Telepractice at the Institute for Stuttering Treatment and Research (ISTAR)

ince 1998, the Institute for Stuttering Treatment and Research, a self-supporting institute of the University of Alberta's Faculty of Rehabilitation Medicine based in Edmonton and Calgary, has been using telepractice to provide treatment services. Approximately 70% of our clients live outside of the urban areas where our offices are located.

Internet-based technologies and other communications technology used to provide health services are known as telepractices or telehealth. Theodoros (2008) reported that access to speech-language pathology services in much of the world is limited, particularly in rural and remote areas, and that stuttering therapy is well suited to telepractice.



Jessica Harasym, ISTAR clinician with our current videoconferencing system in ISTAR Edmonton office.

The effectiveness of telehealth treatment for stuttering in young children (Lewis, Packman, Onslow, Jones, & Simpson, 2008; Sicotte, Lehoux, Fortier-Blanc, & Leblanc, 2003; Haynes

& Langevin, 2010) and adults (O'Brian et al, 2008; Carey et al, 2010; Kully, 2000) has been accumulating. Prior to the existence of internet-based telepractice technologies, we delivered telehealth services primarily through the telephone with clients mailing in speech samples. We now use interactive videoconferencing, secure

webconferencing (<u>Adobe® Acrobat® Connect™ Pro Meeting</u>), <u>Skype</u>, transmission of audio/video samples electronically or a combination of these. Telepractices are used for some in-take interviews, assessments and follow-up care but we primarily

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use them in combination with face- to-face treatment. When deciding if telehealth treatment is appropriate, we consider existing evidence for its effectiveness, clinician experience, access to technology, parent/client comfort, client proximity to the clinic, and, after telehealth treatment has been initiated, observed treatment integrity. In all cases, written consents to use telepractice are obtained from clients. **CASLPA** and **ACSLPA** have published position papers on the use of telepractice that discuss the importance of **consent**, **practitioner knowledge of the equipment**, and the **quality** and security of audio/video signals. Provincial or state legislation may prohibit or limit the ability to provide telepractice services to some clients.

A recently reported case study from the first author's caseload (Haynes & Langevin, 2011) illustrates the use of telepractice in conjunction with face-to-face therapy. The client's name has been changed.

Dario, age 5-4, and his family lived a 6-hour drive from the closest <u>ISTAR</u> office. He stuttered moderately and spoke English and another language at home. There was a family history of stuttering. He had been stuttering for 6 months and his stuttering was increasing in severity. Dario and his parents attended a one-week program (two hours a day, 7 sessions) where they were taught to apply the contingencies of the Lidcombe Program of Early Stuttering (Onslow et al., 2003). They chose to conduct the therapy in English.

Telepractices can allow clients in remote or rural settings to access specialist services for the assessment and treatment of stuttering not available in their communities.

Following the intensive week, videoconferencing sessions were alternated with phone sessions. During the videoconference sessions, a spontaneous speech sample was collected, the parent-delivered therapy was observed, feedback on the



Deborah Kully, cofounder of ISTAR using an early videoconferencing system.

therapy was given, and next steps were discussed. The phone sessions focused on collection of severity ratings and problem solving.

Dario completed establishment of fluency (stage 1) in 17 sessions that took a total of 12 hours and 30 minutes. He then completed 5 maintenance sessions (stage 2) that took 2 ½ hours. In total his therapy consisted of 22 sessions that were completed in 15 hours of contact. At the last session, he was maintaining severity ratings of 1 and 2 (1=no stuttering, 2=very mild stuttering, 10=severe stuttering) and the Lidcombe program contingencies had been withdrawn except on days with severity ratings >1. His stuttering decreased from a pre-treatment range of 3.7% to 14% syllables stuttered (%SS) to .3 %SS at the end of stage 1 and 1.3% at last session of stage 2.

In summary, telepractice can allow clients in remote or rural settings to access specialist services for the assessment and treatment of stuttering that is not available in their communities.

