



BRIEF COMMUNICATION

Video-conferencing Telehealth Linkage attempts to Schools to Facilitate Mental Health Consultation

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Abstract

Objective: Telehealth to schools may be a strategic approach to expand child mental health service delivery, however, there are only a few published examples. This report describes video-conferencing telehealth linkage attempts to schools to facilitate mental health consultation. **Methods:** A series of synchronous video-conferencing linkage strategies were attempted to connect a mental health consultation service to multiple schools in a Canadian setting. Consultation to support the implementation of the Daily Report Card, for students with attentional and behavioural problems, was the core content of this pilot linkage attempt. **Results:** Synchronous video conference consultations were successfully delivered to six elementary schools across three school districts. Two of three linkage strategies were functional. One used existing health centre-based telehealth units to connect to school-based dedicated tablets with a video collaboration app and reliance on existing school Wi-Fi. A second used existing laptops in both the health and school system linked through a communication platform. A third connection, using 3G/4G hotspots to obviate the need to access school Wi-Fi, was deemed too expensive in this setting. **Conclusion:** The potential to use existing computer hardware to connect mental health providers and schools could facilitate scale-up. However, it is unknown whether mental health systems and school sectors will invest in such linkages and reorganize core mental health services to be delivered in this way.

Key Words: telehealth, schools, mental health services

Résumé

Objectif: La télésanté avec les écoles peut être une approche stratégique pour accroître la prestation de services de santé mentale aux enfants, cependant, il n'y a que peu d'exemples publiés. Cette étude décrit les tentatives d'établir un lien de télésanté par vidéo-conférence avec des écoles pour faciliter la consultation en santé mentale. **Méthodes:** Une série de stratégies de lien par vidéo-conférence synchronisée ont été tentées afin de relier un service de consultation en santé mentale à de multiples écoles en milieu canadien. La consultation pour soutenir la mise en œuvre du Bulletin quotidien, destiné aux élèves ayant des problèmes d'attention et de comportement, était le contenu principal de cette tentative de lien pilote. **Résultats:** Les consultations synchronisées par vidéo-conférence ont été effectuées avec succès à 6 écoles primaires de 3 districts scolaires. Deux des trois stratégies de lien étaient fonctionnelles. L'une a utilisé des unités de télésanté basées en centre de santé pour se lier à des tablettes d'usage scolaire avec une application de collaboration vidéo et l'utilisation de la Wi-Fi existante de l'école. Une deuxième a utilisé des ordinateurs portatifs existants dans le système de santé et le système scolaire, liés à l'aide d'une plateforme de communication. Une troisième connexion, utilisant des hotspots 3G/4G pour contourner le besoin d'accéder à la Wi-Fi de l'école, a été jugée trop coûteuse dans ce contexte. **Conclusion:** Le potentiel d'utiliser des ordinateurs existants pour relier les prestataires de santé mentale et les écoles pourrait en faciliter la croissance. Toutefois, nous ne savons pas si les systèmes de santé mentale et les secteurs scolaires vont investir dans ces liens et réorganiser les services de santé mentale pour les fournir de cette manière.

Mots clés: télésanté, écoles, services de santé mentale

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Submitted: February 12, 2017; Accepted: November 10, 2017

Introduction

Schools may be one of the most important settings in which to deliver child mental health services (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007). Problematic, however, is that mental health resources available in or through schools may not match the central role played by schools, nor their need for resources to meet the need. Some outreach efforts to schools entail mental health staff from outside the school system physically going into schools to help address some of the service gaps. However, heavy reliance on this approach is problematic given inefficiencies in service delivery given the large number of schools and their broad geographic distribution relative to limited number of mental health providers. A mental health provider covering multiple schools may spend an inordinate proportion of time travelling between schools, especially in rural areas, but also in large and/or congested urban settings.

Incorporating telehealth into mental health outreach efforts to schools may address some inefficiencies and expand service reach (Grady, Lever, Cunningham, & Stephan, 2011; Myers & Cain, 2008). However, there are few published descriptions of specific telehealth links to schools. These may represent more complex undertakings than health-to-health linkages (Reynolds & Maughan, 2014). For example, important technical hurdles may arise given different technological set ups and capacities between health and education (Stephan, Lever, Bernstein, Edwards, & Pruitt, 2016). While it has been claimed that technical issues are no longer a major limiting step in delivering child mental health services via telehealth (Boydell et al., 2014), it is not known whether this claim extends to mental health service delivery to schools.

