perth are appropriate, given the difficulties of transport. Videoconferencing has been used to successfully evaluate this. This is a considerable saving in both costs and humanitarian values (Adam and Lawrence, 2006).

♦ **Hawaii, USA:** the process of community engagement was critical to cultivating referral sources, such as via monthly collaborative meetings (Helm et al, 2010).

♦ **United Kingdom:** Self-referrals can preserve confidentiality if the sufferer answers a free and valid screening questionnaire on the net and submits it to a CP team, provided neither the questionnaire nor the email address reveals the sufferer's identity (Marks and Cavanagh, 2009).

♦ **South Carolina, USA:** "Spring Memorial Hospital, one of the telemental health program's participants does not have a psychiatrist on staff or inpatient psychiatric beds. "If a patient showed up in the ER with a mental health problem, we had to send that patient to a psychiatric facility — public or private — and that could take days, sometimes longer if the patient couldn't pay…"Through the program, a patient can now receive a full blown evaluation at the other end of a television screen." The psychiatrist makes that initial assessment and consults with an ER physician, informing the physician about the drugs the patient may need to take and what further actions are needed (Mental Health Weekly, 2010). "When you have a psychiatrist referring a patient to an inpatient facility that patient would be admitted much more quickly than if a nurse or ER physician made the same recommendation," "It's been a win-win situation, for the patient, for us and for the community. It's like having a psychiatrist 24 hours a day, seven days a week"" (Mental Health Weekly, 2010).

ADDENDUM II: DATA COLLECTION FRAMEWORKS AND INDICATORS FOR EVALUATION

Indicators and Measures

Successful telemental health programs need outcome and cost measures; specifically, there is a demonstrated need to adequately evaluate outcomes, satisfaction, costs (client, referring provider, and specialist), and the program (coordinator, technical staff, and administration) (Hilty et al, 2009). The literature points to the need for best practice standards to determine and define what constitutes a measurable outcome for service delivery and how best to generate the relevant data to measure these costs and benefits to service provision (Shearer and Macaulay, 2005). Measures of outcomes (clinical and quality use) and satisfaction are summarized below:

Outcomes (clinical and quality use)

♦ Clinical outcome indicators can provide preliminary efficacy data. Such indicators may include broadband scales, disorder-specific scales, and functional assessments (Myers and Cain, 2008).

♦ Measures for participation outcomes can include the number of participants using the intervention, the number of contacts per participant, or the length of time spent engaged with the intervention (Young, 2012).

♦ Quality use indicators should be specific to the client's community and stakeholders in the youth's system of care, such as treating clinicians, schools, therapists, funding agencies (Myers and Cain, 2008).

Satisfaction

♦ Most telepsychiatry programs measure the satisfaction of families, referrers, and providers, which has been consistently high. It is important to measure satisfaction on two levels – technical and clinical aspects of care (Myers and Cain, 2008).

Technical

♦ Technical measures include investigator-designed rating scales of intervention components, percent agreeing that the intervention was useful and participant feedback (Young, 2012).

♦ Technical items address: video quality, sound quality, and privacy.

Clinical

♦ Clinical measures include the client's ability to understand and have confidence in the provider, whether the family would return and whether telepsychiatry is comparable to an in-person appointment (Myers and Cain, 2008).

♦ Adolescents' own satisfaction should be included. Satisfaction ratings will help to inform: a) whether the referring clinician perceives greater ease in client management and improved client functioning as a result of telepsychiatry (Myers and Cain, 2008); and b) to understand the impact of distancing, the patient-provider relationship, suitability of therapy – because these interventions are still relatively new, it is important to continue to review client satisfaction/utility and acceptability of these interventions (Norman, 2006).

Program Evaluation Models and Tools

SERVQUAL

The overall success of the project was assessed through the SERVQUAL framework (Bhandari, Tiessen and Snowdon, 2011) measuring the virtual psychiatric service quality in five dimensions: reliability, responsiveness, assurance, empathy and tangibility. The SERVQUAL framework was chosen because it

could be adapted to meet the characteristics or specific needs of a particular organization (Bhandari et al, 2011). Reliability refers to the ability to perform the service dependably and accurately; responsiveness refers to the ability and willingness to assist clients and provide prompt service; assurance refers to the knowledge and courtesy of service providers and their ability to inspire trust and confidence; empathy refers to the service providers' caring attitudes and attention to clients; and tangible elements include physical facilities, equipment, project execution and funding (Bhandari et al, 2011). An additional evaluation element is the need for health care professionals to adapt to different roles and styles of practice in the virtual environment (Bhandari et al, 2011).

