

Implementation of Telepharmacy in Rural Hospitals: Potential for Improving Medication Safety

Key Findings

- Although rural hospitals are implementing telepharmacy initiatives in several states, the use of telepharmacy technology to provide pharmacist services to rural hospitals is not widespread.
- Many of the hospital telepharmacy efforts that are underway are pilot projects or are operating under temporary waivers of state regulations.
- State regulations that allow rural hospitals to make appropriate use of pharmacy technology are needed if telepharmacy is to realize its potential for increasing access to pharmacist expertise in rural hospitals and helping to achieve the overall goal of improving medication safety.

Background

Many rural hospitals, especially critical access hospitals (CAHs),* have limited hours of on-site pharmacist coverage.^{1,2} Several studies have concluded that limited pharmacist hours adversely affect the contributions that pharmacists can make to medication safety in rural hospitals.^{1,3,4} Telepharmacy arrangements have been proposed as a way for smaller rural hospitals with limited pharmacist coverage to obtain additional pharmacist resources.^{5,6}

*Critical access hospitals are small rural hospitals that have a maximum of 25 beds for acute inpatient or swing bed care and an annual average length of stay of less than 96 hours per patient for acute care patients.

Purpose of the Study and Approach

The purpose of this project is (1) to describe successful telepharmacy activities being implemented in rural hospitals and (2) to analyze policy issues related to the implementation of telepharmacy projects in rural hospitals, including the potential impact of telepharmacy use on medication safety for rural patients.

We defined telepharmacy broadly to include a range of activities such as having a small rural hospital fax or electronically transmit medication orders for review by a pharmacist at another hospital; use of remotely controlled medication dispensing equipment; and long-distance supervision of pharmacy technicians by a pharmacist at another site. Hospitals were defined as rural by their state office of rural health or state board of pharmacy. The selected rural hospitals included several hospitals located in non-core rural counties and a few hospitals located in micropolitan rural counties, as defined by the federal Office of Management and Budget (OMB). One hospital was located in a rural census tract within a metropolitan county covering a very large geographic area.

Data for the project came from telephone interviews with state boards of pharmacy, rural hospitals and their hospital partners implementing telepharmacy activities in ten geographically diverse states. In the selected states, we interviewed the directors of the state boards of pharmacy about the policy environment for telepharmacy and state laws and regulations governing telepharmacy. At identified hospitals in each state, we conducted phone interviews with hospital pharmacy directors, CEOs, or directors of nursing to gather data about the specific telepharmacy activities that are being implemented. The interview results and information on state laws, regulations, and policies regarding hospital telepharmacy were summarized and analyzed to identify cross-cutting themes across hospitals and states.

Results

Several different rural hospital telepharmacy models are being implemented around the country. A common telepharmacy model involves sharing of pharmacist services among hospitals in the same health care system. Other telepharmacy models involve a combination of system and nonsystem hospitals; a network of hospitals that have joined together to share telepharmacy and other services; contracting for telepharmacy services with a commercial telepharmacy company; or several small rural hospitals contracting with each other for telepharmacy services. The models being implemented appear to be a function of a variety of factors, including the state policy and regulatory environment, and rural hospital characteristics, including ownership and network relationships, the

type of rural area (e.g., isolated rural or frontier versus more densely populated areas), distances between hospitals, hospital size, and medication order volume.

About half of the hospitals reported using grants for their initial telepharmacy setup expenses, including federal, state, and private foundation funds. Additional expenses for these hospitals came from their operating budgets; the other hospitals funded their entire telepharmacy efforts through their own operating budgets. Some critical access hospitals reported that Medicare cost-based reimbursement is helping them pay for telepharmacy. However, other hospitals indicated that lack of funding was a barrier to purchasing updated medication dispensing equipment.

The vast majority of hospitals reported that they track medication error rates internally, and some hospitals indicated that they have seen improvements in their medication error rates since implementing telepharmacy activities. Other measures being tracked by some hospitals include accuracy of order entry, turnaround time on order entry, number of after-hours orders, follow-up on after hours orders, overrides of automatic dispensing machines, productivity of pharmacy and nursing staff, and increases in billable revenues. Two multi-hospital telepharmacy projects reported that formal evaluations were conducted in partnership with universities; another conducted an evaluation of its telepharmacy pilot project for a report to the State Board of Pharmacy.

Policy Implications

Several themes emerged from our interviews with hospitals and state boards of pharmacy and reviews of state laws and regulations. First, while we were able to identify examples of rural hospitals that were implementing telepharmacy initiatives in several states, the use of telepharmacy technology to provide pharmacist services to rural hospitals is not widespread. Second, although telepharmacy is of considerable interest nationally and in some states, the majority of states have not yet adopted regulations that define the circumstances under which telepharmacy activities are allowed in hospitals. Many of the hospital telepharmacy efforts that are underway are pilot projects or are operating under temporary waivers of state regulations. In a number of states, the primary focus of telepharmacy regulation has been on retail settings.

The study's interviewees reported that federal regulations were not a barrier to telepharmacy implementation in rural hospitals. Joint Commission standards were a major motivation for some accredited facilities to use telepharmacy for after-hours medication order review, but were not a factor for the small rural hospitals that are not accredited. In a few states, some hospitals appear to be implementing telepharmacy activities without state regulatory approval, because

of the absence of state regulations or confusion about processes for obtaining approval. Several hospital respondents suggested that the adoption of state regulations defining allowable telepharmacy activities could encourage the implementation of telepharmacy in more rural hospitals.

Rural hospitals are increasingly motivated to improve medication safety, but face growing competition for a limited supply of pharmacists interested in practicing in smaller rural communities. At the same time, pharmacy technology is becoming more widely available and affordable. These factors suggest that interest in implementing telepharmacy activities in rural hospitals is likely to grow in the near future, and state boards of pharmacy will face increasing pressure to address telepharmacy regulatory issues in both hospitals and retail locations.

Discussions about telepharmacy regulation are occurring in the context of a broader national debate about the pharmacy workforce implications of changes in the practice of pharmacy. These changes include rapid growth in the volume of medications dispensed, the expansion of pharmacists' medication management responsibilities and overall workloads, and the evolution of pharmacy automation technology.⁷ As they consider the adoption of telepharmacy regulations, state boards will need to address a number of policy issues, including the physical location of pharmacists providing telepharmacy services; the types of technology to be used; the minimum amount of time a pharmacist must be on-site at a hospital; and the roles of pharmacists, pharmacy technicians, and nurses in medication distribution systems. State regulations that allow rural hospitals to make appropriate use of pharmacy technology are needed if telepharmacy is to realize its potential for increasing access to pharmacist expertise in rural hospitals and helping to achieve the overall goal of improving medication safety.

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Additional Information

The information in this policy brief is based on Upper Midwest Rural Health Research Center Final Report #8 by Michelle Casey, MS, University of Minnesota; Walter Elias, PhD, Elias & Associates; Alana Knudson, PhD, University of North Dakota; and Walter Gregg, MA, MPH, University of Minnesota.

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For more information, contact:
Michelle Casey, (612) 623-8316, mcasey@umn.edu

Partners

Ira Moscovice, PhD, Director
University of Minnesota
Rural Health Research Center
School of Public Health
2221 University Ave SE, Suite 112
Minneapolis, MN 55414
Phone: (612) 624-6151
<http://www.hpm.umn.edu/rhrc>