

It's not about the technology: Telemedicine for rural and remote British Columbia

Michael Copley¹, Neil Kitson¹, John Pawlovich²

Citation: UBCMJ. 2017; 8.2 (5-6)

The Canada Health Act states that “The primary objective of Canadian health care policy is to protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers.”¹ In many areas of rural and remote British Columbia, such barriers remain. Among the obvious are distance, weather, and ability to travel, all of which produce financial barriers. Moreover, the risk of travel should be appreciated. Telemedicine, defined as the delivery of medical care at a distance through telecommunication methods, can offer a solution; however, its successful implementation will not be driven by technological advances alone. We believe that effective and trusting relationships among patients, communities, primary care physicians, and specialists are the true essence of a clinically effective telemedicine system.

In the early 1900's, Einthoven provided one of the first examples of telemedicine by transmitting electrocardiograms over telephone lines.² While telephones are still widely used, other communication methods are now available, such as real-time video (i.e. video conferencing) and, more recently, store-and-forward, a system whereby clinical information is uploaded to a website and viewed later by a consultant physician. With the now widespread availability of high-speed internet and cellular networks in many rural areas, an unprecedented level of access to telemedicine is now possible. Conversely, those communities still without either internet or cellular service remain particularly deprived.

In recent years, Canada has seen record-high usage of telemedicine in most clinical specialties. According to the Canadian Telemedicine Report, there were 411,778 real-time clinical sessions (e.g. telephone or video link) in the year 2014, representing a major increase from the 282,529 reported in 2012.³ This does not include the more than 41,863 store-and-forward sessions in 2014.³ In British Columbia, 22,585 real-time and 27,123 store-and-forward clinical sessions were reported in 2014.³ Compared to 2012, these numbers represent a slight decrease in real-time sessions but a substantial increase in store-and-forward sessions, suggesting a trend in favour of this newer technology. While the reasons behind this trend were not formally assessed, several factors might be at play. In a recent survey of dermatologists and primary care physicians, equipment costs, equipment management, and staff training—all factors that apply mainly to real-time telemedicine—were cited as barriers to its use for dermatology.⁴ In contrast, store-and-forward requires minimal investment, as it makes use of basic equipment already in most physicians' offices (e.g. computer, internet access, and one or several peripheral devices). Furthermore, the asynchronous nature of the communication in store-and-forward systems adds the advantage that there is little to no scheduling needed on the part of the referring physician or the provider.

Whatever the method, a key to the effectiveness of telemedicine is to establish enduring relationships among health care providers. This has been shown to be an important factor in both primary care physician work satisfaction and optimal patient care.^{5,6} As noted above, store-and-forward platforms are widely used and can be a highly effective method of communication for both consultants and primary care physicians. Telephones also continue to be a useful method of connecting physicians, as demonstrated by the expansion of the Rapid Access to Consultative Expertise (RACE) program.⁷ With the nearly universal ownership of mobile phones, most of which are smart phones, clinical use of these devices, in our experience, is widespread, yet there is almost no data available regarding these practices. In one study of residents in Saudi Arabia, 64.4 % of respondents reported using their personal mobile phone as a primary form of medical communication; however, only 6.9 % had received formal training on the medical use of mobile phones.⁸ Because there are significant advantages in terms of costs and convenience, personal mobile phones will likely play a key role in the delivery of telemedicine; however, since legitimate privacy concerns exist, standards and universal training should be put in place to protect patients and providers.

Regarding the establishment of telemedicine delivery standards in this province, those that best foster relationships between consultants and primary care providers should be encouraged. This may be accomplished through “telemedicine communities” representing rural areas, their associated primary health care providers, and designated specialists. One such community of practice being formed as a result of local planning and initiative is that by Carrier-Sekani Family Services.⁹ This model is founded on a “bottom-up” approach, which thoughtfully matches telemedicine services to local conditions. In such a model, consultants visit the areas they serve, both to better appreciate local challenges and to forge relationships with local practitioners, patients, and the communities in general. Consultants and primary care providers connect for both elective and acute care services; the technology simply helps to stitch this tapestry of providers and patients together. The types of technology used can be decided by a given “telemedicine community” and inevitably are those that are most convenient and effective. In other words, the technology supports the model of care; it does not define it.

A consultation with a specialist is not only for clinical care but also an opportunity for education at the “point of care.” Furthermore, when consultations occur in “real time,” dialogues can promote both collegiality and education for specialists about the realities of rural and remote medicine. We also believe that there is potential for more immediate involvement of both allied health care professionals and the patients themselves.

Despite technical advances that allow unprecedented levels of interaction between patient and provider (e.g. use of peripherals such as digital stethoscopes and otoscopes), telemedicine likely will never—and should never—replace traditional in-person consultation when this is reasonably accessible. In rural and remote British Columbia,

¹Department of Dermatology and Skin Science, University of British Columbia, Vancouver, BC, Canada

²Department of Family Practice, University of British Columbia, Vancouver, BC, Canada

Correspondence to:
John Pawlovich (jpawlovich@csfs.org)

in-person consultations are frequently inaccessible by any reasonable standard. We argue that telemedicine should always be considered in the care of such patients.

Telecommunication technologies continue to improve and in fact can now provide convenient, secure, and reliable connections between specialists, primary care physicians, and patients anytime and anywhere. In a true patient-centred model of care, technology will simply bring people separated by distance together to provide care, education, and support. The effectiveness of such connections will depend on the working relationships of the people being connected. We believe that the evaluation of telemedicine programs in this province should consist of measures that matter—health outcomes, the patient experience, and costs—“The Triple Aim”.¹⁰ For this to be most useful, similar evaluations of current urban practice will be needed.

References

1. Canada Health Act. 1985. R.S.C., 1985, c. C-6. Paragraph 3, <http://laws-lois.justice.gc.ca/eng/acts/c-6/page-1.html#h-3>.
2. Vidmar DA. The history of teledermatology in the Department of Defense. *Dermatol Clin*. 1999;17(1):113-24, ix.
3. Canadian Telehealth Report. 2015.
4. Ogbechie OA, Nambudiri VE, Vleugels RA. Teledermatology perception differences between urban primary care physicians and dermatologists. *JAMA Dermatol*. 2015;151(3):339-40.
5. Berendsen AJ, Benneker WH, Meyboom-de Jong B, Klazinga NS, Schuling J. Motives and preferences of general practitioners for new collaboration models with medical specialists: a qualitative study. *BMC Health Serv Res*. 2007;7:4.
6. Sampson R, Barbour R, Wilson P. The relationship between GPs and hospital consultants and the implications for patient care: a qualitative study. *BMC Fam Pract*. 2016;17:45.
7. Rapid Access to Consultative Expertise. <http://medstaff.providencehealthcare.org/shared-care/rapid-access-to-consultative-expertise/>.
8. Jamal A, Tamsah MH, Khan SA, Al-Eyadhy A, Koppel C, Chiang MF. Mobile phone use among medical residents: a cross-sectional multicenter survey in Saudi Arabia. *JMIR Mhealth Uhealth*. 2016;4(2):e61.
9. All Nations Trust Company and Carrier Sekani Family Services PtT. A case study in eHealth and sustainable digital connectivity. 2006. (J. Pawlovich, personal communication).
10. Institute for Healthcare Improvement. IHI Triple Aim Initiative. 2016. Available from: <http://www.ihl.org/engage/initiatives/tripleaim/pages/default.aspx>.