Roter Interaction Analysis System (RIAS)

The Roter Interaction Analysis System (RIAS) is a measure for assessing provider-patient communication. The system describes and categorizes communication behaviours and quantifies communication events that can then be correlated with client, provider and system attributes as well as health outcomes. Although this measure has, for the most part, been used during conventional face-to-face consultations, Miller argues for the applicability of this tool to telemedicine (Miller and Nelson, 2005).

Challenges and limitations in research

♦ Relying only on a simple baseline measure as a comparison leaves open the possibility of the Hawthorne effect in which study enrolment itself produces behaviour change independent of intervention effects (Young, 2012).

♦ Relatively small sample size at follow-up, lack of controls, and absence of cost-analysis present as common research limitations (Bewick et al, 2008).

♦ Since the interventions also varied widely in content, technology, exposure and follow-up interval, aggregating effect sizes across interventions would result in misleading conclusions (Young, 2012).

Other research considerations

Other and/or future research considerations include:

♦ Face-to-face evaluations, internet recruitment (self-selection, reaching only motivated clients), and generalizability to the 'real world' setting (Cunningham and Van Mierlo, 2009).

♦ Consideration should be given to outcomes for children with special needs, who pose particular challenges (Myers and Cain, 2008).

♦ Remote home telemental health devices can also be used to collect clinical information and satisfaction data from the clients (Godleski, Cervone, Vogel and Rooney, 2012).

♦ Future research could assess a program over a longer timeframe. Different technologies could also be utilized – smaller devices, web based applications (Godleski et al, 2012).

♦ Computer-based assessment and intervention tools could be also used as a prelude to skills-based interventions or for collecting follow up data and program evaluation (Hester and Miller, 2006).

ADDENDUM III. COST FRAMEWORKS

Cost Measurement

A review of the literature suggests that telemental health service delivery is competitive or cost-effective when compared with traditional delivery models (Spaulding, Belz, DeLurgio and Williams, 2010; Rabinowitz et al, 2010; Hailey, Ohinmaa, Roine, and Bulger, 2007; Hilty et al, 2009; Hyler, Gangure and Batchelder, 2005; Kennedy, 2005, Richardson et al, 2009; Krysinska and De Leo, 2007; Spaulding et al, 2010). However, a systematic review by Norum et al (2007) indicates that several review studies have concluded that there is no solid evidence that telemedicine is (or is not) a cost effective means of delivering health care.

Though evidence suggests that telemental health is largely cost-effective, the specific costs of telemedicine services remain under-reported and understudied (Spaulding et al, 2010). Of what cost data has been collected, the quality of cost-analysis in the literature is suboptimal and little information has been collected in a systematic, controlled, prospective fashion (Hilty et al, 2009; Kennedy, 2005). The vague and often inconsistent cost-analyses might be explained by the fact that cost-analysis is difficult to conduct because technology and the costs of technology are constantly changing (Hilty et al, 2009; Norum et al, 2007). For instance, as technology continues to evolve and advance (and become outdates rapidly), costs decrease (Gregory et al, 2011; Baca, Alverson, Manuel and Blackwell, 2007; Hilty et al, 2009). Related costs depend on frequency of use (Hilty et al, 2009). The continuing development and use of telecommunication equipment and technologies requires more research concerning cost-effectiveness and sustainability of such programs (Krysinska and De Leo, 2007).

If telehealth programs are going to be robustly evaluated and compared to other health interventions, then further studies must be conducted on cost-effectiveness and cost-benefit (Gregory et al, 2011; Hilty et al, 2009). The most appropriate type of cost-benefit analysis, however, remains debated in the literature. Some authors suggest that a "prospective cost analyses and comparative longitudinal studies should be conducted to more fully determine costs and effectiveness" (Kennedy, 2005). For true cost-effectiveness analysis, comparison between programs and their alternatives must occur (Kennedy, 2005). Lacking the resources or detailed information to be able to conduct a full scale health economic study, others suggest that a qualified guess by clinicians experienced in telemedicine and health economics may appear to be a simple substitute for a large health economic analysis (Norum et al, 2007).

