Should e-health be expanded into rural Albertan communities?

Norquest College

Harlene Gill

ENGL 2510 O01

Taylor Scanlon

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Abstract

This report explores the topic of e-health expansion into rural Albertan communities. The challenges and benefits surrounding the topic are discussed, emphasizing the setbacks of the current healthcare system and the enhanced outcomes e-health can provide. Key findings highlight the importance of frameworks like those outlined by Woods et al. (2024), which identify dimensions such as governance, education, and tech capability as crucial for successful implementation. Challenges include inadequate digital infrastructure, training gaps, and cultural sensitivities, particularly for Indigenous populations. Recommendations focus on targeted training, robust infrastructure, and culturally relevant practices. Expanding e-health in these communities offers a transformative opportunity to create an equitable, sustainable healthcare system.

Recommendations

1. The first recommendation will be for the expansion of e-health across the rural and remote communities in Alberta. This will improve access to healthcare for individuals restricted by their geographic location. E-health will also lower costs and reduce the stresses (eg. wait times in both emergency rooms and visits to health care providers) placed upon the current healthcare system and those living in remote areas. The expansion will only benefit our current system through the adherence to the aims that are essential for an interconnected and interdependent healthcare system. Following the main aims of healthcare (ie. excellence in health, experience-patient and provider, and costs) an overview of the current systems should be conducted. Within this overview, these dimensions should be explored: consumer centered care, education, tech capability, governance and management. If any dimension is found lacking from the set standard, resources must be allocated to build the capabilities of that dimension. When administered in such a way, e-health will benefit rural and remote communities in Alberta.
2. The second recommendation will come as a subsection of the first. When exploring the benefits of e-health in Indigenous communities within Alberta, we must integrate the following: approach the expansion of the dimensions (ie. patient centered care, education, tech capability, governance and management) in a way that is conscious of the traumatic history and mistrust that years of strife with the Canadian government have brought forth. Holistic approaches that prioritize community and culture must be respected and integrated within this framework.

Introduction

The push towards an improved healthcare system has been at the forefront of Alberta. The current climate consists of severe emergency room wait times, and months of waiting for specialized care. There is a lack of trust due to the frustration caused by inaccessible healthcare. This mistrust is amplified for the Indigenous as history repeatedly demonstrated an unjust system.

Those living in remote communities share the same experiences as the urban population in addition to the isolation and lack of access given the nature of their geography. The Government of Alberta (GOA, 2024) states that the rural and remote populations consist of over 18% of the population in Alberta with sizes of 10,000 or less people, and distances of 200 kilometres or more from urban centres. Only 7% of the provinces health care providers reside within rural and remote communities as expressed by the GOA (2024).

The disparities depicted through the healthcare system can be rectified through the expansion of e-health within rural and remote communities. The World Health Organization defines e-health as the "cost effective and secure use of information and communication technologies" used in healthcare (Buyting et al., 2022, p. 134). The expansion of e-health will create accessible healthcare to isolated populations and remedy the high costs, and stresses brought to both the patient and system. The expansion must fall in accordance with the quadruple aims of healthcare; that being, as stated by Woods et al. (2024): "population health, patient experience, healthcare costs, and provider experience" (p. 2).

Methods

The methodology used to explore the topic of the expansion of e-health into rural Albertan communities, was largely done through finding resources online that discussed the

topic. Initial steps constituted of using the Norquest library and NEOS database with key words such as ‘rural’, ‘e-health', ‘ Alberta’, ’digital health’, and ‘telehealth’. Unique combinations of these keywords were combined using the Boolean AND operator. The search was later expanded to google where the sources used in this report were found. There are 3 scholarly articles and 1 government action plan (ie. authoritative source). When choosing sources, attention was drawn to the time frame of 2020 to present.

There were no specific scholarly articles which were peer reviewed that reference Alberta as a stand alone save the action plan written by GOV. The article written by Buyting et al. (2022) discusses Alberta in context with other provinces. The selection led to sources that discuss Canada apart from one source; the article written by Woods et al. (2024) discusses e-health in rural Australia. This article analyses data taken from interviewing healthcare staff. Although different in geography, this source was chosen for its thorough analysis of the capabilities required to run a successful e-health program within rural and remote communities. Similarities can also be drawn on the basis that both Canada and Australia are westernized countries. The other two scholarly sources discuss Canadian rural communities, with the article by Fitzpatrick et al. (2023) discussing Indigenous communities.

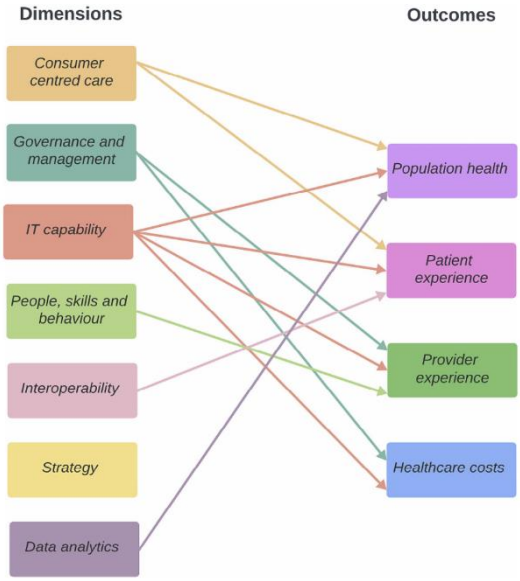
Results

Woods et al. (2024) identify key dimensions for successful e-health implementation in rural populations, including consumer-centered care, governance, education, IT capability, interoperability, and strategy. These interconnected dimensions must function cohesively to achieve the quadruple aims of healthcare. For example, IT capability depends on interoperable training programs (education dimension) to ensure both staff and patients can effectively utilize new technologies. Inconsistent or inadequate training can lead to inefficiencies, as highlighted by