We would be happy to speak to CASLPA members about our experiences and can be reached at istar@ualberta.ca (780) 492-2619, elizabeth.haynes@ualberta.ca, (780) 492-2619. For more information please visit ISTAR's website, CASLPA position paper on telepractice, journal of telemedicine and telecare.

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Telepractice: Meeting the Stroke Rehabilitation Needs of Canadians in Rural and Remote Communities

ince telerehabilitation first appeared in the literature in 1996, both the technology and the evidence base supporting its use have undergone exponential growth. Telerehabilitation, known to speech-language pathologists (S-LPs) in Canada as 'telepractice,' is an innovation that is well-supported in the literature as a valid and reliable strategy for assessment of neurologically impaired adults (Palsbo, 2007, EBRSR, 2011). While evidence for treatment is less robust, studies to date have shown a positive trend toward efficacious outcomes (EBRSR, 2011). In addition to being a tool that is well suited to many of the services S-LPs provide (Brennan, 2002). Telepractice allows for the delivery of services in underserviced areas where S-LPs are not available or in short supply. Telepractice not only increases the capacity to provide service in an under serviced area, but also reduces the potential delay of service provision (Mashima, 2008). According to a recent national study commissioned by Health Infoway, (2011) telepractice use in Canada has grown by more than 35 percent annually over the past 5 years. However the full potential of telepractice has not yet been realized by S-LPs in a position to serve adults in rural and remote settings throughout Canada.



Simulated Aphasia Assessment and Treatment via Telepractice.

Nearly 50,000 strokes occur each year in Canada and as many as 300,000 Canadians are living with the effects of stroke (PHAC, 2009). It is estimated that 35% of stroke survivors have symptoms of aphasia at the time of discharge from inpatient care (EBRSR, 2011). Aphasia has also been reported to be an independent predictor of longer hospital stays and increased use of rehabilitation services (Dickey, 2010). The 2010 Canadian Best Practice Recommendations for Stroke Care state that telemedicine networks may play a valuable role in post-acute stroke rehabilitation (Lindsay, 2010). The use of telepractice

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can support best practices in stroke rehabilitation by improving access to services and has the potential to shorten the length of inpatient rehabilitation stays by facilitating access to specialized services upon discharge. Residents of Northern Manitoba and Northwestern Ontario who require specialized services, such as stroke rehabilitation, must travel great distances, over challenging highways, airways and weather conditions to access service. Winnipeg and Thunder Bay are the only two centres providing tertiary services to these residents. Northwestern Ontario represents 47% of Ontario's landmass and only 1.9% of its population (2006 Census). Almost half of these residents live outside of Thunder Bay in communities where specialized rehabilitation does not exist. In addition to Winnipeg's 700,000 residents, the Winnipeg Regional Health Authority also provides health care support and specialty referral services to nearly half a million Manitobans living in Northern Manitoba as well as residents of Northwestern Ontario, and Nunavut. For these residents, improved access to services is critical and telepractice is one strategy that should not be overlooked.



Exploring Speech Therapy via SKYPE™

Following a course of specialized intensive inpatient rehabilitation, which can range from 6 to 12 weeks, stroke survivors are frequently in need of continued S-LP services in order to achieve functional speech, language and/or swallowing abilities. It has been reported that 61% of aphasic patients will continue to

experience aphasia 1 year post stroke, and that the severity of the aphasia will continue to improve 12 months post stroke (EBRSR, 2011). Stroke survivors living near specialized rehabilitation can access outpatient S-LP services 1 to 3 times per week, depending on their needs, for periods of up to 6 months. Rural and remote residents do not currently have equitable access to these services and often go without. In Manitoba, outpatient rehabilitation via telepractice is being delivered successfully; however, a similar service is not yet available in Northwestern Ontario.



The above video features a former rehabilitation client highlighting his experience with Telepractice.

Telepractice saves time and travel costs. A recent report states that telehealth events saved Canadians living in rural or remote communities an estimated 47 million km and \$70 million in personal travel costs in 2010 (Infoway, 2011). In addition, telepractice allows for access to care while remaining close to family, friends and community supports and may reduce the hardships of being away from work and home.

