



E-Mental Health in Canada: Transforming the Mental Health System Using Technology

A Briefing Document



Mental Health
Commission
of Canada

Commission de
la santé mentale
du Canada

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Transforming the system: an overview

Since the beginning of the 20th century, we have been using technology to provide health services, disease management, and health promotion across geographic, social, time, and cultural barriers. Such technology helps people suffering from chronic diseases to acquire access to treatments. It also helps those who may not seek conventional care to overcome stigma.

In Canada, using technology to control, detect, screen, or treat an illness is seemingly common. But not for mental health problems or mental illness. Technology in this area is not as widely used or invested in, due to significant resistance and misunderstanding.

Most Canadians trust electronic transactions to not only handle connections with others (social media, email communications, etc.), but also their finances. Money is often one of the most important things a person owns. Online, we can transfer it, check it, and trust our computers and mobile devices to keep our money safe, confidential, and private. So why not trust it for mental health services and information?

Many individuals with mental health problems or illness are not able to access the kinds of professional support or treatment they need. Due to regional, professional, or resource limitations, access to care – even in developed countries like Canada – can be difficult. In both rural and remote areas, as well as inner city neighbourhoods, the time between the onset of symptoms and getting professional help is taking far too long.

The use of technology is transforming the way we receive health care in new and exciting ways. By using their smartphones, social media, and gaming, patients are becoming empowered to make informed decisions about how they manage their health, and service providers are able to deliver cost-effective and innovative care across vast distances.

Integrated properly, e-Mental health (see definition on page 2) is proving to be just as effective as face-to-face services (Titov, N., et al, 2010; Robinson, E., et al, 2010; Andrews, G., et al, 2010; Christensen, H., et al, 2011) and the technology is improving every day. Not only will this result in more people getting help, but it will also improve the quality of care we deliver, reduce costs, and overcome challenges that are present in our current health care system. All of this will result in the improved mental health of Canadians.

The time is now for this paradigm shift to happen.

The MHCC has brought together experts from across Canada and around the world to discuss the issue and figure out ways in which we can move forward with collective action.

This paper provides a description and overview of e-Mental health in Canada, and showcase e-Mental health and its tremendous opportunity to transform the mental health system. We also discuss some challenges and barriers to use, and present recommendations for its current and future use in Canada.

1. Introduction

1.1 Aim

The aim of this document is to describe e-Mental health in Canada and to outline the potential that technology has in transforming the delivery of mental health services. It also describes some key considerations and recommendations.

For the purposes of this document, we are defining e-Mental health as, “...*mental health services and information delivered or enhanced through the Internet and related technologies.*”

Christensen H, Griffiths KM, Evans K. (2002). e-Mental Health in Australia: Implications of the Internet and Related Technologies for Policy. ISC Discussion Paper No 3.

1.2 Objectives

The objectives of this document are to outline the following:

- Definition of e-Mental health in Canada;
- Spectrum of current e-Mental health technology/tools;
- Key considerations examining the transformational potential of, and barriers to the use of, e-Mental health;
- National and international e-Mental health approaches, including promising-practices; and
- Recommendations for the future of e-Mental health.

1.3 Audience

This document is intended to inform:

- Front line service providers;
- Decision makers (i.e., health care administrators);
- Policy makers and government;
- Funders (i.e., insurers);
- Academics and researchers; and
- Developers of e-Mental health technologies.

A separate document(s) will be created that is targeted to other stakeholders, including those with lived experience of a mental illness.

1.4 The Mental Health Commission of Canada

In 2012, the Mental Health Commission of Canada (MHCC) released *Changing Directions, Changing Lives: The Mental Health Strategy for Canada* (the Strategy), which highlights the,

“...tremendous possibilities for new technology in promoting mental health and preventing mental health problems. Technology makes collaboration easier and can be a tool for supporting self-management. The emerging world of e-health offers new opportunities for interaction and engagement between people who need services and providers. Electronic health records, telemedicine, Internet-based screening and treatment, videoconferencing, and on-line training are all tools that can enhance collaboration, access and skills.” (Mental Health Commission of Canada, 2012)

The Strategy underlines the importance of using technology to foster collaboration, increase access to services, and engage people in managing their mental health problems or illness. It points to the importance of building better infrastructure, providing on-going training and support, and greater flexibility in how services are funded.

In each of its six strategic directions, the Strategy acknowledges the potential benefits and uses of e-Mental health.

| Strategic Direction | E-Mental Health Potential |
|---|--|
| 1. Promotion and Prevention | Promote “healthy thinking”, treat early onset disorders |
| 2. Recovery and Rights | Chronic illness management |
| 3. Access to Services | Improve access in time (waiting lists) and geography |
| 4. Disparities and Diversity | Opportunity to personalize health care and tailor support for different communities |
| 5. First Nations, Inuit, and Métis | Opportunity for remote services - e.g., through robots (see section 3.2.7 - Robots), culturally acceptable interventions |
| 6. Leadership and Collaboration | A whole government approach is required to manage how technology is used in mental health care |

In June 2012, the MHCC sponsored a think tank focusing on e-Mental health, opened by Louise Bradley, President and CEO of the MHCC. The main objectives of the think tank included:

- Developing shared understanding of e-Mental health;
- Starting an exploratory conversation about the development of an e-Mental health framework;
- Harnessing the energy, excitement, and eagerness in the area;
- Involving sector stakeholders as part of the solution; and
- Coming away with a tangible way forward document. From this meeting, there was a strong agreement that Canada needed a framework for e-Mental health, and the MHCC was called upon to act as a catalyst to bring together experts in the field.

In 2013, the MHCC brought together a Steering Committee comprised of experts from across Canada to support this work and focus on developing this briefing paper. Throughout the process, other national and international experts informed the development of the content.

2. Definitions

One of the challenges when discussing e-Mental health is agreeing on a definition. This is important not so much for what the definition includes, but what it excludes. Some definitions, for example, exclude older technologies such as video conferencing, while broader definitions may include electronic health records or the provision of online learning for health professionals. The application of technology in mental health has not happened in isolation from the rest of health care, so one place to start is to consider the broader definition of e-Health - an approach used by Lal and Adair (2013).

2.1 e-Health

Wider all-encompassing definitions of e-Health include administrative systems, such as electronic prescribing and electronic health records, as well as direct clinical care. Such definitions include those from the World Health Organization (WHO) and Health Canada.

The World Health Organization defines e-Health as,

“...the transfer of health resources and health care by electronic means. E-health provides a new method for using health resources - such as information, money, and medicines - and in time should help to improve efficient use of these resources.”

In Canada, Health Canada defines e-Health as,

“...an overarching term used today to describe the application of information and communications technologies in the health sector. It encompasses a whole range of purposes from purely administrative through to health care delivery.”

An early aspirational definition from Professor Gunther Eysenbach, editor of the Journal of Medical Internet Research (2001), included informatics and clinical care, as well as a sense of business entrepreneurship. He describes e-Health as,

“...an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies ... also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology.”

In 2005, a systematic review of the broader e-Health term found more than 50 definitions, most of which not surprisingly incorporated the themes of technology and health (Oh, Rizo, Enkin, & Jadad, 2005). More recent definitions also include mHealth and vHealth. The term mHealth refers to health applications (a shortened form of “software applications”) on mobile devices such as smartphones and tablets. The term vHealth refers to virtual health, and implies that health care professionals can collaborate and work together remotely to deliver care to the patient.

There are two important aspects to consider when defining e-Health. First is the inclusion or exclusion of information technology that supports administrative systems, such as electronic health records. Second is the need to update the definitions as new technology is developed, such as mobile computing or virtual reality, and as other technologies become obsolete. A further theme explored in wider discussions of e-Health is the effect of health information being widely available on the Internet and the effect this has on empowering patients and changing the dynamics between health providers and patients.

2.2 e-Mental Health

It has also been challenging to determine a definition for e-Mental health. A recent definition by Mohr et al (2013) defines the scope of e-Mental health mainly by the type of technology and includes telephone and videoconferencing services, web-based interventions (also called Internet interventions), interventions using mobile devices, the integration of sensors for patient monitoring, social media, virtual reality, and gaming.

Used for the purposes of this document is a definition from Professor Helen Christensen at The Black Dog Institute in Sydney, Australia. She defines e-Mental health as:

“...mental health services and information delivered or enhanced through the Internet and related technologies.”

Christensen H, Griffiths KM, Evans K. (2002). e-Mental Health in Australia: Implications of the Internet and Related Technologies for Policy. ISC Discussion Paper No 3.

We also include video conferencing and the use of “big data” in mental health care. This document does not refer to administrative systems, such as electronic health records or electronic prescribing. We also have not defined the scope of “mental health,” mainly because for the purposes of this document, the issues for the application of technology in mental health are similar to those in the wider health field.

