

Current practices and state regulations regarding telepharmacy in rural hospitals

MICHELLE M. CASEY, TODD D. SORENSEN, WALTER ELIAS, ALANA KNUDSON, AND WALTER GREGG

Many rural hospitals, especially critical-access hospitals (CAHs), have limited hours of onsite pharmacist coverage.^{1,2} In addition, a significant number of pharmacists in small rural hospitals practice primarily in community pharmacy settings, providing part-time pharmacist consultant services in hospitals and nursing homes in addition to their retail responsibilities.³

Several studies have demonstrated that limited pharmacist hours adversely affect the contributions pharmacists can make to medication safety in rural hospitals. As a result of pharmacist vacancies, rural hospital pharmacists in Illinois reported a reduction in the amount of time available to provide clinical pharmacy services and an increase in pharmacy-related medication errors.⁴ Onsite pharmacist hours in rural community hospitals in four western states were significantly associated with pharmacists being involved in initial ordering of antibiotics and providing active oversight of antimicrobial use.⁵ Limited access

Purpose. Telepharmacy practices in rural hospitals in several states were examined, and relevant policies and state laws and regulations were analyzed, along with issues to be addressed as the use of telepharmacy expands.

Methods. Telepharmacy initiatives in rural hospitals were identified through a survey of the 50 state offices of rural health. Telephone interviews were conducted with board of pharmacy directors in selected states with successful telepharmacy programs. Interviews were also conducted with the individual hospitals regarding the type of telepharmacy activities, funding, and impact on medication safety. The information was analyzed to identify themes and to assess whether state laws and regulations followed recommendations by the National Association of Boards of Pharmacy (NABP) and the American Society of Health-System Pharmacists.

Results. Although telepharmacy is addressed in NABP's model pharmacy practice act, many state boards are just beginning to address it. The model act addresses the practice of pharmacy across state lines, and the state board directors interviewed generally agreed that pharmacists should be licensed in the state where they are providing the service. States dif-

fered on whether a pharmacist should be required to be physically located in a licensed pharmacy and how much time the pharmacist should have to spend onsite. Telepharmacy models being implemented in hospitals in several states incorporate long-distance supervision of pharmacy technicians by pharmacists. The models being implemented vary according to area, state regulations, hospital ownership, and hospital size and medication order volume. Most hospitals reported that they track medication error rates, and some said error rates have improved since telepharmacy implementation.

Conclusion. The application of telepharmacy in rural hospitals varies across the United States but is not widespread, and many states have not defined regulations for telepharmacy in hospitals.

Index terms: Administration; American Society of Health-System Pharmacists; Data collection; Errors, medication; Hospitals; Location; National Association of Boards of Pharmacy; Pharmaceutical services; Pharmacists, hospital; Pharmacy, institutional, hospital; Regulations; Telepharmacy; United States

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to pharmacists in six Nebraska CAHs resulted in greater opportunities for prescribing errors, unauthorized drug errors, and improper dose errors to reach the patient.⁶ In a national survey of rural hospitals with fewer than 100 beds, the amount of pharmacist staffing was significantly related to active pharmacist participation on key hospital committees that address medication issues, including pharmacy and therapeutics, medication safety or patient safety, and infection-control committees.¹

Telepharmacy arrangements have been proposed as a way for small rural hospitals with limited pharmacist coverage to obtain additional pharmacist resources.^{7,8} The National Association of Boards of Pharmacy (NABP) has defined the practice of telepharmacy as “the provision of pharmacist care by registered pharmacies and pharmacists located within US jurisdictions through the use of telecommunications or other technologies to patients or their agents at a distance that are located within US jurisdictions.”⁹

NABP regularly updates the Model State Pharmacy Act and Model Rules of the National Association of Boards of Pharmacy to assist states in keeping their pharmacy practice acts and regulations updated to reflect changes in the practice of pharmacy. In 2006, the model act was revised to specifically address medication therapy management services and telepharmacy issues. The current model act includes “the practice of telepharmacy within and across state lines” in the definition of the practice of pharmacy and allows the provision of pharmacy services via remote pharmacies and remote dispensing sites when appropriate.⁹

