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EXPERIENCE

Perceived sustainability of community telepharmacy in North Dakota

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ABSTRACT

Objectives: To assess the sustainability of the business model underlying the North Dakota Telepharmacy Project (NDTP).
Setting: Of the 38 community pharmacy organizations (14 central, 24 remote), 27 organizations (11 central and 16 remote sites) in North Dakota provided a useable set of responses (71.1% response rate). A twelfth organization (a community pharmacy) ceased operations over the study's time frame and was not included in the data analysis.
Practice description: Emphasis is placed on NDTP community telepharmacies, because the community telepharmacy business model is more established than hospital telepharmacies. Yet little is known about the long-run financial viability of telepharmacies.
Practice innovation: Originally funded by a series of federal grants, the goal of the NDTP was to create the infrastructure necessary to support the development of telepharmacy sites. A 48-item questionnaire assessed the self-reported operational, financial, and community impacts of a community telepharmacy.
Evaluation: The questionnaire was administered from December 2015 to February 2016 to all NDTP community telepharmacy owners-managers. Thus, 1 participant (owner-manager) addressed both central and remote-site locations served by a pharmacy.
Results: Most respondents reported that their telepharmacy sites (especially remote sites) generate small positive financial returns for the organization. Respondents also reported that the closure of their remote sites would significantly harm the communities they serve.
Conclusion: NDTP aims of restoration and retention have been achieved via the investment and shared decision making with pharmacy owners in North Dakota. The telepharmacy model is sustainable, even if it does not generate significant economic profit.

Objective

The purpose of this study was to assess the perceived sustainability of community telepharmacy sites in North Dakota. The analysis focused on both central and remote-site telepharmacies, the latter defined as pharmacy technicians working alone, but under real-time videocommunication supervision of the pharmacist at a central community pharmacy site. Sustainability was derived from criteria established in the pharmacy administration literature, which focuses on access to health care and patients' willingness to use community telepharmacy services.[1-7] Economic viability was assessed with the use of operational and financial metrics described elsewhere in the pharmacy workforce literature.[4,8,9]

Practice description

Rural community pharmacies in the United States face a number of major economic and public policy challenges. One important challenge is that many of these pharmacies operate on lower prescription volumes and operating margins than their urban counterparts. As third-party payers attempt to move patients into mail order services, and as rural patients "bypass" local community pharmacies for those in more distant, urban areas, these volumes and margins have declined even further.[10-13] Over time, this has led to pharmacy closures, reduced patient access to pharmacy services, and negative

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Key Points

Background:

- A survey was used to assess the business model underlying the North Dakota Telepharmacy project.

Findings:

- Most respondents reported that their telepharmacy sites generate positive returns for the business.
- Closure of the remote sites would significantly harm the communities they serve.

impact on the economic vitality of rural communities. Community pharmacies in rural areas often find it difficult to attract and retain pharmacy staff.[1,14-17] In addition, if the pharmacist-owner chooses to retire, the low volume and operating margins make it more difficult to sell the pharmacy, increasing the likelihood that the pharmacy will close its doors when the pharmacist retires.

In 2002, North Dakota initiated a state-wide telepharmacy program to restore and retain access to pharmacists and pharmacy services in medically underserved rural communities.[10] Today, there are 25 telepharmacies that function as central pharmacy sites and 56 telepharmacies that function as remote telepharmacy sites. Of the pharmacies involved, 53 provide community pharmacy services and 28 provide hospital pharmacy services. It should be noted, however, that the number of unique telepharmacies in the project is smaller (and less easily quantified) than these numbers suggest, because some sites provide both hospital and community services. Thirty-eight counties (73%) in North Dakota and 2 in Minnesota are involved in the project.[10] Since its inception, approximately 80,000 rural citizens have had their pharmacy services restored, retained, or established through the North Dakota telepharmacy program.[18] According to the North Dakota Board of Pharmacy, of the 56 originally established, only 1 remote telepharmacy site has been lost. The North Dakota telepharmacy program has been one of the greatest success stories in the history of the profession of pharmacy in North Dakota, and as a result of this success, it is important to identify key elements affecting the economic viability and sustainability of these remote telepharmacy sites.

Setting

North Dakota is a highly rural state with an estimated population of 646,844 people in 2009.[19] The population density is less than 9.3 persons per square mile, which is significantly less than the national average of 79.6.[20] Approximately 68% (36/53) of its counties have 6 persons or fewer per square mile and are designated "frontier counties."[21] This sparse population creates significant challenges in access and delivery of health care services, including pharmacy services, to remote locations. Similarly to many rural areas in the United States, rural communities in North Dakota have lost health care providers (e.g., physicians, nurses, pharmacists) because of their small populations.[22]

In 2000, the North Dakota Board of Pharmacy determined that more than 26 rural community pharmacies in the state had recently closed. Over the past 2 decades, the national pharmacist shortage meant that newly graduated pharmacists were typically being hired out of state by corporate-owned pharmacies offering larger salaries, leaving few pharmacists to replace those who were retiring in small rural communities.[7] In some cases, the pharmacist was the only full-time health care provider in the community, and the loss of the pharmacist meant the loss of local access to health care.

Practice innovation

The North Dakota State University (NDSU) School of Pharmacy received a federal grant in 2002 from the Office for the Advancement of Telehealth to implement a state-wide telepharmacy program (North Dakota Telepharmacy Project) to restore and retain rural pharmacies and to test new telepharmacy practice rules.[20] The NDSU School of Pharmacy, in cooperation with the North Dakota Board of Pharmacy and the North Dakota Pharmacists Association, were awarded federal funding for fiscal years 2002 through 2008 from the Health Resources and Services Administration's Office for the Advancement of Telehealth to implement telepharmacy services in underserved rural communities in North Dakota.

In 2003, the Board of Pharmacy established permanent rules[23] that allowed a retail pharmacy to open and operate in remote rural areas of the state without a licensed pharmacist being physically present in the store. These rules allow a pharmacist to use audio and video telecommunications technology to supervise a registered pharmacy technician at a remote telepharmacy site in the processing of patient prescriptions.

Intervention

A 48-item questionnaire assessed the self-reported operational, financial, and community impacts of a community telepharmacy.

Evaluation

The study procedures were reviewed and approved by the NDSU Institutional Review Board. An e-mail list was obtained from the North Dakota Board of Pharmacy of all licensed pharmacists that owned and managed a community telepharmacy organization (of which there are 38 organizations: 14 central and 24 remote sites) in North Dakota. With the use of this list, the survey was administered along with a cover letter inviting the owners/managers to participate in this study ($n = 27$ organizations: 11 central sites and 16 remote sites participated) during the period December 2015 through February 2016. The survey was redistributed by e-mail invitation at 2 and 3 weeks later. The remaining nonrespondents were contacted at 6 weeks, by either email or telephone.[24,25]

The 48-item questionnaire is composed of 5 sections (Appendix). Questions in section A (pharmacy characteristics) include type of pharmacy (remote, central), year established, years in business, business hours, number of pharmacists and pharmacy technicians, and average number of prescriptions filled per day. Items on prescription volume include changes at