3. The potential to transform the mental health system

Technology plays an important role in every area of life, and health care is no exception to this. A recent National Health Service (NHS) UK discussion paper summarized the potential impact of e-Mental health, “Digital technology has revolutionized the way we conduct our everyday lives. The expectations service users and their families have of mental health services, and how they interact with them, are also changing rapidly.”

E-Mental health has potential to address the gap between the identified need for mental health services and the limited capacity to provide conventional treatment services (Christensen & Hickie, 2010, Coyle 2007, Griffiths 2007, Smit & Riper, 2010, Sucala et al, 2012). Computerized treatments can be accessible anywhere at any time, often do not include waiting lists/wait times, and may not have the same stigma associated with attending an institution.

Christensen et al. (2010) notes,

“If we are to substantially reduce burden we need to develop more accessible, empowering, and sustainable models of care. E-Health technologies have specific efficiencies and advantages in the domains of promotion, prevention, early intervention, and prolonged treatment. It is timely to use the best features of these technologies to start to build a more responsive and efficient mental health care system.”

There are two ways in which technology can transform the mental health system. First is by empowering patients so that relationships with health providers are changed. The second is through the use of specific technologies. These two aspects will be considered separately.

3.1 Patient empowerment

E-Mental health provides patients the opportunity to be empowered by the provision of health information, so that health providers are no longer the sole holders of knowledge regarding disease and illness. Cotton et al, (2013) highlight that, “...Greater use of information and technology could help us address resource challenges ... and also has the potential to support cultural transformation and a move towards a social model of health, by empowering service users to exercise greater choice and control and to manage their own conditions more effectively.”

What this means is that patients may become more knowledgeable about their health conditions and increase their ability to articulate their needs, while health providers act as both the expert and as a source of information about therapeutic options.

It should also be noted that the role of peer support is seen as valuable in transforming the mental health system through the use of technology.

Developing networks with peers to share information, including what treatments work (i.e., www.whatworks4u.org) and to rate health providers (i.e., www.ratemds.com), are two examples of how peer support is being effective.

E-Mental health also has the potential to transform how health care is provided and make it more personalized. While “personalized health care” often refers to the impact of a patient’s genetic information on his or her care, the term can also refer to personal habits, such as what that patient eats or how much he or she exercises. Mobile computing can automatically provide detailed information about such habits, which can be used to help make decisions about care. That could also empower individuals, as would the potential to change ownership of health records from health providers to the patient.

3.2 Technologies transforming the mental health system

The following outlines some of the current and most popular existing technologies that are supporting e-Mental health services and resources in Canada.





3.2.1 Computerized interventions, resources, and applications

Computerized interventions deliver services directly to patients with or without the aid of a person. The interventions are based on established face-to-face therapies; usually some form of cognitive behaviour therapy. Most have been developed for the treatment of depression or anxiety.

One of the earliest and best known computerized interventions is “MoodGym” (www.moodgym.anu.edu.au), which now has over half a million registered users and is being translated into Chinese. Other programs include “Beating the Blues” from the UK (www.beatingtheblues.co.uk), and “The Journal” from New Zealand (www.depression.org.nz). Programs have evolved from being largely text-based, to using videos, to linking to email and mobile phones, and being part of a national anti-depression campaign using celebrities and TV advertisements.

One website that acts as a repository of different websites and mobile applications (apps) for mental and physical illnesses is Beacon (www.beacon.anu.edu.au), which also provides a rating for the different programs. Systematic reviews of these interventions have generally been shown to be more effective than passive controls, such as waitlists, and as effective as face-to-face cognitive behaviour therapy. The National Institute for Health and Care Excellence (NICE) guidelines from the UK now recommend that computerized cognitive behaviour therapy be offered as a first-line treatment to people living with mild to moderate depression.



In the Spotlight

Electronic Problem-Solving Treatment (ePST™) was developed for NASA to treat depression in astronauts on long-duration space missions. This technology uses hundreds of branching video and audio clips to simulate a therapy session with an actual clinician. Although the program is computer-guided, the tailored experience feels more like interacting with a warm, caring clinician than with a computer. Preliminary results suggest that ePST™ is equally effective as treatment delivered by a live clinician, and that users form a therapeutic bond with it that is just as strong. Although it was developed for astronauts, ePST™ has been adapted for everyday people, with a Spanish version underway. Because the intervention is primarily delivered via audio and video, it requires much less reading than older computer-guided depression treatments. Problem-solving treatment (PST) is an evidence-based treatment for depression focused on coaching patients/clients to solve concrete problems in their lives.

Research has found PST to be faster, easier, and more efficient than CBT, while being equally effective. In the first session of ePST™, users identify a life problem to work on and specify a measurable goal related to it. They brainstorm solutions, weigh pros and cons, and choose one or more to build into an action plan, which users implement over the next week. In subsequent sessions, ePST™ checks in on the user’s progress, and does troubleshooting with them to recommend ways to improve their problem-solving.

➤ To learn more, visit www.cognitivebehavioraltechnologies.com

There is increasing evidence that the presence of a “coach” (who may or may not be a clinician) can improve outcomes using computerized treatments and/or resources. This generates novel ideas for developing new roles in the mental health system. This is already happening in the United Kingdom where “low intensity workers”, who are involved in the Improved Access to Psychological Therapies Program, support patients as they work through computer-based cognitive behavioural therapy.

Where access to psychological treatments is difficult, the potential for computerized therapies to provide treatments without waiting lists and at a time and place of patients' choosing is obvious.

There is also a role for computerized therapies in stepped-care where people with mild illnesses are treated by computerized programs, freeing up clinicians to spend more time with the more severe cases (Van Straten et al, 2010) (for more details, see section 4.4 - The integration of technology into existing services).

The provision of computerized therapies started before the widespread use of smartphones. Computerized therapies are now migrating onto mobile phones and there are literally thousands of health apps. These vary from the provision of information and resources, to more formal cognitive behavioural and other therapies.



In the Spotlight

The Canadian Institute of Natural and Integrative Medicine (CINIM) has developed a unique, online, resilience-building program for youth and young adults called BreathingRoom™. It is now available at Mount Royal University, Calgary for the 2013/2014 academic year thanks to community sponsors including RBC Foundation, the Calgary Foundation, and the Alberta Lottery Fund. The program is being developed into an app that will be available in September 2014.

BreathingRoom™, rebranded from a program called The LEAP Project, offers practical strategies to bounce back from setbacks and better manage stress, depression, and anxiety. Development, led by two psychiatrists, involved a team of health professionals, educators, and researchers with extensive input from young people. The program speaks directly to youth aged 13 to 24 through music, video, comedy clips, ideas from mental health experts, visualizations, and personal stories from other young people. The program's foundational principles are supported by an extensive body of literature, and the core principles and activities have been found to be applicable to adults (Moritz et al., 2011) (Moritz et al., 2007) (Moritz et al., 2006) (Rickhi et al., 2011).

Young people who completed the program describe its impact as “transformational”: it changed how they see themselves and the world, what they do, and how they feel—often achieving what medication or counseling alone did not. Publications are currently underway.

➤ To learn more, visit www.cinim.org



3.2.2 Telehealth and telemedicine

Telehealth and telemedicine are both well-established methods of delivering health care and information over a distance, and have evolved from the use of the telephone in health care to providing both services and information to patients. The advantages of telemedicine are the added information that live pictures provide, and the ability to bring together people who are geographically dispersed. There are several examples of the effective use of telehealth and telemedicine in Canada.



In the Spotlight

Strongest Families Institute (SFI) is a not-for-profit organization that was designed as a cost-effective access solution. Strongest Families programs (e.g., behaviour issues such as ADHD, ODD, conduct; anxiety; nocturnal enuresis) have proven to be highly effective, both through clinical research trials funded by the Canadian Institutes for Health Research (CIHR) (McGrath et al., 2011) and ongoing service evaluations (publication pending submission). The SFI tailored e-information system (known as IRIS-Intelligent Research and Intervention Software) generates customized, patient outcome progress letters that graphically depict outcome gains (Lingley-Pottie et al., 2012).

The programs are based on psychologically informed educational skills that families learn by receiving written information (handbooks or smart website), skill-demonstration videos and audios, and weekly telephone coaching from a highly trained, non-professional coach. Families learn evidence-based skills they need to overcome these problems. Each family has a coach who reinforces the learning and provides encouragement and problem-solving support. Service results show an 85% success rate in overcoming presenting issues, a less than 10% drop-out rate, and families report high satisfaction with services.

SFI removes barriers to care because help is delivered to families in the comfort and privacy of their homes at times convenient to them. Stigma is virtually eliminated. SFI services delivered by the Halifax-based office are spanning Canada.

