Fact Sheet
Version 2

Question 3: In adults with type 2 diabetes mellitus living in rural communities in the Southeastern part of the United States, how does an APRN-provided chronic healthcare model with specialty telehealth services compared to a traditional face-to-face physician-provided healthcare model affect patients' metabolic outcomes and self-care management?

What research has been conducted in this area?

Research shows…

1. **Improved knowledge, empowerment, and social support**
   - Patient and providers reported satisfaction with the telehealth intervention for education and management. (1, 4, 5)
   - Significantly improved participants' knowledge and confidence in their ability to face challenges resulting from diabetes. (2, 3)
   - Significantly improves self-perception of physical, social, and mental health. (4)

2. **Improved access to care, delivery of services, and relations with healthcare providers**
   - Nurse practitioners are ideal candidates to coordinate telehealth interventions as they can provide dual education and management services. (1, 5)
   - Delivery of telehealth services by a team coordinated by nurse practitioners reduced hospital admissions, bed days of care, emergency room visits, unscheduled clinic visits, and prescription use. (4)
   - Telehealth technology can facilitate a team-based approach to high quality diabetes care delivered in a timely manner. (5, 12)
   - Telehealth technology can serve as a viable tool to screen for diabetic complications, particularly in rural areas. (6)

3. **Improved monitoring of risk factors, adherence to treatment, and life-style changes**
   - Telehealth can lead to improved control over blood sugar. (1, 2)
   - Telehealth can increase the number of patients who adopt more active life-styles. (1)

4. **Challenges**
   - Nurse practitioners may not be eligible for reimbursement for tele-health services. (1)
   - There can be difficulties in scheduling of telehealth sessions between providers and rural participants. (3)

Does this research fit within PCORI and AHRQ funding priorities?

This research aligns with the following three PCORI funding priorities:

- Comparative Clinical Effectiveness Research,
- Conditions that affect large numbers of people across a range of populations, and
- Residents of rural areas. (7)

The project also aligns with three of AHRQ's funding priority areas:

- AHRQ has priority interests in funding PCOR research into practice
- AHRQ has priority interests in CER. CER projects that seek to compare different ways of organizing and delivering health care are a priority for AHRQ, and
- Rural citizens and individuals with chronic diseases such as diabetes are priority populations for AHRQ. [8]

Has the research been funded by PCORI?

The titles and executive summaries of all 570 funded PCORI grants from 2012 to 2016 were reviewed. [9] Any grants that included a focus on rural settings (n = 6), telehealth or telemedicine (n = 20), or diabetes (n = 15) were selected. This specific research topic has not been funded by PCORI but similar studies have been. There are currently 20 PCORI funded projects that examine telehealth but their focus is on the delivery of services to the home and not on APRN primary-care services. Further, only 2 funded projects are targeted toward rural populations:

- Comparative Effectiveness Trial between a Clinic- and Home-Based Complementary and Alternative Medicine Telerehabilitation Intervention for Adults with Multiple Sclerosis (MS), funded $5,803,149 in 2016; and
- Ostomy Telehealth for Cancer Survivors, funded $2,107,824 in 2016.

Has the research been funded by AHRQ?

A search of the AHRQ website (33) was done to investigate the current and past research that has been done related to telehealth and diabetes care for rural patients. In order to search for AHRQ grants that were similar to the research topic under investigation, the following steps were taken:

1. Accessed the Grants On-Line Database – Search tab
2. Selected AHRQ Research Grants – 5947
3. Selected priority population as "rural" – 984; then entered "diabetes" in abstract text box - 39 grants found totaling $15,943,962.
4. Selected priority population as "rural" – 984; then entered "telehealth" in abstract text box – 6 grants were found totaling $1,030,996.
5. Selected priority population as "rural" – 984; then entered "telehealth" and "diabetes" in abstract text box – 1 grant was found totaling $500,000.
6. Selected priority population as "rural" – 984; then entered "diabetes" and "nurse" in abstract box – 3 grants were found totaling $2,991,700.
7. Selected priority population as "rural" – 984; then entered "telehealth" and "nurse" in abstract box – 0 grants were found.

Additionally, a search was conducted of Research Reports from AHRQ main page: Research tab, Research Findings and Reports, then AHRQ Research Studies. Research Studies is a monthly compilation of research articles funded by AHRQ or authored by AHRQ researchers and recently published in journals or newsletters. The following keywords were used to search for any relevant studies from 2013 to 2016: rural, diabetes, and telehealth. Twelve studies were found for rural, 71 were found with diabetes, and 1 for telehealth. After reviewing abstracts and removing duplicates, 1 study was found related to the topic of interest. [11]

- Telehealth interventions for diabetes self-management improved behavioral, biologic, and diabetes knowledge-related outcomes in adults with T2DM living in rural areas (Lepard, Joseph & Agne, 2015).

Is this study feasible to do in Georgia?

There is an existing infrastructure to support the study of telehealth and telemedicine in Georgia. The Georgia Department of Public Health has an Office of Telehealth & Telemedicine that oversees telehealth and telemedicine services, providing services to clients in remote areas using two-way, real-time technology. (12)

Literature search methodology

A literature search was conducted to find studies exploring how effective is a model of diabetes care involving APRN provided primary care combined with telehealth services with endocrinologist specialists compared with traditional healthcare delivery for patients in rural communities. The two databases searched were PubMed via MEDLINE and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) via EBSCOhost. A timeframe of approximately 10 years was used, starting January 1, 2007 and ending May 22, 2017. Inclusion criteria were that the study be written in the English language and be either a primary peer-reviewed article or a dissertation. Search terms included (Advanced Practice Nurse OR Nurse Practitioner) AND (telehealth OR telemedicine) AND rural AND endocrinologist yielded zero results so endocrinologist was replaced with diabetes resulting in 4 articles and 1 dissertation. Searches in the PubMed database yielded 1 article. In the process of reading the articles, the dissertation was found to be duplicated as an article, and 1 additional article was identified resulting in a total of 6 articles that were included in the evidence table.

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