The objective of this paper is to describe different synchronous video-conferencing linkage attempts which were undertaken to identify functional connections from the health system to elementary schools in a Canadian setting to facilitate the delivery of mental health consultations.

Methods

Setting

This telehealth project was based in Calgary and area in the province of Alberta, Canada. The project was realized by building on two existing entities: (i) a provincial telehealth structure (Alberta Telehealth); and, (ii) a local school-health partnership (Community Outreach of Pediatrics and Psychiatry in Education [COPE] program). Alberta Telehealth is a large provincial telehealth network (>900 videoconferencing sites) integrated within a single large health region managed by Alberta Health Services (AHS) (Government of Alberta, 2017). The telehealth site based at the Alberta Children's Hospital in Calgary was used for this study. COPE is a collaboration between education, health and

social services and provides assessments and supports for children who are struggling with emotional, behavioural and/or developmental problems as identified by schools in Calgary and area, and who are not otherwise connected with specialized services (McLennan, Reckord, & Clarke, 2008). This pilot service was delivered through the COPE program.

Prior to this pilot, there was no routine use of synchronous video-conferencing telehealth linkages to schools in the participating jurisdictions. However, there was one earlier pilot effort through COPE that linked an AHS based telehealth site to a video-conferencing unit based in a pilot school. While successful linkages were made with this one school, this approach was judged to have little to no scale-up potential given that this large school district had very few of these expensive and bulky video-conferencing units.

Service Intervention

Consultation to support the implementation of the Daily Report Card (DRC) for struggling students was the mental health service provided in this pilot telehealth project. The DRC is a structured approach to the implementation of a tailored positive reinforcement program for individual students struggling with a variety of difficulties (e.g., attentional problems, oppositional behaviours). The DRC was chosen as the explicit mental health service component as it is an intervention specifically designed for school settings. In addition, COPE had experience delivering DRC support to schools through a face-to-face approach. As well, the DRC is one of the most evidence-based school approaches for improving the function of students with attention and behavioural difficulties (Vannest, Davis, Davis, Mason, & Burke, 2010). This latter point is particularly important as the study aim was assessing the functionality of the linkage as opposed to explicitly evaluating the outcomes of the intervention content. Elementary schools were the target given (i) the greater links the collaborating school mental health outreach service has with these grade levels, and (ii) that the DRC has a more established evidence base for these grade levels.

Procedures

First, a single pilot elementary school was identified where school administrative support was available for both the telehealth link and the specific service content (i.e., consultation specific to DRC implementation). The pilot school identified interested teachers and these teachers identified eligible students: (i) who were demonstrating attention and/or behavioural difficulties that were interfering with school function; and, (ii) whose parents agreed to participate in the pilot service. The pilot was offered to a second school in the same school district, however, despite initial interest, no referrals were received during the study.

Second, the pilot service was subsequently integrated into the standard COPE process whereby children, parents and teachers are offered a selection of services following a physician-based assessment of a school-referred student (McLennan et al., 2008). The pilot telehealth consultation for the implementation of the DRC was then one potential service offering. The offering of services is a negotiated process between the student, parent, teacher and clinical team and is dependent on clinical resources. Within this process, the service was offered to five more students from five different schools that entailed work with two additional school districts beyond that for the initial pilot school.

Parents and teachers interested in participating were given a handout reviewing the main concepts and components of the DRC, and the plan to deliver this service via telehealth to the school. If both the parent and teacher agreed to participate, they were asked to identify priority child behaviours and potential rewards to review and discuss at the first telehealth session. The first appointment with the mental health consultant reviewed aspects of the proposed behaviour targets and assisted with operationalizing the priority behaviour targets and initial reward structure. This session was attended by the teacher and parent, but not by the student. Typically, a service coordinator from the school mental health outreach program also attended. The teacher then collected baseline frequency of the targeted behaviour for a few days to one week, where possible, and then the reward structure was implemented. Three follow-up telehealth sessions were offered to monitor progress, assist in trouble shooting, and support intervention adjustments. These follow-ups were offered approximately every two to three weeks with adjustments around various school breaks. Additional sessions could be negotiated if needed. The consultant was in a closed clinic/meeting room at the health centre, while parents and teachers were in a closed room at school (e.g., administrative office or meeting room).

Ethics

The pilot intervention was offered as a service through COPE. The associated research evaluation component was approved by the research ethics board of the participating university, as well as the ethics committees of the participating school districts. Individual participants in the pilot service did not have to participate in the evaluation components.