SFI staff work until 2 a.m. to ensure western families can have a night time appointment if that is what works best for them. Outcomes and customer satisfaction are collected consistently, and reports provided to funders on a regular basis. Quality assurance monitoring of coach competency is completed regularly to ensure the fidelity of the SFI protocols are maintained. SFI has been nationally recognized for Social Innovation by the Mental Health Commission of Canada (2012) and the Ernest C. Manning Foundation Encana Principal Award (2013).

➤ To learn more, visit www.strongestfamilies.com



3.2.3 Wearable computing and monitoring

Wearable computing includes innovations such as Google Glass, as well as apps that monitor activities, physiology, and habits. The advantage of these devices is that they provide sophisticated, often real time data to both the patient and clinicians about important outcomes. These can range from simple physiological measures such as weight, sleep patterns or electrocardiograms, to the measurement of habits such as diet. Other examples include the measurement of exercise and daily recording of mood. In the field of geriatric health care some centres now equip people with dementia with electronic tags that activate an alarm if they wander off the premises.

Apps embedded in mobile phones can use all the data collected from sensors within the phone such as location, accelerometer, gyroscope, and light sensitivity to infer mood and behaviour, meaning that patients do not have to remember to record data (for example, <http://tech.cbites.northwestern.edu/purple-robot/>). Such data may also provide individual relapse signatures so that relapse can be predicted and prevented.



In the Spotlight

WalkAlong is designed as a portal to empower youth by providing tools to assess and manage their mental health within a supportive and private online community environment. The portal is a Canadian-based mental health resource that provides information and links to existing mental health care resources for friends, family, and health care professionals, allows for different levels of assessment and monitoring over time (LIFECHART), and provides resources (MINDSTEPS) and online support of different kinds.

Consultation with young Canadians and expert health care professionals and partnerships with the University of British Columbia's student and mental health community allow for the continued development of a cutting-edge, robust, comprehensive, and appropriate web resource. In its first three months online there have been over 6,000 page views, 93% of which were Canadian.

The project is supported by Bell's Let's Talk initiative. It is part of a range of activities to develop e-Mental Health as an asset for vulnerable populations.

➤ To learn more, visit www.walkalong.ca



3.2.4 Big data

Big data refers to the use of large amounts of data to predict future behaviour and outcomes. This is similar to the Amazon or Netflix model of using past buying behaviour to predict and offer to the consumer products that they will be likely to purchase. Examples in mental health include the use of data from individual health providers on who responds to what treatment to predict what individual patients should be offered in the future. Another is the use of predictive analytics to detect people at high risk of suicide or homicide. This would involve monitoring social media and other data to detect suicidal “signatures” and then providing an intervention to prevent suicide. This clearly has practical, legal and ethical issues where mental health workers could be seen as “homicide or suicide prevention officers.”



3.2.5 Virtual reality

Virtual reality is the computer generated simulation of a three dimensional environment that is now being used in mental health care, especially for those with anxiety disorders. The advantage of virtual reality is that it can be used to create scenarios that may be impossible to replicate in real life, for example in the treatment of post-traumatic stress disorder in soldiers.



In the Spotlight

The field of virtual reality applications is evolving rapidly. It started with expensive immersive technologies to treat phobias and has now moved to more affordable systems that can be effectively used to treat complex anxiety disorders. The Canadian Institutes for Health Research (CIHR) has awarded Dr. Stéphane Bouchard a Canadian Research Chair in Clinical Cyberpsychology. Located at the Université du Québec en Outaouais, Dr. Bouchard and his team study the efficacy of virtual reality applications by using **Psyché**, which is a six-wall fully immersive room. Randomized controlled trials conducted here show that applying cognitive behaviour therapy (CBT) through virtual reality can provide treatments that are as effective as traditional CBT, and have also shown as being cost-effective and more flexible for therapists.

➤ To learn more, visit <http://w3.uqo.ca/cyberpsy/>



3.2.6 Peer support through social media and other technologies

Online peer support is the opportunity to seek and obtain support from others facing similar problems. The advantages of doing this online are the opportunities to meet a significant number of people and tap into crowd sourcing.² An example of this in the mental health field is Big White Wall (www.bigwhitewall.com), which is an anonymous online service for people in psychological distress. It offers support for self-management of mental health issues, information, and online therapy using a webcam, audio, or instant messaging.



In the Spotlight

Mindyourmind is a London, Ontario-based online support forum for youth, emerging adults, and professionals. The focus is to use youth networks to provide a platform for youth to express their views around mental health, and to support the production of useful resources for youth with mental illness.

➤ To learn more, visit www.mindyourmind.ca



3.2.7 Robots

Robots in mental health care have mainly been used in settings involving the care of people with dementia. The two types of robots that have been used are therapeutic robots that mimic animals, such as Paro (a robotic Canadian harp seal developed in Japan; see www.parorobots.com), and those specifically designed for health care, also known as healthbots. Evidence in residential health care demonstrates that these robots can reduce loneliness in those with dementia and increase social interactions.



In the Spotlight

Gore Health Ltd., a health organization located in Gore, New Zealand, has introduced healthbots. These small, mobile robots will help residents with memory and speech difficulties. The healthbots will be used in different settings, but predominately placed in the community and general practice setting. The purpose of the robots in the home setting is to help patients with continuity of care (i.e. reminding them to take their medication), as well as providing speech therapy in the absence of a speech and language therapist. In the clinical setting, the technology will be used to free up practice nurses' time by performing tasks such as taking measurements and blood pressure. The healthbots' hardware was made in Korea, but the software was developed at Auckland University in New Zealand.

➤ To learn more, visit: <http://bit.ly/1gS5SQK>

² Obtain information or input into a particular task or project by enlisting the services of a number of people, either paid or unpaid, typically via the Internet.



In the Spotlight

Barriers of distance and a lack of adequate health care infrastructure and medical expertise have a negative impact on the provision of health care to vulnerable populations in underserved remote communities across Canada. This lack of access is especially acute in the mental health care of some First Nations communities that have a high incidence of mental health problems and illness.

The rapid expansion in telecommunication technology has opened the door for the development of solutions that may help address these challenges. As part of the **Remote Presence Medicine Program** at the University of Saskatchewan, researchers have begun a pilot project using a novel portable device capable of providing services using existing cellphone network transmissions. This device - affectionately called “doctor in a box” - allows connection of peripherals such as a vital signs monitor, portable ultrasound, digital stethoscope, and other digital scopes.

The device can be taken by a health care worker to the homes of patients in need of mental health care assessment or follow up and provide real-time access to specialists, such as psychiatrists and psychologists. The initial use of the “doctor in a box” for mental health care has been very promising, particularly among young adults and teenagers.