The American Society of Health-System Pharmacists (ASHP) House of Delegates adopted a policy position regarding regulation of telepharmacy services in 2007.¹⁰ The policy position advocates that boards of pharmacy “adopt regulations that

enable the use of United States-based telepharmacy services for all practice settings.” In addition, it defines several issues for boards of pharmacy to consider when drafting regulations for telepharmacy service, including (1) education and training of participating pharmacists and technicians, (2) information system requirements, (3) remote order entry, remote prospective order review, remote double-checking of the completed medication order before dispensing, actual dispensing, and patient counseling and education, (4) licensure (including reciprocity) of participating pharmacies and pharmacists, (5) service arrangements that cross state borders, (6) service arrangements within the same corporate entity or between different corporate entities, and (7) service arrangements for workload relief in the point-of-care pharmacy during peak periods. The ASHP policy position further identifies a need to explore and resolve additional legal and professional issues in the provision of telepharmacy services from sites outside the United States.

Telepharmacy has the potential to improve the quality of pharmaceutical care and to decrease medication errors and adverse drug events in small rural hospitals. However, because telepharmacy is relatively new and not widely disseminated, peer-reviewed literature on this topic is limited and available articles tend to describe telepharmacy activities in a single hospital or a small number of hospitals.¹¹⁻¹⁴

This article aims to fill gaps in existing knowledge about telepharmacy in rural hospitals through an in-depth analysis of current telepharmacy activities in rural hospitals in several states and policy issues influencing the adoption of telepharmacy in rural hospitals. It also highlights pharmacy practice-related issues that should be considered as the application of telepharmacy in rural health care organizations expands.

Methods

For this study, the directors of all 50 state offices of rural health (SORHs) were surveyed regarding rural hospital telepharmacy initiatives in their states. From the results of our literature review and the survey, a geographically diverse group of states where rural hospitals were implementing telepharmacy initiatives was selected, including Arkansas, Idaho, Minnesota, Montana, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Washington. In the selected states, the directors of the state boards of pharmacy (SBOPs) were interviewed by phone regarding the state policy environment and laws and regulations governing telepharmacy. SORH and SBOP representatives were asked to identify rural hospitals in their states with successful telepharmacy programs. Phone interviews were conducted with the pharmacy director, chief executive officer, or director of nursing of these hospitals to gather data on their telepharmacy activities, relationships with telepharmacy partners, funding, and the impact of telepharmacy activities on medication safety.

The analytic approach to this project was primarily descriptive. The interview results and data on state laws and policies regarding hospital telepharmacy were summarized and analyzed to identify themes across hospitals and states and to assess whether the state laws and regulations addressed the recommendations of the NABP model act and rules and the ASHP policy position on telepharmacy.

Adoption of state laws and regulations governing telepharmacy

The NABP model act includes telepharmacy in the practice of pharmacy, and the ASHP policy position recommends that SBOPs adopt regulations that enable the use of telepharmacy services for all practice settings.^{9,10} However, many SBOPs are

just beginning to address telepharmacy issues. Table 1 lists the states in the study that have adopted specific regulations relating to telepharmacy.

North Dakota. North Dakota has historically been the most active in addressing telepharmacy regulatory issues, with initial regulations adopted in 2001 and regulations specifically focused on hospital telepharmacy added in 2003. State laws and regulations define a special licensure subclass for telepharmacies, and the North Dakota Board of Pharmacy and North Dakota State University have been very involved in efforts to implement and evaluate telepharmacy in community and hospital pharmacy settings.

Montana. Montana defined the practice of telepharmacy as providing “pharmaceutical care through the use of information technology to patients at a distance” in state law in 2001. Current regulations, adopted in 2006, govern the use of telepharmacy and remote telepharmacy dispensing machine sites. The rules are not specific to hospitals. To be licensed as a remote telepharmacy site, a site must be located beyond a 10-mile radius of an existing pharmacy.