interviewees: one noted feeling disempowered due to insufficient training, which hindered job performance (Woods et al., 2024, p. 6), while another emphasized how poor training compromised data accuracy in self-monitoring health practices (Woods et al., 2024, p. 9). These challenges directly affect patient and provider experience, population health, and costs. Insufficient training not only reduces clinician confidence and care quality but also results in errors and inefficiencies that increase healthcare expenses. Woods et al. (2024) stress that addressing these gaps through comprehensive, consistent education and training is critical for the success of e-health systems. Figure 1 depicts the dimensions and their interconnectivity.

Figure 1

Dimensions of the e-health framework



Note: Adapted from Woods et al. (2024). The framework highlights the interconnected dimensions necessary for achieving digital health maturity.

Buyting et al. (2022) examine multiple articles referencing e-health and CVD in rural Canadian communities. The study highlights the benefits of e-health for managing cardiovascular disease (CVD) in rural communities, emphasizing that addressing data accuracy

and security concerns is crucial. They identify sharing patient data and supporting self-management as key areas of impact. The integration of tools like automated vital sign monitoring provides clinicians with real-time data, enabling proactive management of patient health while eliminating the need for frequent in-person visits (Buyting et al., 2022). The study also emphasizes how virtual care allows patients in rural areas to access specialist care more conveniently, reducing travel burdens and delays in treatment (Buyting et al., 2022). These initiatives have been shown to enhance self-efficacy and mental health among patients while delivering comparable outcomes to traditional in-person programs (Buyting et al., 2022).

Fitzpatrick et al. (2023) identify four key themes in implementing Indigenous primary healthcare through virtual modalities: barriers, Indigenous-centered care, virtual relationality, and collaborative approaches. Barriers include inadequate digital literacy, unreliable infrastructure, and historical mistrust of government systems. The study highlights the importance of culturally relevant practices and community collaboration, recommending "tele-spirituality," addressing overcrowded housing, and securing long-term funding for infrastructure. These efforts foster trust and support a holistic, community-driven care model (Fitzpatrick et al., 2023).

Discussion

Rural Albertan communities experience limited access to healthcare and technological capabilities, long wait times and commutes required to reach medical facilities, and systemic inequities when it comes to Indigenous populations. Regardless of whether systems are set in place, if one of the dimensions within the framework set forth by Woods et al. (2024) is lacking, the entire system risks collapse. It is crucial to analyze the current systems in place to build successful e-health operations in rural communities. This requires exploring each dimension,

ensuring it is well-equipped with the tools needed to support a fully integrated and interrelated system. For example, insufficient training not only diminishes provider confidence but also creates inefficiencies and errors that increase costs and negatively impact population health. Thus, an expansion would focus on prioritizing comprehensive training programs.

Buyting et al. (2022) highlight that virtual care technologies enable proactive health management while reducing the need for travel and in-person visits. These benefits align directly with the aims of healthcare. As such, the recommendation to expand e-health services directly addresses these aims by leveraging virtual care technologies to fill critical gaps in healthcare access.

Fitzpatrick et al. (2023) signify the importance of cultural sensitivity and community involvement when discussing the expansion of e-health into Indigenous populations. The study argues that Indigenous-centered virtual care models, which incorporate culturally relevant practices and involve community leaders, are key to building trust and ensuring successful implementation. Recommendations such as incorporating "tele-spirituality" and addressing infrastructure deficits, such as overcrowded housing and unreliable technology, are essential to creating a holistic, community-driven healthcare model.

By addressing the deficiencies in the existing e-health frameworks, whether through improved training, enhanced technological infrastructure, or culturally sensitive approaches, we can create a sustainable and effective e-health system tailored to each community. Understanding the interconnected nature of the dimensions is crucial. This understanding is demonstrated in the action plan created by the GOA (2024) to tackle healthcare within rural communities. Figure 2 highlights the key points the action plan focuses on.

Figure 2

Key areas of focus for 2024-2024 GOA action plan

Note: Adapted from GOA (2024). This image depicts the key areas of focus for the expansion of healthcare across rural Alberta.

Conclusion

Expanding e-health into rural Albertan communities presents a transformative opportunity to address systemic healthcare inequities, improve outcomes, and create a more efficient healthcare system. Guided by the frameworks identified by Woods et al. (2024) and aligned with the quadruple aims of healthcare—enhancing population health, improving patient and provider experience, and reducing costs—this initiative will provide equitable access to care for underserved populations. By implementing targeted training programs, building robust technological infrastructure, and incorporating culturally sensitive practices, particularly for Indigenous communities, e-health can meet the unique needs of these regions. Furthermore, these efforts complement the Government of Alberta's (2024) action plan, which emphasizes improving healthcare equity, access, and outcomes in rural areas. This tailored approach ensures that rural Albertan communities are no longer left behind, paving the way for a sustainable and inclusive healthcare system.

References

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