To learn more, visit www.tedxtoronto.com/talks/dr-ivar-m-mendez/

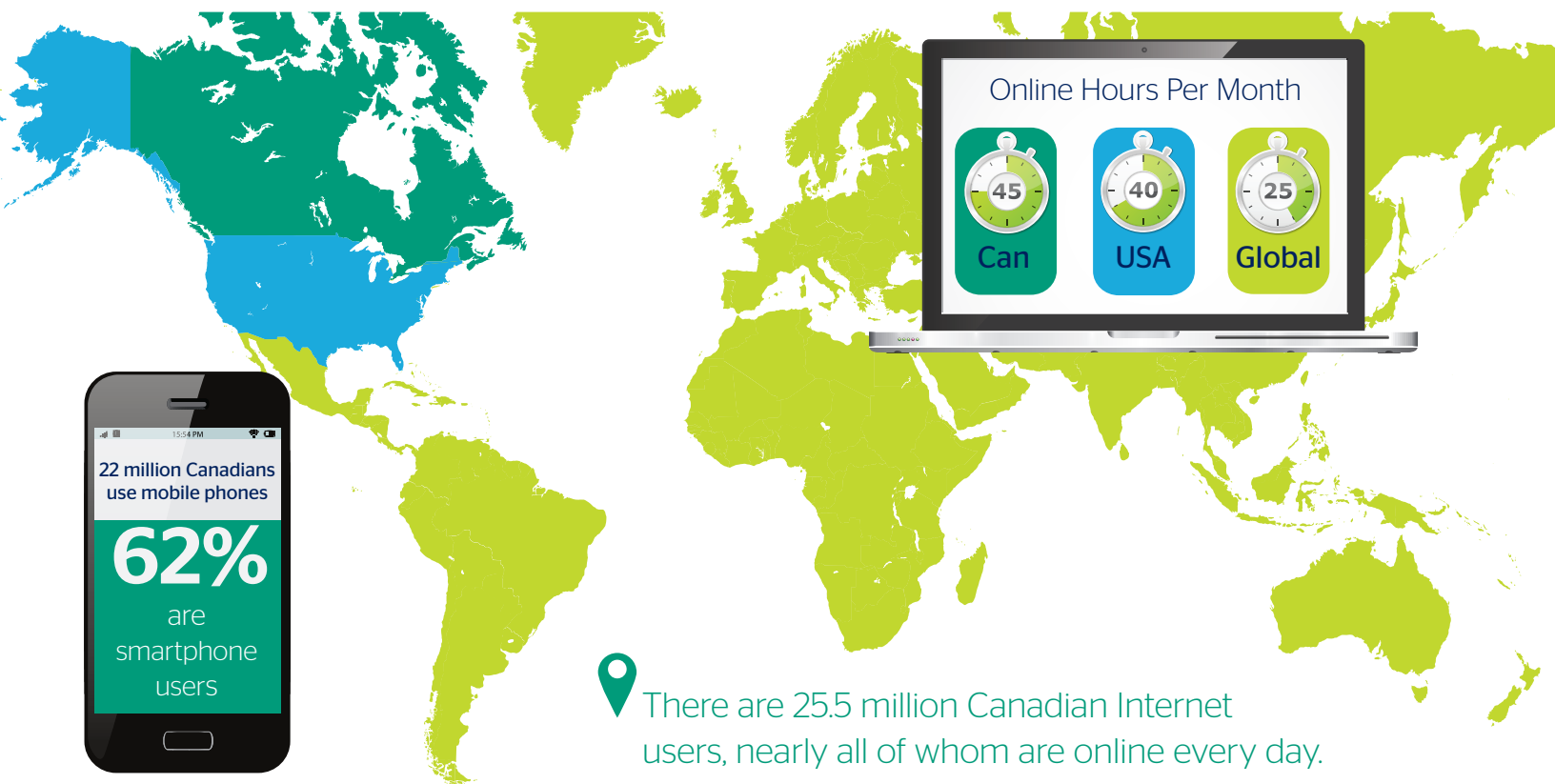


3.2.8 Gaming

Gaming can be a good way to learn, and it is now being used to teach cognitive behavioural skills to people with mental health problems and illness. An example of this is Sparx (www.sparx.org.nz), a game based on an imaginary island where participants go on a quest and have to fight negative automatic thoughts (NATs), and overcome problems to progress. The game, aimed at teenagers, has been shown in a randomized controlled trial to be as effective as usual care in youth with mild to moderate depression.

4. Key considerations

Mental health problems and illness are a key public health concern. With the ever-changing landscape of technology and the Internet, it is not surprising that researchers, practitioners, and patients are looking into web, mobile, and alternate technologies as potential modes of service provision. The past decade has seen major growth in e-Mental health programs, projects, services, and to a certain extent, evaluation - and the evidence-base is growing. As a result, there are several key considerations that can be examined by looking at the advantages and challenges to e-Mental health and its related technologies.



Source: CIRA Factbook, 2013.

4.1 Internet use in Canada

There are 25.5 million Canadian Internet users, nearly all of whom are online every day. Canadians are the heaviest users of the Internet in the world, according to a report from the Canadian Internet Registration Authority (CIRA). The agency's 2013 CIRA Factbook reports that Canadians spend an average of 45.6 hours online per month, compared to 40.3 hours in the U.S. and a global average of 24.4 hours. Further, 22 million Canadians use mobile phones, of which 62% were smartphone users in 2012 (Duong & Adamo, 2013).

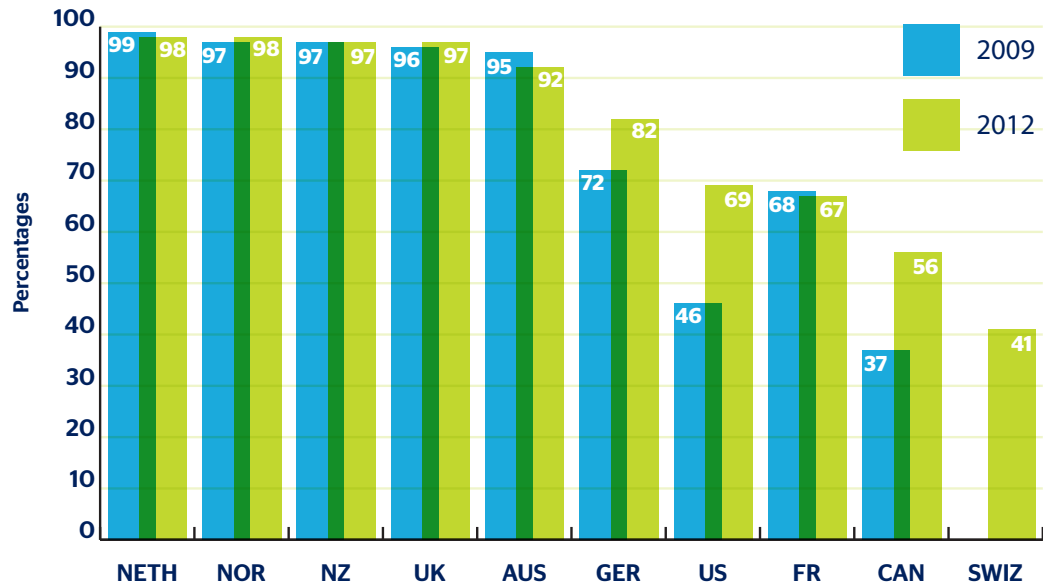
4.1.1 Use of technology in the Canadian health care system

Unfortunately, the high use of the Internet does not translate into Canadian health care. A recent survey of several countries by the U.S.-based Commonwealth Fund found that Canadians were least likely to have email access to their physicians compared to 11 other developed countries. (The Commonwealth Fund 2012 International Health Policy Survey of Primary Care Physicians - 11% of Canadian primary care practices reported that patients could email them regarding a medical concern, compared to 68% of practices in Switzerland and 34% of practices in the U.S.)

Similarly, Canada is behind most other developed countries regarding implementation of its electronic health records (The Commonwealth Fund 2012 International Health Policy Survey of Primary Care Physicians),

“10% of Canadian practices indicated their systems have multi-functional capacity, with the ability to: generate patient information, such as medication lists; manage patient registries, such as seeing which patients are overdue for care; order prescriptions or diagnostic tests electronically; or provide decision support, such as alerts about drug interactions. In contrast, 68% of UK practices and 59-60% of New Zealand and Australian practices reported having such multi-functional capacity.”

Doctors’ use of electronic medical records in their practice, 2009 and 2012



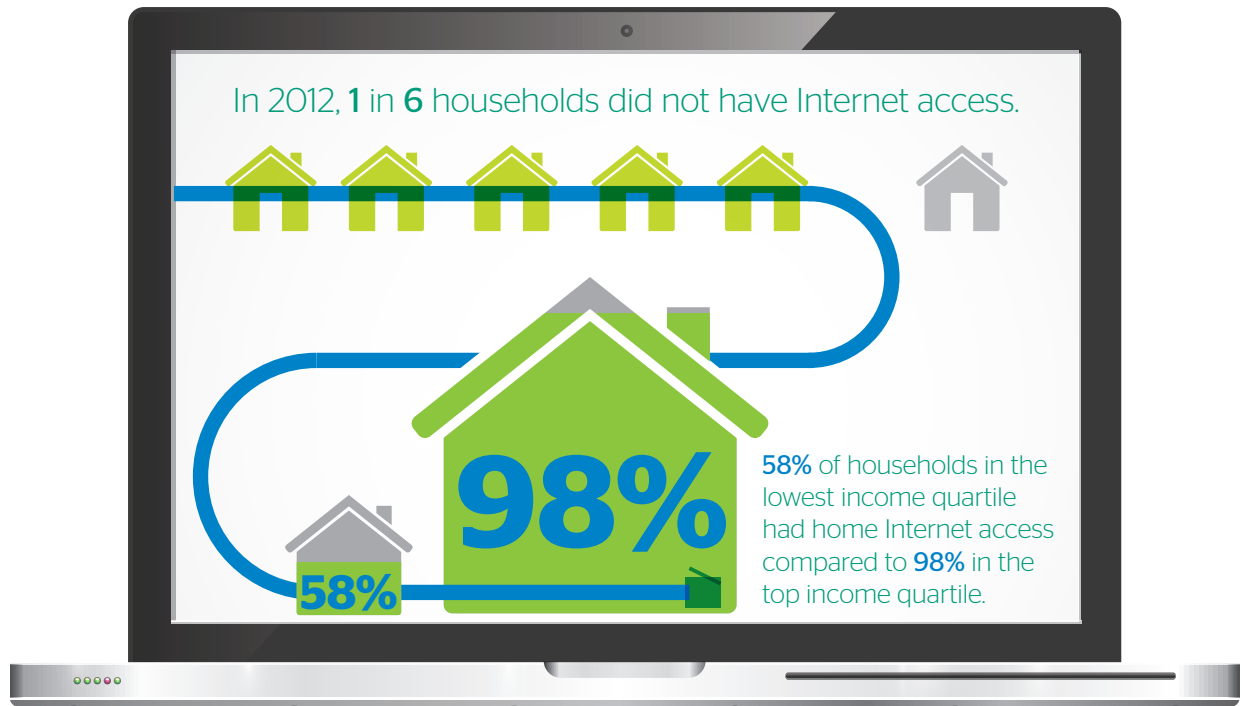
Source: 2009 and 2012 Commonwealth Fund International Health Policy Survey of Primary Care Physicians

This highlights the difficulty of implementing even relatively simple technology such as email into Canada’s fragmented health care system, and makes the case for national and provincial strategies compelling.