Some of the challenges S-LPs face when considering Telehealth include: lack of infrastructure to support services; lack of

administrative personnel and/or technical support; licensure restrictions including the need to obtain multiple licenses to practice across provincial borders; and lack of standards and guidelines to ensure appropriate application that does not compromise standards of care (Mashima, 2008). Access to technology has also been reported as a barrier however this is a shrinking concern. There are currently over 176 telemedicine systems in Manitoba and 222 in northwestern Ontario.

Patient candidacy is also a limiting factor when considering Telehealth. According to Mashima (2008) patient candidacy is typically determined on a case-by-case basis utilizing careful selection criteria such as: attention; vision; auditory comprehension; hearing acuity; cognitive ability; speech intelligibility; willingness of patient or family/caregiver to participate; and comfort level with technology. Although these challenges are common to most stroke survivors, the use of trained volunteers has been shown to compensate for and/or minimize these factors.

Patient feedback regarding telepractice has been positive. With positive patient responses, most S-LPs engaged in telepractice have embraced the use of the technology in their practice, despite admitting to initial skepticism (Mashima, 2008). The use of telepractice can be facilitated by demonstrating that its usefulness exceeds the difficulties and barriers associated with its use. Ongoing research, exposure, mentorship and pre- and postgraduate education in telepractice for S-LPs will help to increase use (Dunkley, 2010). Telepractice needs to be pursued seriously as a viable and effective service-delivery strategy to ensure equitable access to speech-language pathology services in rural and remote regions.

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"10 to 11" Use of Technology to Provide **Intervention in Rural Ontario SHIRLEY WILLIAMS**

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rovision of speech and language therapy for adults in rural Ontario is a daunting challenge. Not only is it a challenge for service providers to drive to remote areas during inclement weather conditions, but it is equally challenging for clients to drive long distances, in some cases more than two hours each way, for an hour of therapy. Time, cost and fatigue are factors for clients and their families in being able to participate in intervention.

I am a Speech-Language Pathologist and have been working at Quinte HealthCare Corporation (QHC) for over 14 years. QHC is comprised of 4 hospitals. Hospital locations include Picton, Trenton, Belleville and Bancroft. This is a large, beautiful geographical area. We have Algonquin Provincial Park on our border in the north and Sandbanks Provincial Park on the Island of Prince Edward County to the south. Hastings and Prince Edward Counties have a geographical area of 7027.79 km² with a population density of 22.2 per square kilometre. In comparison, Durham County land area is 2523.14 km² and has a population density of 222.4 per square kilometre.1



Shirley Williams, Speech-Language Pathologist with OTN monitor at QHC Belleville General Hospital.

I work primarily at the QHC Belleville General Hospital. Acute inpatient rehabilitation and outpatient adult speech-language pathology services are at the central Belleville General Hospital alone. Other QHC Hospitals have a speech language pathologist travel from QHC Belleville General Hospital to provide assessment and treatment for dysphagia.

A client who had a stroke was ready for discharge from acute rehab at Belleville General Hospital continued to require intensive speech and language therapy. He was returning home to Maynooth area where frequent therapy was difficult to access. His home is over 2 hours north of the Belleville General Hospital where outpatient speech and language intervention is provided. Traveling over 2 hours each way for one hour of treatment was not a viable option. We chose, with his consent, to pursue the use of technology to provide frequent intensive speech and language therapy. QHC is a member of OTN (Ontario Telemedicine Network) available at all 4 hospitals. QHC became a member of OTN in 2009. OTN was in place and being used for other services including the Provincial Telestroke Program at QHC. OTN is a confidential version of videoconferencing, which has live, available staff for assistance and booking appointments. OTN facilitates the delivery of clinical care, distance education and meetings for health care professionals and patients.

I have not conducted speech and language intervention over video but I love my iPhone and I love using FaceTime for social connection. So why not OTN to conduct speech and language treatment? Mr. F. McKeown was excited at this opportunity to receive speech-pathology services in his backyard. This facilitated an appropriate discharge date to receive therapy as an outpatient as opposed to staying in hospital for intervention. I stayed at the Belleville General Hospital and he traveled to North Hastings Hospital in Bancroft, less than an hour away from his home as opposed to driving to Belleville, which is approximately 2 and a half hours one way in good weather.

