Article

ALTERNATIVE AN INTERNATIONAL JOURNAL OF INDIGENOUS PEOPLES

AlterNative
1–3

DOI: 10.1177/1177180118806430
journals.sagepub.com/home/aln
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Contemplating remote presence technology for culturally safe health care for rural indigenous children

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Abstract

Indigenous children living in rural and remote Canada have limited access to paediatric specialty services. As such, they experience a high rate of medical transport out of their home communities. The Truth and Reconciliation Commission's calls to action has prioritized access to health care that is culturally safe and community directed. Remote presence robotic technology—a novel form of telemedicine—seeks to overcome the barriers of distance and time to improve health care access. The robot allows for direct patient visualization, examination, and communication with local health care providers and family members. This intervention may reduce unnecessary paediatric transfers, and enhance culturally safe care in the child's home community through timely access to paediatric subspecialty care.

Keywords

health services accessibility, indigenous health services, paediatrics, telemedicine, transportation of Patients

Introduction

Providing paediatric health care in rural Canada is a substantial challenge. The paucity of health care providers with expertise in paediatrics necessitates the routine transportation of children over great distances to regional or tertiary care facilities. Indigenous children are particularly vulnerable as many live in remote communities without specialty trained paediatric providers.

The Truth and Reconciliation Commission's (TRC) call to action (TRC of Canada, 2012) urged Canadians to prioritize health care access for Indigenous peoples. In order to promote equitable access to health care for Indigenous children, we must begin challenging ourselves to develop paediatric health care delivery models that are community-directed, culturally safe, and preferably close to their home. Remote presence technology has the potential to address these deficiencies.

Cultural sensitivity and consequences of medical transfer

The federal government instituted Indian Residential Schools (IRS) in the 19th century to assimilate Indigenous children into a colonial Canada. For more than a century, children were removed from their homes and separated from their parents, families, and elders to provide what we now identify as a social determinant of health: education. Instead of enhanced education, the IRS system resulted in consequences that included intergenerational health disparity and "cultural genocide" (Potvin, 2015). In addition to these traumas, over 11,000 children were forcibly placed in the child welfare system during the "sixties scoop" (Reading and Nowgesic, 2002). For many indigenous communities, these historical injustices have resulted in distrust and fear whenever their children must leave home.

In 2015, the TRC developed calls to action, and invited the Canadian society to improve the conditions for indigenous peoples by promoting mutual respect through reflection on historical events. Achieving health equity was identified as a key factor in moving towards reconciliation (TRC of Canada, 2012) with mutual respect necessitating direct community and family involvement in decision-making (Smylie, 2015). Consequently, realizing health care equity for Indigenous children should be facilitated by a model of care that works to prioritize indigenous children receiving health care near their families in or close to their communities.

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Figure 1. A remote presence device at a clinic in a northern Saskatchewan First Nations community.

Access to care is a determinant of health and remains one of the major reasons for the health care gap between indigenous and non-Indigenous Canadians today (Cameron, Carmargo Plazas Mdel, Salas, Bearskin, & Hungler, 2014). Although nearly 50% of the rural and remote indigenous communities are under the age of 16 (Government of Canada, 2011), they are typically void of comprehensive and local paediatric programming. Furthermore, with Canada's geographical vastness, providing effective and timely access for paediatric consultant and acute care is difficult (Philpot, Day, Marcdante, & Gorelick, 2008). Often, multiple steps prior to accessing specialty advice are required that potentially remove local providers from the bedside and compromise timely intervention. This can result in a hesitancy of rural clinicians to make definitive assessments and initiate optimal therapies, often resulting in activation of unnecessary medical transports to avoid diagnostic discrepancies (Hansen, Beer, & Vallance, 2017; Figure 1).

Within our current delivery model, indigenous children—regardless of their condition or criticality—experience a high rate of medical transports and routinely leave home. The current system has impressions of colonial philosophy, as discussions pertaining to the child's management often exclude the parents, family, and community. However, we are challenged to go beyond standard approaches and explore innovative solutions that emphasize culturally safe indigenous paediatric health care that can deliver the necessary level of care closest to home.

Potential solution

Understanding the importance of self-determination to Indigenous communities is paramount to creating decolonized paediatric health care delivery. A critical step should involve seeking understanding regarding how Indigenous communities define paediatric health care access. In 2014, several indigenous community leaders in northern Saskatchewan were engaged in discussions, and agreed to trial remote presence robotic technology (RPRT). RPRT was positively viewed as it addressed the following decolonizing principles: (1) direct connection between the paediatric consultant, patients, families, and remote health care team; (2) enabling of partnerships in formulating a care plan; and (3) promotion of self-determination by valuing the patient and family's health care priorities.

RPRT is a form of telemedicine that has the potential to refine current processes and supporting indigenous centres by providing direct paediatric consultant and acute care. The RP-7i robot (InTouch Health Inc., Santa Barbara, CA) has technology that creates the sense that an off-site physician is at the patient's bedside through real-time audio-visual communication, peripheral digital devices (dermatoscope, otoscope, stethoscope), remote manoeuvrability and accessibility within seconds of the referral (Mendez, Jong, Keayes-White, & Turner, 2013). This differs from many telemedicine programmes that require prescheduled visits and technology support to perform a remote consult through a telehealth suite. Despite most physicians being familiar with telemedicine, it is not readily chosen as a health care delivery method for provision of acute care in remote communities.

Our recent pilot study looking at triaging paediatric acute care transports with RPRT revealed that direct assessment and triaging with RPRT significantly decreased the number of respiratory patients requiring transport out of their home communities (Holt, Sari, Hansen, & Bradshaw, 2018). The design of the pilot was informed by community-based participatory research methodology. Two years prior to initiating the pilot project community engagement with members, leaders, as well as multidisciplinary heath care professionals, cultivated the self-directed deployment and utility of the robotic device (Holt et al., 2018). Pelican Narrows, Saskatchewan, where the first robot was deployed, self-identified acutely ill children as the cohort with the most urgent need for access to medical specialty support.

Although our pilot was conducted from one northern community, it has created a platform for the development of a RPRT programme in Saskatchewan. Currently, we are servicing four northern communities with acute paediatric consultant care, with plans to expand broader in the near future. In the past, our programme has focused on the assessment and management of acute paediatric presentations, but is currently evolving into the broader utilization of other paediatric sub-specialists involved in preventive care, and subacute and chronic pathophysiologies. This is consistent with the programme's vision to provide timely, comprehensive and culturally safe paediatric health care access for children living in remote communities.

Surprisingly, RPRT has the potential for significant cost benefit. There are no daily technology fees, and the robot is run autonomously from the laptop of the care provider. It also does not require an expansive telehealth infrastructure that has been associated with traditional screen technologies. The saved expense of medical transport and the avoided strain that medical transport has on families both emotionally and monetarily led to provincial ministry engagement and support. Outcome metrics (transport numbers; diagnosis; local and tertiary care hospital stay) are enabling the programme's quality and safety to be monitored as it continues to expand. Moreover, qualitative interviews with family members as well as local and tertiary

health care providers, who have experienced paediatric health care delivery with RPRT, are ongoing.

Conclusion

If paediatric specialists cannot reside in remote northern communities, then remote delivery of health care may be a model that empowers Indigenous self-determination, decolonization, and reconciliation. The utilization of RPRT represents an innovative method of providing culturally safe care. RPRT or similar technologies, should be considered across Canada and related geographies for the provision of remote tertiary care. It is imperative that we find culturally safe solutions like RPTR to transform our clinical standards and address the deep and ongoing gap in Indigenous health care access.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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