South Dakota. South Dakota defined telepharmacy practice in state law in 2007 and was in the process of enacting regulations establishing criteria for the use of telepharmacy in hospitals, nursing facilities, and retail pharmacies at the time of the study interviews. These regulations, which were subsequently adopted in 2009, are quite extensive. They allow a hospital pharmacy to contract with a “central pharmacy” to provide after-hours pharmacy services via electronic means; require approval of the after-hours service agreement by the board of pharmacy; and specify staff training, policies, and procedures, including patient profile information to be made available to the pharmacist at the central pharmacy.

Texas. Texas regulations require pharmacies in hospitals with 101 or

Table 1.

Study States with Telepharmacy Regulations

State	Regulations
North Dakota	North Dakota Administrative Code 61-02-08, Telepharmacy (61-02-08-08 specifically addresses telepharmacy in hospitals)
Montana	Montana Code Annotated 37-7-101 Administrative Rules of Montana 24.174.1302, Telepharmacy operations 24.174.1303, Remote telepharmacy dispensing machine sites
South Dakota	South Dakota Codified Laws 36-11-71 and 36-11-72 Administrative Rules 20:51:30, Telepharmacy
Texas	Texas Administrative Code 22-15-291 Subchapter D, Institutional pharmacy, 291.72 and 291.73 Subchapter G, Remote pharmacy services, 291.121
Idaho	Idaho Administrative Code IDAPA 27.01.01.252, Pharmacy practice in institutions 27.01.01.257, Outsourcing 27.01.01.292, Registration, drug outlet 27.01.01.294, Registration of pharmacists to engage in the practice of telepharmacy across state lines
Utah	Utah Code 58-17b-102, Definitions 58-17b-612, Supervision, pharmacist-in-charge

more licensed beds to be under the continuous onsite supervision of a pharmacist and hospitals with 100 or fewer beds to have a pharmacist at least on a part-time or consulting basis, with a pharmacist onsite at least once every seven days. At the time of the study, electronic supervision of pharmacy technicians was allowed only as a pilot project. Regulations were subsequently adopted in 2009 that allow hospitals with 100 or fewer beds to have a pharmacist provide remote electronic supervision of pharmacy technicians or pharmacy technician trainees.

Idaho. Idaho adopted regulations in 2005 that allowed the executive director of the board of pharmacy to authorize rural institutional facilities to participate in telepharmacy pilot projects. A contract was required between the rural facility and the central pharmacy that identified the directors of pharmacy at the two locations and described the telepharmacy services to be

performed; the contract had to be approved by the executive director of the board prior to the initiation of telepharmacy services. In 2009, Idaho adopted legislation expanding the definition of the practice of pharmacy to include “the practice of telepharmacy within and across state lines.” The board adopted temporary regulations effective in July 2009 allowing institutional pharmacies (hospital, skilled-nursing, and long-term care facilities) to contract with central pharmacies for prescription processing or filling services and requiring registration of pharmacies and pharmacists who provide telepharmacy services across state lines.

Other states. The remaining states in the study allow telepharmacy activities in certain situations, which are usually determined by SBOPs on a case-by-case basis. Utah and Washington have allowed telepharmacy pilot projects with permission from the SBOPs. Arkansas,

Minnesota, and Oklahoma allow telepharmacy activities by granting variances or waivers of specific SBOP regulations.

Utah and Washington. The Utah pharmacy practice act stipulates that a supervising pharmacist need not be in the same location as a pharmacy technician if the pharmacy is in a hospital or a clinic located in a “remote rural county” (defined as having fewer than 20 people per square mile) and the pharmacist is available via a telepharmacy system for immediate contact. The Washington State Board of Pharmacy is currently using existing rules related to electronic transmission of prescriptions and automated drug release to approve telepharmacy projects.

Arkansas. Arkansas regulations provide that the SBOP may approve a request for offsite order entry when a hospital pharmacy can “demonstrate that the procedure will result in an improvement in patient care by increasing the amount of time of pharmacist involvement in the process of medication review for safety and efficacy prior to the administration of the medication to the patient.” The pharmacist in charge of the hospital pharmacy is required to submit a written request for offsite order entry to the board that describes all needed policies and procedures for offsite order entry and backup systems in case of system failure.