For cost-effectiveness studies to be realistic, one must consider all costs (direct and indirect) and benefits (economic, qualitative and social/community) for clients, clinics, providers, and society at large (Marks and Cavanagh, 2009; Hilty et al, 2009; Myers and Cain, 2008; Hartvigsen et al, 2007; Richardson et al, 2009). Costs, benefits and liabilities should be considered in deciding whether to invest in telemental health service delivery **(see Figure 1)** (Myers and Cain, 2008; Hartvigsen et al, 2007).

Costs

Direct Costs

Direct costs include hardware/computer costs, the program's purchase price, license fee (largest cost of the program); any per-use fees (Hester and Miller, 2006; Palmqvist, Carlbring and Andersson, 2007); equipment installation and supplies (Hilty et al, 2009). Direct costs can be broken down into two types of costs: fixed and variable costs (Hilty et al, 2009). Fixed costs also include the rental cost of lines, salary and wages, and administrative expenses. Variable costs include data transmission costs, fees for service, and equipment maintenance and upgrades (Hilty et al, 2009).

Indirect Costs

Indirect costs include the costs associated with provider training, implementation and integration of programs into clinical practice/workflow, clinical support (the cost of the clinical support will vary greatly

according to the profession of the supporting staff), and the costs of screening for suitable clients (Hester and Miller, 2006; Marks and Cavanagh, 2009; Palmqvist et al, 2007). Currently, indirect costs are not captured in the literature, but should be considered in any analysis of cost-effectiveness, as they constitute barriers to adoption of the technology into practice (Hester and Miller, 2006).

Figure 1. Considerations for Cost Measure in Telemental Health Service Delivery
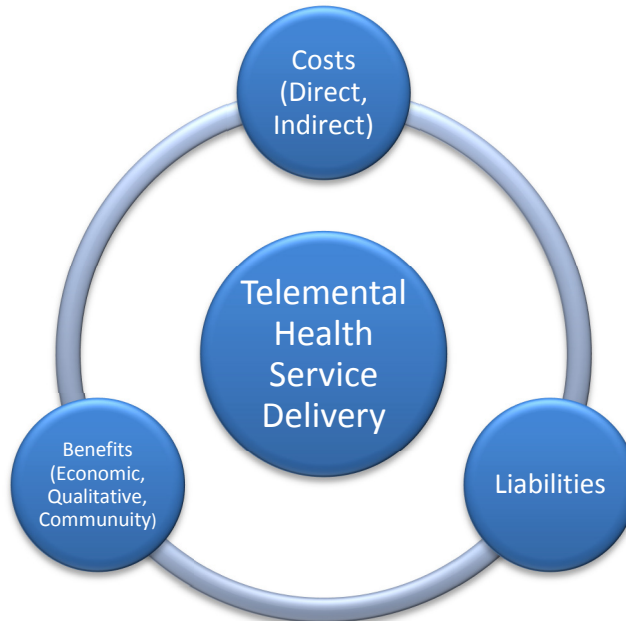
Benefits

Future studies on the evaluation of telemental health should be more inclusive in their level of analysis in order to fully capture the true impacts of various services (Whitacre et al, 2009). It is important to not only look at the economic benefits, but the qualitative and community benefits as well.

Economic

Economic benefits include travel costs, number of hospital admissions, time spent by health practitioner, paper and postage (Myers and Cain, 2008; Hartvigsen et al, 2007).

Qualitative

Qualitative benefits include travel cost savings, reduction of use of other services, time for other tasks, improved data quality, clients do not have to travel, health benefit where "time counts", screening of clients, competence in medical disciplines, professional confidence, access to specialists, efficient use of specialist expertise, and client empowerment (Myers and Cain, 2008; Hartvigsen et al, 2007).

Social/Community

Recent empirical studies on telemedicine have tended to focus on hospital-level cost-analysis frameworks to determine the cost-effectiveness of various systems (Whitacre et al, 2009). However, these analyses tend to overlook the larger societal and community benefits these services can bring (Whitacre et al, 2009). The economic benefits from a community perspective fall into four basic categories. Three of these categories focus on the "opportunity costs" of telemedicine—that is, costs that telemedicine helps to avoid—while the fourth category deals with additional work that telemedicine may bring in to a community. The four categories are: (1) Hospital cost savings from outsourcing telemedicine procedures; (2) Reduced travel savings for telemedicine client s; (3) Improved labor productivity for telemedicine clients; and (4) Lab/pharmacy work performed locally (Whitacre et al, 2009).