4.1.2 The digital divide

The 2012 Canadian Internet Use Survey sponsored by Industry Canada found that 83% of Canadian households had Internet access at home. This demonstrates that approximately one in six did not have an Internet connection at home. When considering broadband access, one in five households does not have access to broadband. Only 58% of households in the lowest income quartile had home Internet access compared to 98% in the top income quartile.

This suggests a digital divide and that providing services online may have the potential to reinforce health inequalities, as those who most need health care are those least likely to have access to services on the Internet - an e-Health inverse care law. This issue has been reinforced by a U.S. national survey by the Pew Research Center, which found that those adults living with a chronic health condition were least likely to have an online connection at home (www.pewInternet.org/Reports/2013/The-Diagnosis-Difference.aspx). This highlights that transforming health care does not sit in isolation from other key aspects of a national strategy.



Source: The Canadian Internet Use Survey, Statistics Canada, 2012

Several authors have documented low access to the Internet among those with more serious mental illness, including brain injuries, substance use, and psychotic disorders (Clayton, et al., 2009). Nicholson et al. (2010) note that cost, lack of training, and problems with concentration, executive function, and motor control may present barriers for these individuals and raise concerns about further disenfranchisement if services increasingly use technology. Consideration needs to be given towards the appropriate design for people with specific health conditions to ensure they are not further marginalized. One approach is to use insights from health care human factors research which addresses how people interact with products, tools, procedures, and processes in a clinical environment.

4.2 Engagement with clinicians

Systematic reviews of the implementation of technology, or in fact any change, in health care emphasizes the need to engage with clinicians and services providers, and support them to create change. Getting clinicians and services providers to change habits can be challenging; many are not trained in using computerized therapies with patients.

The paradox is that there are treatments that require a high degree of technological expertise, such as MRI brain scanning, and yet health services are one of the few service industries that do not regularly use technology to interact with users. As a result, patients cannot make their own appointments, notes are handwritten, and communication and coordination between providers can be difficult.

It is also worth noting that many health care providers use software that is outdated and prevent staff from accessing potentially useful sites that are external to the hospital environment. Furthermore, accessing technology often involves entering multiple passwords which frequently change, and is not conducive to operating in a time-pressured environment. Clinicians often use their own hardware and software, which results in an ad hoc and uncoordinated response across the system.

A further challenge when engaging clinicians is the legal concept of ‘defined acts’ such as psychotherapy, which can only be provided by certain professions. The advent of computerized therapies challenges this concept and can result in professional bodies lobbying to restrict some computerized treatments. To avoid this, some providers change their language and refer to what they do as education or coaching. Such a change can bypass regulation, which calls for a licensed provider to be accountable for the care delivered and received. Related to this is the challenge of reimbursement for treatments, especially if provided at a distance or in another province.

4.3 Opportunities and challenges for different populations

Though not an exhaustive list, the following are some specific populations who could benefit from e-Mental health and related technologies, as identified in a literature review conducted by Lal & Adair (2013).

4.3.1 Rural and remote populations

Geographic distance continues to be a challenge for the delivery of conventional mental health services in Canada. As rural and remote areas are increasingly connected to the Internet, there is significant potential for e-Mental health to support these populations. It also lends opportunity for increased collaboration between service providers in remote, rural, and northern areas, as well as specialists who predominately reside in urban centres, to provide improved services.

Research suggests that patients report enhanced therapeutic alliance, increased self-disclosure, and decreased stigma with distance services when compared to face-to-face services (Lingley-Pottie & McGrath, 2013). When given the choice, many patients actually prefer distance mental health services (Lingley-Pottie & McGrath, 2007; Cunningham et al, 2008).



In the Spotlight

The MindSpot Clinic is a publicly-funded online clinic that delivers assessment and treatment to Australian adults with anxiety, depression, worry, and sadness. It provides mental health screening assessments and treatment courses, and helps people find local services to access in their own communities. The MindSpot Clinic has provided services to more than 10,000 consumers in the last 12 months.

➤ To learn more, visit www.mindspot.org.au

4.3.2 Youth

With more than 90% of youth using the Internet (Burns et al, 2010), e-Mental health has been identified in the literature as a promising tool for reaching this age group (Lal & Adair, 2013). It is particularly seen as having potential to engage young males who have long been one of the most reluctant groups to seek conventional help (Ybarra & Eaton, 2005; Rickwood, Deane, & Wilson, 2007). In older youth, a study from Ireland found 31% of university students reported having searched the Internet for mental health information (mostly on depression) (Horgan & Sweeney, 2010). While 79% expressed a preference for face-to-face support, 68% said they would also use the Internet for help with mental health issues.



In the Spotlight

MindShift is a mobile app created to help youth deal with anxiety. It encourages users to face their anxiety by learning improved coping mechanisms.

This free app includes strategies to deal with everyday anxiety, as well as specific tools to tackle things like test anxiety, social anxiety, panic, and conflict.

MindShift is the work of a joint collaboration between AnxietyBC, a non-profit organization in British Columbia (BC) devoted to increasing the public's awareness and access to evidence-based resources on anxiety disorders, and BC Mental Health & Addiction Services, an agency within a regional health authority within BC.

➤ To learn more, visit www.anxietybc.com/mobile-app

4.3.3 First Nations/Inuit/Métis populations

The opportunity exists for First Nations/Inuit/Métis (FNIM) populations to create peer support networks, computerized interventions, and therapies which specifically take culture into account, rather than using mainstream solutions. One current challenge is to provide sufficient broadband capacity for communities in the rural, remote, and northern parts of Canada, where a large number of FNIM populations reside. However, some computer-guided interventions can be delivered via stand-alone software and do not require Internet access. Through workstations based at clinics or on patients' own computers, stand-alone software interventions have the potential to bring next-generation treatments to rural, remote, and northern populations.



In the Spotlight

Kids Help Phone offers phone and online counseling to Canadians ages five-20, 24 hours a day, 365 days a year in English and French. More than 5,000 young people reach out to them every week. Since 2006, in response to demand from young people, Kids Help Phone has offered online counselling through Ask Us Online, where service users can anonymously post a question through Kids Help Phone's Kids or Teens websites, and receive an asynchronous response from one of their counsellors. For every post on Ask Us Online, approximately 60 other youth read the post and the counselling response. Kids Help Phone currently also offers Live Chat services on a limited basis, with chats lasting about 45 minutes on average, as compared to phone counselling calls, which last approximately 15 minutes. During a recent service evaluation, Kids Help Phone found that its clients experienced significant results across key clinical indicators, such as decreases in distress and increases in clarity and confidence.

Kids Help Phone has also developed a free app, Always There, with the following features: Feelings Log, where young people can log their mood and feelings; Stress Buster, which offers tips, jokes, and inspirational quotes; Resources Around Me, a tool to find local programs and services that provide direct service in their own communities; and the ability to connect with a counsellor right away by phone or through Live Chat (during available hours).

➤ To learn more, visit www.kidshelpphone.ca

4.4 The integration of technology into existing services

The primary advantage of using technology is its potential to improve the quality, efficiency, and equity of mental health services in Canada. From a user perspective, it is convenient, can provide services tailored for particular groups, and help patients avoid stigma. For service providers, it can address workforce issues by providing similar therapeutic services online, thereby decreasing wait times and workload. Research from web-based weight loss programs indicates that people are more likely to fill out a form on their phone or computer, as it affords flexibility and privacy. There is also evidence that people are more truthful when filling out online health questionnaires than when they give the same information in a face-to-face setting with a clinician (Bennett & Glasgow, 2009).

The difficulty with e-Mental health approaches is knowing how they integrate into existing pathways of care. A common way of thinking is to describe a stepped-care model which incorporates two ideas. The first is that patients receive the least intensive treatment with the greatest likelihood of improvement. The second feature is that users are continually monitored, so that if they do not respond to a treatment on a lower step they are elevated to a higher step where they receive more intensive treatment.