Minnesota. Telepharmacy in both hospitals and retail pharmacies is handled through the variance process in Minnesota. Applicants apply for a variance to a specific regulation; a committee of the board reviews the request and makes a recommendation about whether to approve it. The Minnesota Board of Pharmacy has approved several variances involving remote order-entry review that involve having a pharmacist at another hospital review electronically transmitted orders after hours. The board also adopted “Guidelines for Dispensing with Re-

mote Distribution via Telepharmacy,” which apply primarily to community pharmacy settings.

Oklahoma. The Oklahoma State Board of Pharmacy considers requests, on a case-by-case basis, to allow a rural hospital to transmit medication orders electronically for review by a pharmacist at another hospital. It has allowed pharmacists to review medication orders from a remote location; the pharmacists must have access to all the information they need to make professional decisions (e.g., access to references online and a link to the hospital computer). A board committee to examine the need for remote pharmacy rules was set up in 2009.

Licensure of pharmacies and pharmacists

The ASHP telepharmacy policy recommends that SBOPs address licensure of participating pharmacies and pharmacists and service arrangements that cross state borders.¹⁰ The NABP model act incorporates the practice of telepharmacy across state lines within the scope of the practice of pharmacy and requires independently practicing pharmacists to register with the state board and provide proof of licensure in good standing in another state in order to provide telepharmacy services to patients across state lines.⁹

In our study, the interviewed SBOP representatives generally agreed that pharmacists providing telepharmacy services should be licensed in the state where they are providing the service. A few states also allow pharmacists who are located in other states to provide telepharmacy services in specific circumstances. In North Dakota, a pharmacy providing telepharmacy services must be licensed in the state or a contiguous state; pharmacists with licenses from other states may be approved on a case-by-case pilot basis. South Dakota requires central pharmacies and pharmacists to be licensed in the state; a central phar-

macy located in an adjoining state is allowed to provide services to a South Dakota hospital if the hospital is part of a health care system in the adjoining state. Idaho requires institutions and pharmacists outside Idaho who provide telepharmacy services to Idaho patients to register with the Idaho State Board of Pharmacy.

States differed on whether pharmacists should be required to be physically located in a licensed pharmacy or could provide services from another location; they also differed on the minimum amount of time a pharmacist should be required to be onsite in a hospital receiving telepharmacy services. On a case-by-case basis, the Oklahoma State Board of Pharmacy has allowed pharmacists to review medication orders from a remote location if they have access to all the information they need to make professional decisions. Arkansas hospitals receiving remote pharmacy support must meet the same onsite requirements as other hospitals (i.e., those with 50 beds or more must have a pharmacist onsite at least 40 hours a week and hospitals with fewer than 50 beds must have a pharmacist onsite at least five days per week to perform and review pharmacy dispensing, drug utilization, and drug distribution activities). Montana requires at least one visit per month by the overseeing pharmacist to the remote site. South Dakota regulations specify that contracting for after-hours pharmacy does not relieve a hospital pharmacy “from employing or contracting with a pharmacist to provide routine pharmacy services within the facility.” In pharmacies with automated mechanical distribution devices, a pharmacist must be present a minimum of once a week; in pharmacies without such devices, a pharmacist must be present on a daily basis excluding weekends and holidays.

Use of pharmacy technicians and information systems

The ASHP telepharmacy policy

recommends that SBOPs address the education and training of participating pharmacists and technicians and information system requirements. The telepharmacy models currently being implemented in hospitals in Montana, North Dakota, South Dakota, Texas, and Utah incorporate long-distance supervision of pharmacy technicians by pharmacists, while models being implemented in hospitals in other states, such as Arkansas and Idaho, rely on nurses obtaining medications from medication dispensing equipment.