ADDENDUM IV. BASELINE TECHNICAL REQUIREMENTS FOR EFFECTIVE APPLICATION

Infrastructure and Baseline Technical Requirements

♦ Establishing telehealth-based mental health services requires a relatively simple infrastructure including a referral and intake process; a secure and compliant network connection; a place to locate both the counselor and the client; a person familiar with the equipment on both sides of the interaction; and a mechanism for securely transmitting records between the two locations (Wendel et al, 2011).

♦ Particularly in regard to rural project implementation, it is important not to underestimate the complexity of the technical infrastructure needed to provide health services via telehealth. Developing this infrastructure can take a considerable amount of time, particularly in rural areas where this level of connectivity is not widespread. Utilizing the services of students in training is efficient, effective, and sustainable, but services must be coordinated carefully to accommodate their course schedule, and those schedules change every semester. This requires careful communication with clients (Wendel et al, 2011).

♦ Careful consideration of the location, choice of equipment and planning of the infrastructure to support the service are essential when establishing a new service.[62] Attention to the practical aspects of setting up the telepsychiatry suite, such as the choice of room and positioning of equipment, can greatly enhance the quality of the clinical interaction and thus increase the willingness of individuals to use the system (Jones et al, 2006; Thara et al, 2008).

♦ Satisfaction with technical equipment is less often considered among providers than clients, but is very important (Detweiler et al, 2011).

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[62] *See specifically "Jones, R. M., Leonard, S., Birmingham, L. (2006). Setting up a telepsychiatry service. Psychiatric Bulletin, 30(12), 464-467" for a comprehensive review of basic technical requirements that need to be in place in order for telemental health and substance use programs to be utilized as well as succeed. Attached as separate document titled, "Jones 2006_Setting up a Telepsychiatry Service".*

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APPENDICES

APPENDIX I. LITERATURE REVIEW STRATEGY

Objective of Overall Project

To carry out a scoping review of evidence-informed telepsychiatry/tele-mental health service models and associated policies that govern their success, and to compare this to the current tele-mental health and substance use models, provincial and regional policies and provincial initiatives supporting telemental health in B.C.[63] By identifying the current strengths and unmet needs of tele-mental health and substance use services, this review will generate a set of evidence-informed recommendations as to how to optimally expand and improve existing tele-mental health and substance use services in B.C. It will also introduce new tele-mental health and substance use services to complement existing services, in order to better serve the mental health needs of the population.

Approach

From February 1 to March 31, 2012, we will contribute to the achievement of the above objective with the following two step strategy:

1. Carry out a scoping review including the past 6 years (2005-2012) in the national and international literature (including the United States, United Kingdom, New Zealand and Australia) regarding evidence on tele-mental health services, best practices, and policies guiding tele-mental health services roll out and use for people across the lifespan.
2. Play an advisory role in the analysis of the environmental scan in relation to the literature review findings, and the generation of recommendations as to how to best address the current and emerging needs of tele-mental health and substance use services in B.C.

Scope of Literature Review

The following table defines the scope of the literature review:

INCLUDED in scope	EXCLUDED from scope

• Literature from 2005-2012
• Government run/ publically funded programs/ services for people across the lifespan
• Programs with a primary focus on clinical applications including:
   o Assessment and diagnosis, including certification under MH Act
   o Treatment
   o Consultation
   o Case conferencing and management
   o Psychological testing
• Telemental health programs in the following areas: Aboriginal, forensic, children and youth, and developmental disabilities (high-level review only)
• Established programs or services (including the use of teleconferencing)
• Programs/services which make use of modern and/or emerging information technologies (e.g. Internet, mobile devices, etc.)
• Baseline technical requirements for effective
	• Grey literature
	• Literature on privately funded programs/ services which does not include details regarding business model/ cost structure
	• Literature on the technical specifications of tele-mental health programs/ services
	• Tele-mental health projects or innovations which do not include direct interventions or participation by health professionals
	• New/ single experiment and pilot programs
	• Administrative and educational use, transfer of data, and research uses of tele-health services without programmatic applications in services

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[63] Province-wide environmental scan to be conducted by another contractor.