Results

Three different synchronous video-conferencing linkages between the health system and schools were attempted (Figure 1). The first approach used existing stationary telehealth units based in the health system and linked them to dedicated health system tablets placed in participating schools. This linkage employed a video collaboration app

called RealPresence, which was already used in the health system and was loaded onto the tablets. The linkage was to be realized through use of existing school-based Wi-Fi. This linkage was not successful in the first school district as permission could not be obtained from that district to make the necessary adjustments to their firewall.

The second approach employed the same linkages as above in the same school district but aimed to use 3G/4G hotspots. This would obviate the need to tap into the existing school Wi-Fi. While a connection was realized with the initial pilot school, it was determined that this would be too expensive for multiple video-conferencing sessions and was not pursued to deliver actual consultation sessions. Meanwhile the first approach was trialed in a second school district where a firewall problem was not elicited. This connection strategy was successful, facilitating telehealth delivery of the mental health consultation to that district.

A third approach shifted to a communication platform called Skype for Business (formerly Lync) which was already used in the health system. Permission was obtained to pilot its use on existing health system laptops. Users of existing computers in the school setting could download a free app to be a participant in a synchronous video conference session initiated by the health system. A successful linkage was realized with the first school district and did not elicit firewall complications. This same linkage was tested in a third school district and successfully allowed consultation services to be delivered to a school in that district.

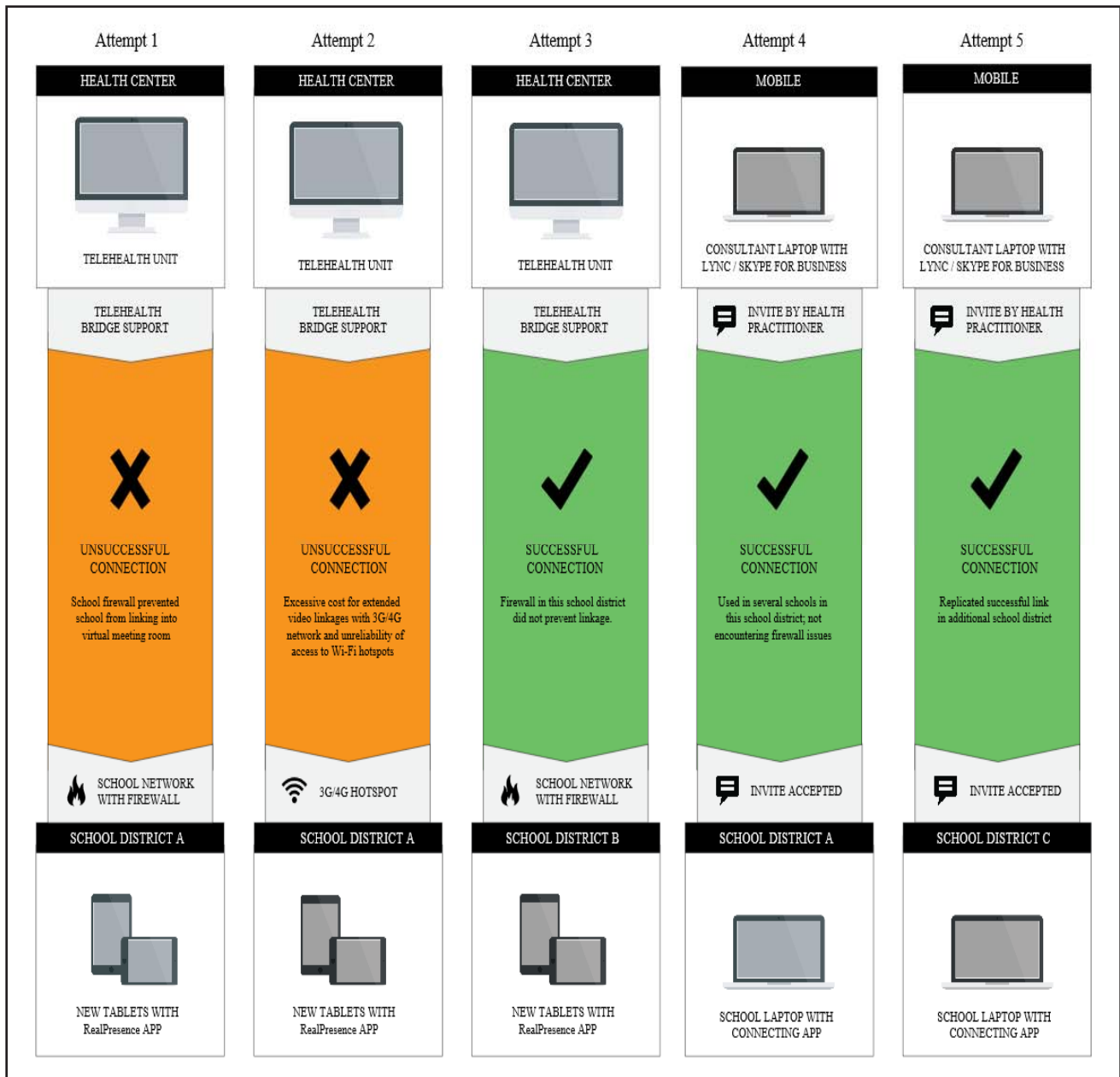
In total, 33 synchronous video conferencing consultation sessions related to the DRC were delivered to six elementary schools across three school districts to a total of seven students (Mean: 4.7 [SD 1.8] consultations/student). All consultations were provided by one child psychiatrist. Approximately 89% of the psychiatrist's appointments for this pilot service were delivered by telehealth. Four additional sessions had been arranged onsite at schools, one given a delay in start-up of the telehealth linkage at the beginning, and the others related to issues around clinical complexity where an onsite face-to-face meeting with the mental health consultant was requested or recommended.