In North Dakota, a pharmacy technician must be registered with the SBOP, must have graduated from an ASHP-accredited program, must have at least one year of work experience as a North Dakota-registered pharmacy technician, and must demonstrate knowledge and experience in preparing prescriptions for dispensing and working with patients. South Dakota requires a pharmacy technician working at a remote pharmacy to have a minimum of 2000 hours of experience as a registered pharmacy technician and to be certified through a program recognized by the SBOP. Texas requires that all pharmacy technicians working in institutional pharmacies pass a board-approved certification examination; the pharmacist in charge is responsible for the initial training and inservice education of pharmacy technicians. In Montana, a technician at a remote telepharmacy site must be currently registered with the SBOP, be certified by the Pharmacy Technician Certification Board, and have at least six months of active experience as a pharmacy technician.

The NABP model act specifies that remote pharmacies that are staffed principally by certified pharmacy technicians should be under the continuous supervision of a pharmacist through the use of a video and audio communication system. North Dakota, Montana, South Dakota,

and Utah regulations all specify that telepharmacy requires a continuously available two-way audiovisual link between the central and remote pharmacies. Texas regulations require “the use of one or more of the following types of technology: digital interactive video, audio, or data transmission; data transmission using computer imaging by way of still-image capture and store and forward; and other technology that facilitates access to pharmacy services.”

Rural hospital telepharmacy models

Our study identified a number of different rural hospital telepharmacy models being implemented around the country. The models being implemented appear to be a function of a variety of factors, including the state policy and regulatory environment, as well as rural hospitals' ownership and network relationships with other hospitals, the type of rural area (e.g., isolated rural or frontier versus more densely populated areas), the distance between hospitals, hospital size, and the volume of medication orders being handled.

A common telepharmacy model involves sharing the services of pharmacists among hospitals in the same health care system. Several examples of this model were identified in our interviews, including those involving system hospitals in Arkansas, Idaho, Montana, and South Dakota. Usually, this model involves having a larger hospital, with round-the-clock pharmacist staffing, review medication orders sent electronically or via fax from one or more smaller rural hospitals in the same system. The use of telepharmacy is often facilitated by a history of shared services and the same or similar computer systems among hospitals with the same system ownership or contract management relationship. Some SBOPs also appear to be more comfortable approving telepharmacy arrangements within a health care system.

Other telepharmacy models involve a combination of system and nonsystem hospitals, such as in Washington State, where the telepharmacy network includes Providence Health System and nonsystem hospitals, or a network of hospitals that have joined together to share telepharmacy and other services. Some rural hospitals are contracting for telepharmacy services with a commercial telepharmacy company, either a small “home-grown” company or larger regional or national firms. In North Dakota, one telepharmacy model involves several small rural hospitals contracting with each other for telepharmacy services; in another model, two pharmacists who serve a rural hospital, a Veterans Affairs medical center, and a retail pharmacy in the same community are connected at all three sites.

About half of the hospitals reported using grants for their initial telepharmacy setup expenses, including federal grants from the Agency for Healthcare Research and Quality and the Health Resources and Services Administration Office for the Advancement of Telehealth, as well as state office of rural health and private foundation funds. Additional resources for these hospitals came from their operating budgets; the other hospitals funded their entire telepharmacy efforts through their own operating budgets. Some CAHs reported that Medicare cost-based reimbursement was helping them pay for telepharmacy. However, other hospitals indicated that lack of funding was a barrier to purchasing updated medication dispensing equipment.

In terms of evaluating the impact of telepharmacy on medication safety, the vast majority of hospitals reported that they track medication error rates internally. Some hospitals indicated that they have seen improvements in their medication error rates since implementing telepharmacy activities. In addition

to medication error rates, other measures being tracked by some hospitals include the accuracy of order entry, turnaround time on order entry, number of after-hours orders, follow-up on after-hours orders, overrides of automated dispensing machines, productivity of pharmacy and nursing staff, and increases in billable revenues. Two multihospital telepharmacy projects reported that formal evaluations were conducted in partnership with universities: the North Dakota hospitals with North Dakota State University and the northeastern Minnesota hospitals with the University of Minnesota—Duluth.¹⁵ Envision Telepharmacy conducted an evaluation of its telepharmacy pilot project for a report to the Texas State Board of Pharmacy.