application in a clinical context (e.g. need for privacy, need for sufficient quality of technical aspects for proper assessment, size/layout of room, etc.) • Data collection frameworks/ indicators for program evaluation and costing (to be included as part of annotated bibliography for future reference)	

Databases

The following academic databases have been identified for our review of the literature:

- Canadian Health Research Collection (CHRC)
- Cochrane Database of Systematic Reviews
- Cumulated Index to Nursing and Allied Health Literature (CINAHL)
- Electronic Health Library of BC (EHLBC)
- Excerpta Medica database (EMBASE)
- MEDLINE
- ProQuest Public Health / ProQuest PAIS (International)
- PsycINFO
- PubMed Central (PMC)

Search Terms

The following search terms have been identified as a starting point for our review of the literature:

Communication Technology Terms	Intersectional Terms	Mental Health and Substance Use Terms	Other Key Terms
• communication technology • telehealth/ telemedicine • technology • telecommunications • internet • mobile devices • videoconferencing • web conferencing • email	• telemental health • telepsychiatry • telepsychology • telehealth • remote consultation • teleconsultation • telemonitoring • m-health	• mental health • substance use • substance abuse • addictions • psychology • psychiatry • developmental disability • forensic • counseling • health care delivery • referrals	• policy • guideline • privacy/ confidentiality • funding • cost-benefit • Aboriginal • children • youth

Search terms may be used in isolation (i.e. telepsychiatry) or combined (telehealth and mental health). New search terms will be added to the list above based on the language used in key documents and feedback from the advisory committee.

APPENDIX II. ABSTRACT REVIEWING INSTRUCTIONS

1. Read over the questions for the review to familiarise yourself with its purpose. As we go through the article abstracts, we are trying to flag abstracts that will inform these questions:

   a. What types of publically-funded tele-mental health models / best practices are being used in Canada and internationally (incl. US, UK, Australia, New Zealand, and others)?

   b. How effective are different publically-funded tele-mental health models in treating patients with mental health or substance use issues across the lifespan?

   c. What policies need to be in place to successfully implement and maintain publically-funded tele-mental health programs?

   d. What are the baseline technical requirements needed to successfully implement and maintain tele-mental health programs?

   e. What business models and cost structures are utilized in implementing and maintaining tele-mental health programs (both public and private)?

   f. What data collection frameworks/ indicators are recommended for effective program evaluation and costing of tele-mental health programs?

   The following table offers a more detailed breakdown of the types of articles which are to be included (and excluded) in this literature review:

INCLUDED in scope	EXCLUDED from scope

• Literature from 2005-2012
• Government run/ publically funded programs/ services for people across the lifespan
• Programs with a primary focus on clinical applications including:
   o Assessment and diagnosis, including certification under MH Act
   o Treatment
   o Consultation
   o Case conferencing and management
   o Psychological testing
• Telemental health programs in the following areas: Aboriginal, forensic, children and youth, and developmental disabilities (high-level review only)
• Established programs or services (including the use of teleconferencing)
• Programs/services which make use of modern and/or emerging information technologies (e.g. Internet, mobile devices, etc.)
• Baseline technical requirements for effective application in a clinical context (e.g. need for privacy, need for sufficient quality of technical aspects for proper assessment, size/layout of room, etc.)
• Data collection frameworks/ indicators for program evaluation and costing (to be included as part of annotated bibliography for future reference)
	• Grey literature
	• Literature on privately funded programs/ services which does not include details regarding business model/ cost structure
	• Literature on the technical specifications of tele-mental health programs/ services
	• Tele-mental health projects or innovations which do not include direct interventions or participation by health professionals
	• New/ single experiment and pilot programs
	• Administrative and educational use, transfer of data, and research uses of tele-health services without programmatic applications in services
	• Items published in a language other than English that do not include a full-text translation from the publication source

2. Do not change the order of abstracts. In order to tabulate the results, it is important that the abstracts are in the same order for each person rating them.

3. If you have an incomplete citation (e.g. no abstract), please fill in the missing information as much as possible (particularly for citations that do not contain enough information to make a judgement regarding their relevancy).