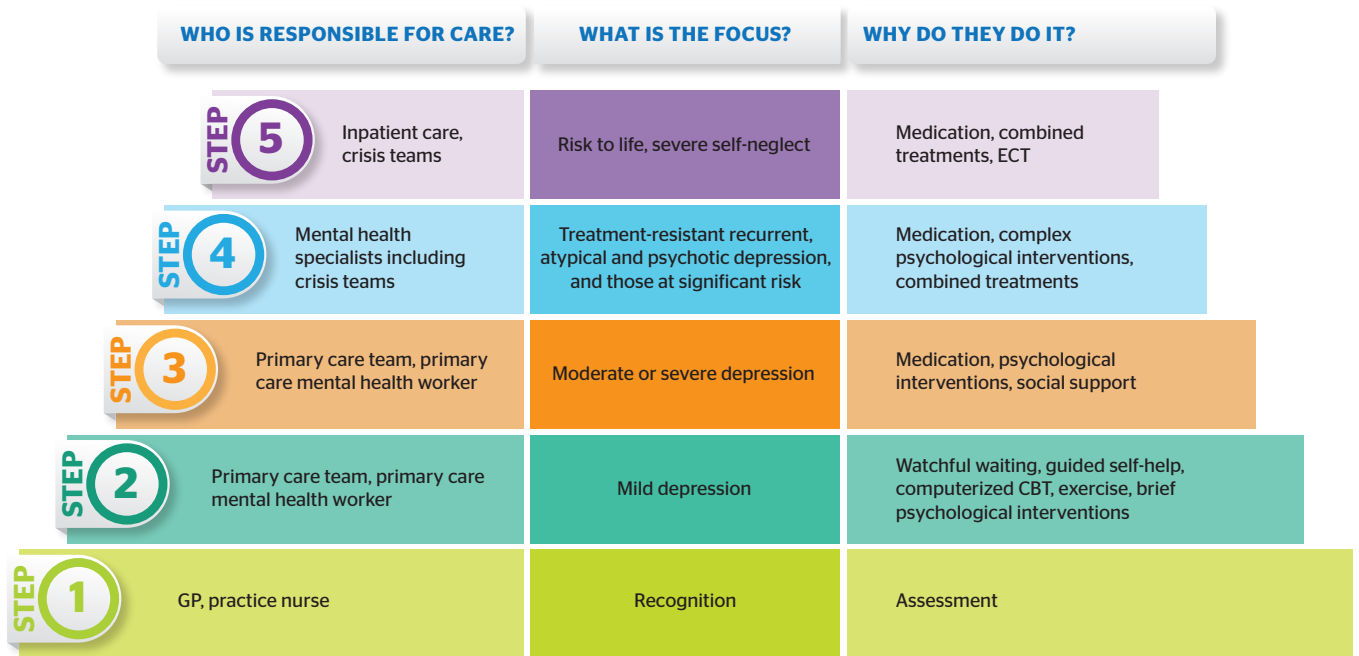
The advent of technology makes the use of stepped-care much more viable in clinical practice, and yet it is unclear where most e-Mental health treatments fit in the stepped-care approach and what to do if people do not respond to therapy. For example, one option would be to offer e-Mental health for those who are on waiting lists for conventional face-to-face services. It is unclear whether people who respond to this therapy should still receive a face-to-face service, or conversely, if people who do not respond while they are waiting should be offered a more urgent appointment.

It is also important to consider that many Internet support groups and mobile applications (apps) are peer-to-peer and user driven, which can impact the quality of the content. While some research highlights the potential for web-based services to provide pre-treatment information to clients, there is the possibility of misinformation that will negatively affect a person, or discourage them from accessing help (Lal & Adair, 2013).

Finally, attrition in the form of both dropouts and loss to follow-up represents a challenge when using e-Mental health interventions, although this is also a significant issue with conventional care. As one exception, recent research has shown a less than 10% attrition rate for distance services that are available after typical working hours, and families reported high satisfaction with the services received (McGrath et al., 2011).

One way to address attrition is to create a new role in mental health services of an e-case manager whose job would be to coach people through online interventions or treatments. There is good evidence that this decreases dropouts and loss to follow-up. A related issue is the acceptability to patients of e-Mental health interventions, especially when the expectation (of being referred to secondary mental health services) is that they will see an expert face-to-face.

Stepped-care model for depression



Source: Adapted from NICE (224), **Depression: Management of depression in primary & secondary care.**

The above model represents a pathway for depression. It is recognized that it could be adapted to represent other health practitioners, areas of focus, and rationale for treatment that are relevant to other mental health problems and illness.

4.5 Evaluation and research

As with all publicly funded treatments offered to patients, there should be reliable evidence that e-Mental health interventions do more good than harm. E-Mental health treatments are now recommended by the National Institute for Clinical Excellence (NICE) for the first line treatment for mild to moderate depression. Systematic reviews for the computerized treatments of common mental health problems and illness (both therapist-assisted and self-directed) have shown them to be more effective than no treatment at all, and equally as effective as face-to-face treatment (Smit & Riper, 2010). Moreover, they can be implemented with high fidelity and personalized for the user, thereby facilitating more efficient communication for both the patient and therapist.

However, there are some limitations with the evidence. First, most studies on web-based interventions have been done in populations with mild to moderate illnesses who are often recruited from the Internet, or through advertisements in journals and newspapers. There have been few studies of the more severe illnesses complicated by co-morbidity which would typically present to mental health services. The second limitation is the issue of completion rates of online treatments, often with most people not completing therapy.

A more fundamental challenge is relying on randomized controlled trials to provide evidence. Randomized controlled trials can often take a long time to complete by which time the technology may have evolved. An example of this is that most published trials of online treatments are based on programs developed for desktop computers rather than for smartphones or tablets. One way to address this is to preserve randomization and its benefits, but to combine this with some of the ideas from social marketing. For example, as

it is easier to have large sample sizes with online treatments, the effects of changes in the program in two randomly selected groups could be seen almost in real time.

Increasingly, resources for optimizing practice and evaluation are available. For example, guidelines have recently been published for program design and for study methods (Doherty, Coyle, & Matthews, 2010; Postel, Haan, & Jong, 2008; Stoltz, Skarsater, & Willman, 2009; Smit & Riper 2010).



In the Spotlight

Funded by the Canadian Institutes of Health Research, the **Strongest Families** Canadian team joined a partnership with a team at University of Turku, Finland to conduct a large, population-based randomized trial on high-risk 4 year olds (McGrath et al., 2013). The Strongest Families web-based parenting program materials (e.g., written curriculum for the web-based interface, skill demonstration videos, protocolized coaching telephone scripts) were translated to Finnish. Finnish coaches were trained by the Canadian team to deliver telephone support as parents accessed evidence-based materials via the Internet using smart-web-site technology. This new, accessible approach to evidence-based parenting has been highly accepted by the Finnish families. To date, a total of 462 families have been randomized in this trial.

➤ To learn more, visit www.strongestfamilies.com



In the Spotlight

The Online Therapy Unit for Service Education and Research was created at the University of Regina to improve access to therapist-assisted Internet Cognitive Behaviour Therapy (ICBT) for depression and anxiety in Saskatchewan. The Unit was formed by a group of researchers with input and direction from mental health administrators in Saskatchewan. The mission of the Unit, as set by the group, was to develop, manage, provide education on, and research a web application that mental health providers and students working in various settings in Saskatchewan could use to deliver therapist-assisted ICBT to individuals with depression and anxiety. Research conducted by the Unit suggests that the Unit has served to improve access to treatment for depression and anxiety in Saskatchewan, that large improvements in symptoms result from ICBT, and that community providers and students under supervision are open to being trained in and delivering ICBT. The Unit has identified a variety of patient, provider, and health system variables that facilitate and constrain ICBT delivery in clinical practice.

➤ To learn more, visit www.onlinetherapyuser.ca

4.6 Cost and cost-effectiveness

Cost is an important consideration in the development of any new technology or program. It can be defined as strictly monetary or financial, or can address larger social costs and impacts. Throughout the literature, costs have emerged as a major determining factor in the development and implementation of e-Mental health programs. Although the initial research, development, and start-up costs may be quite high (although a small fraction of what is needed to bring a new drug to market), the low marginal costs of providing services to additional individuals result in lower overall expenditures and cost-effective service provision (Bennett & Glasgow, 2009; Griffiths, et al., 2006; Lal & Adair, 2013).

In some conditions, it may be more cost-effective for health providers to supply technology free of charge to patients than to continue to provide care as usual. The cost savings from the use of technology may potentially offset any cost of providing the technology. For example, the Loyola Recovery Foundation in New York State gives cell phones to clients at high risk of hospitalization. The phones are loaded with the Foundation's ACHES program, which monitors behaviours and sends reminders about care. Users of this program had an 80% reduction in hospitalizations compared to the previous year, which more than offset the minimum costs of giving a cell phone to their clients.

