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Enhancing Access to Cancer Education for Rural Healthcare Providers via Telehealth

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Abstract

Healthcare providers serving rural populations face numerous barriers to accessing educational programming. Difficulties accessing continuing professional education contribute to the challenges of providing comprehensive health care in the rural setting. Telehealth can inform and educate rural providers about changes in medicine and evidence-based practices, both of which may help them provide quality care. The Native People for Cancer Control Telehealth Network used telehealth technology to deliver a cancer education series in 2008 and 2009 to Washington and Alaska rural healthcare providers who treated American Indians and Alaska Native people. Customizing presentation content to providers' educational needs encouraged attendance. Evaluation indicated videoconferencing technology was positive received for delivery of the educational sessions. This series demonstrated videoconferencing was a satisfactory means of delivering real-time, interactive cancer educational programming to providers who might not otherwise have access to such programs.

Keywords

Cancer education; Rural healthcare providers; Telehealth

Introduction

Providing comprehensive health care in the rural setting is challenging. According to the 2000 US census, 21% of the US population resides in rural communities [1], but only about 10% of US physicians practice in rural settings [2]. The majority of these physicians are primary care clinicians who provide a broad range of services, yet are often isolated from interactions with healthcare specialists [3]. For these rural providers, keeping abreast of the rapid changes in medical knowledge and evidence-based practices is imperative; it is also key to offering quality care in rural communities. The purpose of this paper is to present information about our use of telehealth technology to deliver cancer education to rural healthcare providers who care for American Indians and Alaska Native (AI/AN) people.

Barriers to Continuing Professional Education of Rural Healthcare Providers

Rural healthcare providers face numerous barriers to obtaining continuing education, including geographic isolation and distance from tertiary care and teaching hospitals where much information originates [4, 5], lack of financial resources for travel [5], and inability to take time away from work due to lack of coverage [4, 6]. Organizational barriers that limit delivery of educational programs in the rural setting include lack of financial resources and poor technological and telecommunications infrastructure [4]. These issues of professional isolation and lack of access to continuing education are believed to play a significant role in the recruitment and retention of rural healthcare providers [4].

To address the barriers rural providers face in attaining continuing professional education, solutions need to be driven by the educational needs of the rural healthcare providers [7]. When planning educational programs, a rural community's professional and patient cultures both must be taken into account, as well as the available delivery technologies and the health care setting's technological infrastructure [7].

Telehealth for Continuing Professional Education

Telehealth is an effective approach for delivering professional education to rural healthcare providers. One method, videoconferencing, is the use of video technology to transmit images, voice, and data between two or more locations. This technology allows for real-time interactions between participants and can deliver educational materials to many people across different sites for reasonable costs. It offers the potential to improve access to learning for rural healthcare providers [8]. Videoconferencing has been widely used in continuing medical and nursing education and is well-accepted by learners [8–10]. Its use in rural and remote locations is increasing, and it is highly effective as an education method with rural healthcare provider population. Further, videoconferences have been shown to be as effective as standard, in-person lectures in increasing rural healthcare providers' knowledge [10].

The quality of telehealth programs may depend on the technology used. Technical difficulties with videoconference delivery of education to rural healthcare providers are typically be minor [9, 11]. However, seating participants so that they are all visible to the speaker is important [9]. Additionally, some participants reported a lag in audio transmission

that hinders discussion when learners from two sites respond simultaneously. These issues specific to videoconferencing should be considered when using this technology.

Native People for Cancer Control Telehealth Network

The Native People for Cancer Control Telehealth Network (NPCCTN) provides cancer care services—including post-diagnosis cancer care, cancer survivor support groups, and educational opportunities for patients and providers—to AI/ANs and their healthcare providers via telehealth technologies. NPCCTN's overall purpose is to improve cancer care for AI/ANs in Washington State and Alaska. It provides cancer care services to seven tribes in Washington State and up to 60 sites throughout Alaska through the Alaska Federal Health Care Access Network and the Alaska Rural Telehealth Network. Each of the remote sites in Washington is equipped with a Polycom video teleconferencing unit and is provided with connectivity via the statewide K-20 Education Network or the Indian Health Service Network.

Cancer, almost unknown in the AI/AN communities until recently, is now the leading cause of death for ANs over 45 years of age [12] and the second leading cause of death for AIs over 45 years of age [13]. Many AI/ANs live on reservation lands or in remote rural areas and receive primary health care through a tribally operated health program or the Indian Health Service [14]. Due to the lack of cancer care specialists in their communities, AI/ANs diagnosed with cancer often travel to an urban medical center for treatment. It is critical that their local providers have up-to-date knowledge about developments in cancer and cancer care so that they can appropriately treat and refer patients from their communities with suspected or diagnosed cancer.

NPCCTN Cancer Education Series

Health care providers caring for AI/ANs in rural Alaska and Washington State shared with us that they experience the same barriers to attending continuing education programs as those reported in the literature [4–6]. Geographic isolation, lack of financial resources, and the costs of travel, time away from work, and coverage all limit rural providers' attendance at professional conferences and educational programs located in distant urban settings. To overcome these barriers, the NPCCTN team members based in Seattle and in Anchorage worked with rural healthcare providers and with clinical experts at the University of Washington and the Seattle Cancer Care Alliance to develop a cancer education series for providers. The purpose of this series was to present overviews and updates related to cancer and to address culturally relevant cancer care issues at rural healthcare providers' workplaces.