Mr. McKeown was an eager participant to continue to receive frequent therapy and be able to be discharged to his home. This provided Mr. McKeown, a survivor of two strokes, with frequent intensive therapy despite living in a significantly rural area of Ontario. He is a retired teacher, world traveler, husband, father and holder of previous other careers. This intelligent and interesting gentleman who enjoys conversation now had difficulties retrieving and pronouncing words in addition to difficulties with high-level language and writing.

This was an incredible opportunity for me and for Mr. McKeown to be able to have intense outpatient speech pathology treatment via new technology.

I would like to share some advice in use of this new technology from mistakes and surprises as a new OTN user. As a speech-language pathologist working over 15 years, I write down keywords, cues, and letters when working with people with Aphasia. You cannot write on your client's paper through the monitor... yet. For example, I stated one instance that our next appointment was at ten to eleven. Now does that mean 10:50 or 10:00 to 11:00? Needless to say, we each showed up for that session at different times.

¹ Statistics Canada catalogue no. 591-wxe March 13 2007



Frank McKeown with Tammy Davis, Manager, Patient Services North Hastings Hospital. Appearing on the screen are Lynda Lesperance, Telemedicine Coordinator Professional Practice for Quinte HealthCare and Shirley Williams S-LP.

Using videoconferencing requires preparation ahead of time and strong communication with both locations. The staff at QHC North Hastings Hospital were incredible and worked together when someone was absent to facilitate this opportunity. In addition, at QHC there is a telemedicine coordinator who facilitated this technology.

The room at North Hastings Hospital where Mr. McKeown was located was set up with paper and pencils. I booked a room that was set up for OTN at the Belleville General Hospital and brought all of my materials for our session. Information was faxed to staff at North Hastings Hospital before the session for him to use as worksheets. In addition, materials he had worked upon were faxed to me after our session. I could not provide immediate feedback on his returned written material due to staffing and the location of the fax machine. The client was organized and had all of his material gathered together in a binder. It was great to work with a teacher as my first OTN client! Unfortunately, there is also a slight delay in speech which is challenging for communication. One must watch the listener closely to see when a pause is or do a gesture to get the clients attention or vice versa. Verbal feedback had to be timed correctly using a gesture to interrupt and watching for eye contact. It is also a challenge to focus in on a client's written material at the other site. Although, this gentleman was mobile, so he was able to position items in front of the camera for viewing. Mr. McKeown's comprehension of complex directions was mastered by moving items "down a little to the left...." In one opportunity that the telemedicine coordinator viewed, the client was able to enter the North Hastings Hospital office, turn on the light and independently recalled how to unmute the microphone on the OTN remote control, which had over 20 buttons. She was amazed and stated how several administrators have not yet mastered this procedure.

This opportunity to provide more frequent therapy to rural clients is strongly beneficial. More and more research about stroke intervention is proving that prompt, frequent and intensive therapy is most beneficial for stroke survivors. I would use OTN again and believe it is a beneficial way to provide more frequent speech-pathology intervention for those in remote areas. OTN could be used in combination with the client coming down to the main site, where the speech language pathologist is located, once a month for face-to-face intervention. In this situation we also worked with other service providers providing home therapy.

Sessions were finished when Mr. McKeown mastered the OTN remote and set up the room running the session. This gentleman brought in several different readings he had collected over the years. He practiced reading them aloud and also paraphrasing. One he brought in is an anonymous prayer he read aloud fluidly that I enjoyed and hope you will also!