Though there is a clear need for more studies on the cost-effectiveness of providing e-Mental health services, some models are certainly emerging (Smit et al., 2011, Lokkerbol et al., 2013).

4.7 Ethics, confidentiality, and legal issues

At the turn of the 21st century, ethical and liability concerns were raised about the role of therapists in chat rooms, discussion groups, and bulletin boards (Humphreys 2000). At least one group wrote that, "...psychotherapy could not be conducted in an ethical manner over the Internet." Two years later, it was reported that over 250 sites were offering online counselling. This was also being referred to as e-therapy, web-counselling, cyber-therapy, and computer-mediated psychotherapy (Alleman, 2002).

Three specific ethical concerns have been raised (Alleman, 2002; Humphreys, Winzelberg, & Klaw, 2000):

1. Ethical responsibility could not be fulfilled for participants who seek care outside of the jurisdiction in which they reside;
2. Participants who are not seen face-to-face could not be reliably identified, and as such could be impersonated by others; and
3. Privacy could not be guaranteed for typed or recorded communications.

Guidelines have since been developed by several professional organizations. For example, the Canadian Psychological Association has created guidelines to inform the provision of psychological services using electronic media. In addition, the Association of State and Provincial Psychology Boards has developed guidelines for the practice of telepsychology.

Another ethical issue related to the use of technology is patient confidentiality, particularly because of the involvement of computerized records (although in theory this is no different to any other electronic medical record). Clinicians and researchers alike must take precautions to protect patient confidentiality, a task that is made more difficult by the mobile nature of the intervention.

One way patients' and research participants' personal information can be protected is by ensuring that access to confidential information on mobile devices is limited by requiring passwords (Heron & J.M., 2010). There are also legal issues over liability and licensing, especially if services are delivered in a different province, or even country, to the provider. An extension of the confidentiality issue applies in the use of big data. If tracking social media can accurately detect suicide signatures in individuals, what is the responsibility of health services?

A further consideration is what is done with the information gathered by mobile computing, especially that which monitors behaviour. It has recently been reported that insurers in France that provide equipment for the treatment of sleep apnoea are no longer funding treatment if the computerized monitoring shows that the user is non-compliant. It is easy to see how compliance with computerized monitoring may be a requirement for funding of treatment of mental health problems and illness.

4.8 Regulation

The purpose of regulation in health care is to ensure that health devices are safe and effective. In Canada, safety of health devices (including drugs) rests with Health Canada, while the question of effectiveness is dealt with by a range of professional and other bodies. E-Mental health interventions (especially apps) can be considered as health devices. Currently there are about 100,000 health related apps for smartphones, most marketed directly to patients. From the user's perspective, this raises the question of knowing whether these apps are safe and effective.

This is also a problem for regulators, which on the one hand do not want to stifle innovation, but on the other hand have some responsibility to ensure such devices are at least safe.

The U.S. Food and Drug Administration (FDA) has addressed this problem by saying it is only interested in those apps which transform a smartphone into a regulated medical device - so for example, if the app enables the smartphone to perform an electrocardiogram. Also, the FDA will not regulate those that are low risk, such as most disease tracking apps. This seems to exclude most mental health apps although this is not entirely clear. While this seems like a sensible compromise, it still leaves the problem of apps which contain information that is wrong or incomplete. A limited response to this is being done by companies such as Apple, which is requesting that health app developers provide sources for the information they provide in their products.

5. Vision & recommendations

5.1 Vision

E-Mental health services address the issues of under-served areas and populations, and make access and stigma no longer significant issues. For these reasons, the provision of e-Mental health services and resources will become increasingly common. Evidence-based services and resources that are tailored to individuals' personal habits, history, needs, and genetics will be making a significant contribution to the existing provision of care. In some places, e-Mental health will complement existing face-to-face services, and elsewhere e-Mental health care will generate novel interventions which are not currently available. This will be embedded in a health system where patients have control and access to their personal health records which link to evidence-based information about their illness, resulting in an empowered and articulate citizen expert who uses health providers for diagnosis and advice on treatments.

To achieve this vision, there needs to be funding and space to enable patients, clinicians, academics, policy makers, and industry to work together to produce an energetic and innovative e-Health community. Success requires investment and structures to address governance, scalability, quality assurance research, knowledge exchange, integration of e-Mental health in existing services and in the wider technology policy framework, sustainability, and privacy and security. The recommendations below address these areas.

5.2 Recommendations

E-Mental health has enormous potential to help transform and improve health care delivery in Canada. Seeing this potential realized will require the active involvement and sustained commitment of stakeholders at every level. Drawing on the evidence and the iterative process in which this paper was developed, we have prepared a number of recommendations intended to inform the development and implementation of e-Mental health, bringing greater credibility, investment, and interest to the area.

Recommendations

1

Person-centred care: E-Mental health services should be designed as ‘person-centred’ so that their individualized needs are prioritized. It is also important to take into account cultural appropriateness within certain population groups, such as First Nations populations or youth. Any new services or technologies should be created in collaboration with the end-user to ensure appropriateness, effectiveness, and usability.

2

Scalability: When designing e-Mental health services and technologies, consideration for success measures should include that they can be adapted to, or expanded for, larger groups of people. Scaling up to service thousands of users is different from a small research study of 50-100 cases. Feasibility, security, privacy, interactivity, robustness, usability with emerging technologies, and staffing requirements all need to be considered.

3

Quality assurance framework: Similar to how traditional care is regulated, e-Mental health providers need to assure users that they adhere to the same standards of quality and safety as providers of face-to-face services. Quality assurance of the service and program fidelity maintenance are important to ensure the services are being delivered as designed and intended. This requires ongoing outcome evaluation with reporting to referrers, users, and funders.

4

Research:³ E-Mental health services and related technologies that receive public funds must be based on effective evidence. This includes investment in research and evaluation hubs in e-Health that bring together academia, patients, and industry.

5

Knowledge translation & exchange:⁴ E-mental health services should be better promoted through increased knowledge sharing and exchange. There is a need to create knowledge hubs consisting of key stakeholders, so that e-Mental health services consistently involve consumers, caregivers, and health professionals in their development and uptake. Provincial, territorial and national e-Mental health portals should be provided for one-stop access to effective therapies and information about mental health problems or illness.

3

In the UK, the Medical Research Council has invested 19 million pounds in establishing four e-health research centres; in Australia, the government plans to invest \$110 million over four years, from 2012 to 2016.

4

An example of a knowledge exchange hub for youth can be found in Australia. The web portal, called “Headspace”, can be found at www.headspace.org.au

6

Integration with the wider health and technology policy framework: The e-Mental health strategy operates in a health system which is also changing in different ways and at different rates within each province and territory, and at the federal level. The same applies to the introduction of technology into Canada, such as the provision of broadband access and mobile phone technology. Therefore, e-Mental health needs and opportunities should be taken into account when designing health system and technology policy.

7

Integration with existing health services: There is a need for an e-Mental health support system that engages and trains health care providers. Such a support system would aid in driving its uptake by health providers, offer guidance on how e-Mental health fits into existing referral systems (from primary to secondary care), and provide advice on quality standards when purchasing e-Mental health systems. An existing model for the implementation of electronic health records and related IT needs already exists in Canada Health Infoway.

8

Sustainability: Continuous support for e-Mental health services will be required to be successful, and ensuring such support must be included at the very outset of the planning process. Among the critical factors to be considered are operating costs, future funding, governance, obsolescence, and information storage.

9

Privacy and security: There is a need to agree on national standards for user privacy and security of personal information that is consistent with existing and proposed principles and legislation for online health information.

Although questions regarding quality control, access, and security persist, e-Mental health is still a relatively new phenomenon that has permeated the way that mental health services and information are provided to Canadians. What is clear is that there is tremendous promise that technology is, and will continue to support and adjunct what we already do face-to-face, and generate new ways of providing mental health services to Canadians.

6. Conclusion

The opportunities for the advancement of e-Mental health in Canada are enormous, as are the potential benefits for all Canadians. Existing and evolving technologies have tremendous potential to transform the mental health system and positively change how resources and care are developed, delivered, and received. However, realizing this potential will require investments of both time and resources from stakeholders at all levels.

There is no better time than now for such investments, as Canada is currently well-positioned to further the research, development, and implementation of e-Mental health services and resources.

There are many reasons for this. Nearly every Canadian is online, and most are active users of smartphones, laptops, tablets, or other mobile electronic devices. The literature indicates patients would welcome more access to, or ownership of, their health information. And e-Mental health offers care providers another way to access populations that can be challenging to reach, including youth and those living in remote or rural areas.

This briefing paper builds on a number of innovative and excellent initiatives already underway across Canada. Its recommendations are informed by the best available evidence and knowledge that reflect input from dozens of experts. While challenges exist, they are presented here not as barriers or hindrances, but instead as opportunities to work collectively to overcome them.