Participating rural healthcare providers were engaged in selecting topics and identifying convenient and feasible dates and times for the videoconference presentations. The topics selected included specific cancers, symptom management, and issues related to survivorship, end-of-life, and psychological aspects of cancer. To maximize the number of participants, the program was presented during the lunch hour on the third Thursday of each month. The series was publicized and scheduled well in advance to allow providers to plan attendance at the presentations most relevant to them. Presentations were made by experts from the NPCCTN, including physicians, a nurse scientist, a nurse practitioner, a clinical psychologist, a legal expert, and an Alaska Native healer. Participating providers included physicians, nurse practitioners, nurses, physician assistants, and community outreach workers.

Telehealth Delivery of the Cancer Education Series

The NPCCTN cancer education series was delivered monthly to 29 tribal clinic sites using videoconferencing, which is one telehealth modality. A mean of five sites (range: 2–10) joined the videoconference at each presentation. Total attendance in the educational series was 368; however, some participants attended multiple sessions. At most sites, the videoconference equipment were managed by an information technologist who had been trained by the University of Washington's telehealth staff to operate the equipment. Training was provided either in person, online, or by telephone. University of Washington telehealth technical staff also hosted each presentation and was continually available for remote troubleshooting of technological problems. For the most part, audio and video transmissions were very clear, though audio lag occasionally led to participants speaking simultaneously with one another or the presenter.

The sessions took place in a conference room at most rural site, with participants sitting at a table. Most speakers presented from a Seattle or Anchorage location, although on one occasion, a speaker presented from Minnesota. The speaker was able to see at least one remote site at a time. This allowed the speaker to see the facial expressions of participants at remote sites, and to note whether or not they were engaged in the presentation. Topics were presented for 45 min and were followed by a 15-min question-and-answer period.

Evaluation

To evaluate the program, NPCCTN staff sent a written satisfaction survey via email to local site coordinators at each participating site after each of the first 10 monthly sessions. Site coordinators distributed the survey to the 131 participating providers videoconference sessions; 71 (54%) returned the survey. The survey used Likert scale questions to gather information about use of telehealth for professional education sessions. Responses were anonymous.

As seen in Table 1, overall satisfaction with telehealth was high, with a mean rating of 3.6 on a 4-point scale. Satisfaction with the sound quality and picture quality was also high. Participating providers rated their feelings about telehealth prior to and after their first educational session. Scores increased from 3.0 to 3.48, indicating that use of telehealth improved its satisfaction ratings. Usefulness of the information provided by the educational sessions was also rated high, with a mean of 3.59. The most well-attended session was psychological issues in American Indians and Alaska natives with cancer ($n=36$). The next most highly attended sessions were lymphomas ($n=20$) and Pain and symptom management in cancer ($n=20$), followed by childhood cancers ($n=19$), and pharmacological management of cancer pain ($n=19$).

Open-ended survey responses indicated participating providers found the educational series valuable. Responses included the following: "I thank you for presenting all this informative and educational seminars and for extending the invitation to participate to us in bush Alaska," "The subject matter was well thought out and presented in a clear and organized manner," and "I liked being able to interact with other providers in clinics far away and know they have the same questions I do." Open-ended responses supported the use of videoconference technology in making continuing professional education a reality for rural healthcare providers.

Discussion

The NPCCTN cancer education series was designed to meet the needs of rural healthcare providers caring for AI/AN cancer patients. It achieved this goal by delivering presentations

by videoconference to 368 participating providers. Customizing the series to the healthcare providers' educational needs encouraged attendance and enhanced knowledge where needs had been identified. The session on the psychological issues experienced by AI/ANs with cancer had almost twice as many participants as any other session. The popularity of this session may have been due to the speaker, who was a well-known and well-respected native healer in Alaska, or to the providers' need for knowledge about AI/AN cultural issues. Although all sessions provided information on cultural issues related to cancer, such as introducing cancer as a conversation topic and respecting cultural beliefs, it would be worthwhile to devote a future educational series to the topic of cultural and psychological issues.

The program evaluation indicated that cancer education using videoconferencing was well-received by the participants. This finding was similar to those of other studies evaluating the use of videoconferencing in delivering professional continuing education to rural healthcare providers [8–11].

NPCCTN made it possible for 28 rural sites in Alaska and Washington State to participate in interactive educational sessions. If telehealth technology had not been used, healthcare providers would have had to travel distances ranging from 60 to 1,100 miles to attend the cancer education series. Telehealth videoconferencing is a viable alternative to attending educational programs presented at distant locations. As indicated by other professional educational programs [11–14], videoconferencing technology offers rural healthcare providers a cost-effective alternative for continuing education, and eliminates geographic disincentives to attending distant programs.

The telehealth platform facilitated an interaction experience very similar to face-to-face interaction. It supported meaningful discussion with healthcare specialists and other providers, thus potentially decreasing professional isolation and enhancing interdisciplinary collaboration. However, the effectiveness of videoconferencing depends on the quality of the technology. As telehealth technology continues to improve, minor technical issues, such as the audio lag experienced during this series, may be overcome.

Conclusion

The NPCCTN cancer education series demonstrated that telehealth technology is a feasible method for delivering real-time, interactive cancer education to multiple rural sites. Telehealth is a viable solution to the barriers faced by rural health providers in obtaining continuing education. Incorporating participant input during program planning enhances content relevance for providers, and ultimately may enhance the delivery of quality cancer care.

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Table 1Mean reported satisfaction with Telehealth ($N=71$)

Items	Mean^a	SD
Rating of sound quality	3.28	0.63
Rating of picture quality	3.11	0.62
Comfort level with asking questions over telehealth	3.06	1.19
Before this videoconference, feeling about telehealth	3.00	1.00
After this videoconference, feeling about telehealth	3.48	0.73
Overall satisfaction with telehealth	3.61	0.80
Usefulness of information presented to healthcare delivery	3.59	1.09
Would use telehealth again	3.45	1.23
Would recommend telehealth to others	2.86	1.69

^aRange from 0 lowest to 4 highest