A crabbit old woman golden rules for golden age:

M'lord you know I am growing older. Keep me from becoming talkative and possessed with the idea that I must express myself on every subject. Release me from the carving to straighten out everyone's affairs. Keep me from the recital of endless detail. Give me strength to get to the point. Seal my lips when I am inclined to tell of my aches and pains. They are increasing with the passing of the years and the love to speak of them grows sweeter as time goes by teach me the glorious lesson that occasionally I may be wrong. Make me thoughtful but not bossy, helpful but not nosy. With my vast store of wisdom and experience, it does seem a pity not to use it all. But you know Lord that I want a few friends in the end. Amen

TinyEYE and Telepractice Change the Lives

of Children and S-LPs



The First School

e found the forgotten children! That is what I knew for sure after my first day of providing TinyEYE online speech therapy. While interacting with my student, Daisy, on the screen, I learned that her friends did not understand her when she told them her favourite animal was a "dod". By the end of our online session, she was gleefully shouting DO-G! The child, school staff, and I clapped our hands in celebration of the triumph! It brought a tear to my eye; I knew I had made a difference in the life of a child.



The TinyEYE Virtual Office where the S-LP can access reports, homework, record billing hours, and go into a therapy session.

The community had waited years for a Speech-Language Pathologist (S-LP) to serve its school, while generations of children waited their childhood. If you believe in the difference the persistent presence of an S-LP can have on a child's life, imagine what the chronic absence of an S-LP means to a child who is in need of support. The fact is that thousands of children go without equal access to quality speech-therapy services due to barriers such as geography, S-LP shortages, and extreme caseload sizes. TinyEYE Therapy Services found a way to reach them.

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Play the video to learn how TinyEYE Therapy Services makes a difference in the lives of children in need of speech-language pathology services through the TinyEYE Therapy Room.

platform we wanted to reduce the length of time students are on a caseload and accelerate success. We did this by designing our software to maximize direct time with students and minimize time spent on planning and reporting. Additionally, we created a homework program, The TinyEYE Virtual Backpack (any school based S-LP can have free access to it for their own students) to help students practice in between sessions. Our software now includes progress tracking, reporting, home programming, scheduling and billing, and face-to-face real time interaction.

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We knew we needed amazing S-LPs to ensure our students received the best experience possible. TinyEYE's Service Excellence Program exceeds any recruiting, training, supervision, and quality assurance in the industry. Our S-LPs have the luxury of working from home, achieving a worklife balance, and reaching students around the world in need of therapy. We receive hundreds of resumes every month for our sought after positions. Our intensive screening and interview process enables us to carefully select an elite team of S-LPs. TinyEYE's new S-LPs must pass our extensive training program before working with students. TinyEYE created the Confirmation of Excellence program to ensure each child receives consistent optimal, services. TinyEYE also helps to grow the S-LP profession through the online supervision of practicums and clinical fellowship years.

Does Telepractice Actually Work?

This is still a question we get asked from special education directors and S-LPs. You might be asking it yourself. Did you know CASLPA published a position statement on telepractice way back in January of 2006? You can view here. ASHA also has its own position paper on telepractice which you can view here. The Kent State University in Ohio conducted a study on the efficacy of telepractice which found that 84% of students in the telehealth group, which used TinyEYE's speech therapy platform, achieved their IEP goals compared to only 46% in the side-by-side group. The full report from the study can be found here. For a more comprehensive review of Telepractice literature click here. You can also see some client testimonials here.

Evolution Of Online Speech Therapy

As the world leader in online speech therapy, we would like to thank the trail blazers that saw beyond the limitations: the legislators that helped in our battle to advocate for the

evolution of the rules; the special educators that were the first to say "yes" to equal access for their students; the e-helpers at each school who are critical to each student's participation in their therapy program; our elite dream team of S-LPs who make a difference in the life of every child they serve; and, most importantly, our students, who sat wide-eyed before the screen and with dedication, persevered in achieving their speech goals.

Since 2005, our team has grown to serve thousands of children around the world. We have completed over 65,000 online speech therapy sessions and now provide services to twelve countries in four languages. A seemingly impossible feat was when one of our licensed S-LPs provided speech therapy to students in five countries during one week. Without the pioneering innovation of TinyEYE's online speech therapy this would not have been possible. We are proud of our accomplishments in optimizing the capacity of the speech-language pathology profession. As TinyEYE continues to grow, we follow our vision to be the number one advocate in the world for children finding their voice.

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