It is not the intention of this paper to suggest that e-Mental health replace traditional care. Instead, it would support and enhance care as it is currently provided, just as technology has long complemented the care for other chronic health conditions and diseases, such as diabetes. People with mental health problems and illness deserve nothing less, and when done right, e-Mental health can be just as effective for screening and treating some mental health problems as face-to-face services. It could also increase the number of Canadians receiving care, while at the same time improving the quality of care delivered and reducing the cost of that care.

The Mental Health Commission of Canada (MHCC) has a mandate to help transform the mental health system, and has identified e-Mental health as being an important opportunity toward positive change. In *Changing Directions, Changing Lives: The Mental Health Strategy for Canada*, the MHCC acknowledges the enormous potential of technology to promote mental health and prevent mental illness, and the MHCC will continue working to help advance this important field.

A collaborative and committed approach to furthering e-Mental health in the country stands to benefit the mental health and wellbeing of all Canadians. This paper and its recommendations are intended to inform that approach and encourage the ongoing advancement and uptake of e-Mental health sooner, rather than later.

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Appendix A – International approaches to guiding e-Mental health

The work of guiding and informing e-Mental health is occurring in other countries and this section in particular captures international government approaches that are guiding e-Mental health at the policy and strategy levels only. It does not include specific e-Mental health programs, initiatives, or services at the local and regional levels.

Australia

Australia has progressed both the funding and development of e-Mental health services and the strategic context for this over the last five-10 years. In 2012 the Australian Government Department of Health and Ageing issued the e-Mental Health Strategy for Australia. It is described in detail as it is the most recent approach and incorporates the earlier “2020 vision” document published in 2009.

Service investment is more than \$70M since 2006 with more than \$110M planned to 2016. The Strategy is governed by an Expert Advisory Committee and includes coordinating and promotional activities along with new service delivery initiatives, such as a portal, virtual clinic, and continuation of existing online and helpline support services.

Key Document(s) & Links

E-Mental Health Strategy for Australia (2012)

Issued in June 2012 by the Australian Government Department of Health and Ageing

<http://www.health.gov.au/Internet/main/publishing.nsf/Content/mental-pubs-e-emstrat>

E-Mental Health: A 2020 vision and strategy for Australia (2009)

Published by Christensen et al (2009).

http://cmhr.anu.edu.au/files/emental_health_2020_vision_and_strategy_for_australia.pdf

e-Hub & e-Hub Assist

e-hub's suite of online self-help services is based on the best available evidence and evaluated through high quality research. They can be used anonymously, 24 hours a day, from anywhere in the world. All programs are provided free of charge thanks to funding by the Australian Commonwealth Department of Health and Ageing.

e-hub Assist is a portal of resources for people who use e-hub services, and e-facilitators who support others to use e-hub's online self-help programs. It can be used by many people including mental health professionals, other health professionals, teachers, youth workers, carers, and support workers.

<http://www.ehub.anu.edu.au/welcome.php>

<http://www.ehub.anu.edu.au/assist/>

2012 Strategy Outline

PURPOSE

To move from funding a small number of proven and successful online mental health and telephone crisis support services, to a respected, evidence-based, accessible, professionally recognized and integrated e-Mental health service environment.

GOVERNANCE

The government has established an E-Mental Health Expert Advisory Committee to provide advice to the Department of Health and Ageing on the design and development of a national e-Mental health portal and this Strategy.

LINKED TO RECENT AND ONGOING SERVICE DEVELOPMENT

The Australian Government has invested \$70.4M to date in developing and funding telephone crisis and e-Mental health services over the last six years from 2006-07 to 30 June 2012. The Government will invest a further \$110.4M over the next four years 2012-13 to 2015-16 and this investment is in addition to that already being provided for the youth specific online mental health service through 'eheadsace'.

PLANNED INITIATIVES TO IMPROVE ACCESS AND SERVICES

E-Mental Health Portal

To provide accessible pathways for consumers and caregivers to navigate and use the online services they need. The first stage will be operational in July 2012.

- **Virtual Clinic**

This Clinic will provide another therapy option for people looking for real-time online or phone counselling with a trained CBT counsellor.

- **More online mental health support services**

The Australian Government has allocated \$38.6M through the Telephone Counselling, Self Help and Web-based Support Programme from 2012-13 to 2014-15 for the provision of online mental health and crisis support programs.

E-Mental Health Support Service

The Australian Government will establish an E-Mental Health Support Service to work with traditional primary health care providers to promote online services and develop strong linkages between the two sectors.

Promotion of the E-Mental Health Service Environment

A marketing strategy will be developed to ensure entry points and pathways through the e-Mental health system are known to consumers, caregivers, and key health professionals in the primary health system. Targeted and consistent messages about the effectiveness of e-Mental health will also be developed and broadcast.

European Union

The role of e-Mental health does not appear within the European Commission strategies for mental health, though there is reference to:

Digital Agenda,

which includes a focus on 'Living Healthy, Ageing Well' where "information and communication technology can be our most powerful ally for good and affordable healthcare."

<https://ec.europa.eu/digital-agenda/node/1103>

CORDIS division (Community Research and Development Information Service) and an 'Information and Communication Technology Challenge for Health, Ageing Well, Inclusion and Governance' with "ICT for Health activities" addressing 'health management' continuum from lifestyle to disease management, including disease prevention and management of comorbidities.

http://cordis.europa.eu/fp7/ict/programme/challenge5_en.html

Neither contains strategic frameworks relating to e-Mental health.

New Zealand

New Zealand has had a similar pathway to Australia, with five-10 years of investment in e-Mental health services. This includes a more recent focus on developing strategic context with the forthcoming publication of the New Zealand Government Ministry of Health's Mental Health and Alcohol and Other Drugs E-therapy Framework.

Key Document

Mental Health and Alcohol and Other Drugs E-therapy Framework (Due 2014)

Issued by New Zealand Government Ministry of Health.

DEFINITION

New Zealand has taken a focus on e-therapies as a, "...subset of e-Mental health services that are primarily user directed, computer system automated, and delivered online, or by mobile phone."

PURPOSE

To provide an overarching framework for the planning, development, implementation, and investment in e-therapy tools, interventions, programs, or products for use within mental health and alcohol and other drug (AOD) services in New Zealand.

AIM

Provide guidance to the mental health and AOD sector on the key principles to be considered when planning and developing or implementing e-therapy tools, interventions, programs, or products. It sets out a structure and process for making informed investment and implementation decisions on Ministry of Health and/or District Health Board commissioned e-therapy tools, interventions, programs or products.

There will be a Governance Group that will provide oversight of the Framework, and an approval process for e-therapy tool and programs.

GUIDING PRINCIPLES

- Must be evidence-based
- Must include routine evaluation
- Clinical governance in place
- Funding considered
- R&D component included
- Privacy Impact Assessment done
- Sustainability considered
- Development and implementation criteria

GUIDING CRITERIA

The criteria the Governance Group will consider are:

- Programme fidelity
- Programme privacy and safety
- Programme scalability
- Programme fit with currently rolled-out e-therapies
- Programme efficacy
- Programme adherence
- Value for money
- Information standards

United Kingdom

The United Kingdom recently published an e-Mental Health Discussion Document (2013).

Key Document(s)

E-Mental Health, What's all the fuss about? (2013)

Issued by the National Health Service

<http://www.nhsconfed.org/Publications/discussion-paper/Pages/E-mental-health.aspx>

CONTEXT

The implementation framework for the No Health without Mental Health strategy states that mental health services should consider “the power of information to transform services,” including “the potential of mental health and wellbeing services that use technology to provide self-care and peer support within a well-governed, safe, immediately accessible and stigma-free environment.”

The discussion document provides key areas for consideration, including governance, and key questions for the future.

United States

The United States Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA) has a Strategic Plan, which includes Health IT and Considerations for the Provision of E-Therapy with a Substance Abuse focus.

Key Document(s)

Leading Change: A Plan for SAMHSA's Roles and Actions 2011-2014

<http://store.samhsa.gov/product/SMA11-4629>

Considerations for the Provision of E-Therapy (2009)

Considerations: <http://store.samhsa.gov/shin/content/SMA09-4450/SMA09-4450.pdf>

Both issued by SAMHSA.

Leading Change - Strategic Plan Outline

The Leading Change document states that the Health IT Strategic Initiative:

“Provides the overall framework... HIT is a broad construct that extends beyond Electronic Health Records and includes telemedicine and other technologies. Health IT can improve health care quality, prevent medical errors, increase administrative efficiencies, decrease paperwork, and improve patient health. It also has the potential to enhance medical decision making, promote patient monitoring, and involve consumers in their own care.” However, the objectives of this Strategic Initiative relate primarily to the use of Electronic Health Records.



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