4. Rate each abstract in EPII Reviewer according to the following scale (use the relevancy rating criteria below):[64]

    a. Y* (informs the review questions, appears extremely relevant)
    b. Y (informs the review questions)
    c. P (possibly informs the review questions)
    d. N (does not inform the review questions)

5. In the 'Notes' field, please make note of the reasons for your rating. Bullet points are sufficient.

6. If you rated the article as Y*, Y or P, please select the following codes which appear to apply to the article (IF APPLICABLE only):

    a. Policies / Guidelines
    b. Children / Youth
    c. Aboriginal
    d. Developmental Disabilities
    e. Forensics

Relevancy Rating Criteria

Y* - Appears Extremely Relevant

♦   Appears to answers 3 or more review questions / inclusion criteria
♦   Especially if it describes actual programs/services in operation

Y – Informs the review questions

♦   Appears to answer 1 or 2 review questions / inclusion criteria
♦   Telephone-based programs/services

P - Possibly informs the review questions

♦   May answer 1 or more review questions / inclusion criteria
♦   May meet 1 or more exclusion criteria

N - Does not appear to inform the review questions

♦   Does not appear to answer any review questions / inclusion criteria
♦   Meets the exclusion criteria listed above

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[1]   Respond according to your initial instincts rather than agonizing about your decision for each abstract. The idea is that after multiple reviewers view the document the critical pieces of literature will tend to rise to the top. Rating disagreements will be reconciled by Research Coordinator and lead researcher and resolved by guided group discussions and consensus.

APPENDIX III. ARTICLE CLASSIFICATION SHEET

Title: _____

Author: _____   Date: _____

Setting of Study	Professionals Involved	Type of Study

☐ Canada
    ☐ BC
    ☐ Prairies (AB, SK, MB)
    ☐ Central (ON, QC)
    ☐ Maritimes (NL, NB, NS, PE)
    ☐ Northern (YT, NWT, NU)
☐ US
☐ UK
☐ Australia
☐ New Zealand
☐ Other International
	☐ Psychologists
	☐ Psychiatrists
	☐ Counsellors
	☐ Physicians
	☐ Nurses
	☐ Occupational/physical therapists
	☐ Pharmacists
	☐ Government/ Policymakers/
	    Health Authorities
		☐ Policy Paper
		☐ Qualitative
		☐ Quantitative
		☐ Mixed Methods
		☐ Systematic Review
		☐ Literature Review
		☐ Comparative Analysis
		☐ Other

Geographic Setting	Target Population	Type of MH-SU 'Diagnosis'
☐ Large Urban ☐ Small/Medium Urban ☐ Rural/remote ☐ Unknown (follow up)	☐ Children ☐ Youth ☐ Adults ☐ Older adults ☐ Caregivers ☐ At-risk groups ☐ Aboriginal ☐ Other	☐ Mental Health: Schizophrenia/ Psychotic Disorders ☐ Mental Health: Depression/ Anxiety/ Bipolar Disorder ☐ Mental Health: PTSD ☐ Mental Health: Eating Disorders ☐ Mental Health: Other ☐ Substance Use ☐ Co-Morbid Conditions ☐ Developmental Disabilities

Target of Analysis / Outcomes

Patient	Provider	Economic	Policy / System Admin
☐ Patient satisfaction ☐ Resource utilization ☐ Health outcomes ☐ Other	☐ Provider satisfaction ☐ Provider efficiency ☐ Models of care ☐ Other	☐ Cost-benefit ☐ Burden of disease ☐ Effect on HHR ☐ Other	☐ Referral process ☐ Professional/ patient behaviour guidelines ☐ Privacy / ethics ☐ Funding ☐ Administration (billing, scheduling, etc) ☐ Other

Primary Mode of Delivery

☐ Synchronous
    ☐ Teleconferencing
    ☐ Video conferencing
    ☐ Web conferencing
    ☐ Mobile Devices
    ☐ Text messaging (SMS)
    ☐ Other
	☐ Asynchronous
	    ☐ E-mail interventions
	    ☐ Web-based disease
	        management systems
	    ☐ Peer to Peer Support
	        Systems/Networks
	    ☐ Other
		☐ Mixed
		    ☐ Remote monitoring systems
		    ☐ Other

Focus of Clinical Applications	Other Inclusion Criteria

☐ Assessment and Diagnosis (incl. MH Act
    certification)
☐ Treatment
☐ Consultation
☐ Case conferencing and management
☐ Psychological testing
☐ Forensics
	☐ Baseline technical requirements for clinical context (eg. Privacy,
	    technical quality, room layout, etc)
	☐ Data collection frameworks/indicators
	        ☐ Program Evaluation
	        ☐ Costing