Discussion

Mental health consultations were successfully delivered through two different video-conferencing telehealth linkages between a health centre and various schools in this pilot initiative. The linkage that was able to use existing hardware in both the health and school system holds promise for scale up given low equipment costs and minimal required technician support.

Despite some promise associated with this pilot service as far as functional connections, there were a number of limitations. First, while the project did consider multiple school districts, there were a limited number of schools and

Figure 1. Telehealth linkages attempts to schools



teachers that participated in this pilot project. Participating schools and teachers may have been early adopters of innovation and may not be representative of typical staff and schools encountered under expansion efforts (Rogers, 1995). However, the aim of this project was functional telehealth connections to determine preliminary feasibility rather than determination of broader uptake and dissemination.

Second, while there may be potential for cost-savings, costs of the different delivery types were not examined in this study. This information would have been particularly

informative to consider the generalizability of the concern over the feasibility of 3G/4G use in other settings. Studies of cost savings to date for telehealth have provided mixed results and appear to depend, in part, on the perspective taken (e.g., patient vs. health system) (Wade, Karnon, Elshaug, & Hiller, 2010).

Third, it is anticipated that there may be a number of additional challenges related to expanded uptake and scalability of such an approach that were not considered in the study. Challenges may include future changes in technology that

may be uneven across institutions. In addition, even with the potential to use existing hardware, there are other resource factors that may serve as barriers, in particular, time limitations of teachers, parents, clinicians, and technologists.

Fourth, satisfaction and technical challenges were not systematically collected and documented. There were minor technical difficulties that did not impede consultation sessions from being completed. These included occasional video freezing, volume of audio sometimes being too low (resolved with the use of a supplemental speaker), and some inconsistency with camera tracking when multiple speakers were in a room.

Despite the limitations of this project, this pilot initiative adds to the limited number of published reports on functional telehealth links to provide mental health services directly to schools. As Boydell et al. (2014) previously suggested, technical issues may no longer be major limiting factors in expanding child mental health services via this mechanism. A more substantial limiting factor may be the lack of available child mental health consultant time and the need for more extensive shifts away from traditional centre-based child mental health service arrangements to more school-linked arrangements.

Acknowledgments / Conflicts of Interest

Thanks to participating teachers and parents. Special thanks for assistance from Mark Reckord (COPE staff), Corey Bateman (Technology Services-Alberta Health Services), and Susan Gremell (Telehealth, Alberta Children's Hospital). Thanks also to Dr. Julie Owens from the Center for Intervention Research in Schools, Ohio University, for advice and consultation related to aspects of the Daily Report Card intervention. This project was funded by a Pediatric Innovation Award from the Department of Pediatrics, Cumming School of Medicine, University of Calgary and Alberta Health Services (Calgary Zone) awarded to the team

composed of John McLennan (Department of Pediatrics, University of Calgary), Jason Kettle (Technology Services-Alberta Health Services), Tamara Gordon (Calgary Board of Education) and Don Andrews (Community Outreach of Pediatrics & Psychiatry in Education [COPE] program). A supplemental grant was also received from Alberta Health Services.

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