Several themes emerged from our interviews with hospitals and SBOPs and reviews of state laws and regulations. First, although 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, most 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 under way 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 community pharmacy settings. This focus appears to be motivated in part by a greater concern among SBOPs about potential safety problems in community pharmacy settings as well as a desire to ensure the availability of local pharmacy services through protection of the market share of local pharmacies.

The study 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 either 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 additional rural hospitals.

Discussion

Rural hospitals are increasingly motivated to improve medication safety, but they face growing competition for a limited supply of pharmacists interested in practicing in small 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 SBOPs 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 work-force 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.¹⁶ The results of this descriptive report highlight the emerging patterns of telepharmacy application in hospital pharmacy practice. Despite the con-

verging factors described above and much discussion of this application of technology over the past 10 years,¹⁷ the use of telepharmacy in the United States is quite varied with respect to implementation models, state regulations, and postimplementation evaluation and monitoring.

Telepharmacy systems have the opportunity to enhance the service capacity in small rural hospitals. In particular, the use of telepharmacy can expand the use of prospective order review by a pharmacist, which may lead to a reduction in prescribing errors and alleviate other safety issues.

In addition, telepharmacy may allow a rural health care organization to gain the services of a pharmacist who has an enhanced understanding of contemporary acute care pharmacy services. Many rural hospitals rely on pharmacists who practice primarily in a community pharmacy setting.³ As pharmacy service delivery has become increasingly complex, the knowledge and skills of pharmacists have become more specialized with respect to practice setting. It is unlikely that a pharmacist who is focused mostly on community pharmacy practice will be fully up-to-date with respect to the breadth of clinical and pharmacy systems management functions in an acute care setting. Examples of these unique practice and administrative issues may include implementation and adherence to *United States Pharmacopoeia* chapter 797 standards, use of restricted drugs such as natalizumab, engagement in health-system initiatives associated with electronic medical record use, and process mapping around systems to decrease medication errors.

States that are formally reviewing telepharmacy and developing regulations for its application appear to be addressing most of the elements of the ASHP policy statement on regulation of telepharmacy services and key components of the NABP model act related to telepharmacy.^{9,10} For

example, interviews for this study identified activities related to remote order entry and dispensing, licensure, and service arrangements across state borders. However, what is unclear is the degree to which health care organizations or regulatory bodies are seeking to adopt or ensure the presence of other pharmacy services essential for the management of an optimal medication-use system in hospital settings. The information from this study suggests that telepharmacy models are being used primarily to address core medication dispensing functions in hospitals. Order review, product selection and preparation, inventory management, and billing systems are the activities most likely supported by telepharmacy.

The ASHP minimum standards for pharmacies in hospitals outline critical elements of pharmacy programs in the areas of (1) leadership and practice management, (2) drug information and education, (3) activities to ensure rational medication therapy, (4) drug distribution and control, and (5) facilities.¹⁸ Depending on program design, the focus on dispensing functions in telepharmacy programs may or may not be consistent with these guidelines. For example, a model in which the telepharmacy system is used to facilitate after-hours services among facilities within the same health system and still includes onsite pharmacy staff daily will likely address minimum standards. However, application of this technology in a facility that has pharmacy personnel onsite for only a limited amount of time each week or month may not result in a system that meets minimum standards. The challenge for facilities implementing telepharmacy and for SBOPs is ensuring that telepharmacy services are being developed in a way that supports the adoption of best practices in hospital pharmacies. Professional organizations such as ASHP should consider developing guidelines for the application of telepharmacy in

supporting best practices in hospital pharmacy.

The results of this investigation also highlight the need for additional research into how telepharmacy models affect medication safety in small rural hospitals and how this technology can best be utilized to ensure a safe and effective medication-use system in an institution. It has been suggested that telepharmacy can result in a reduction in medication errors, largely through the increased availability of prospective order review. However, some issues that contribute to medication errors may not be addressed by the adoption of telepharmacy services. Studies have cited the lack of clinical pharmacy services, of general oversight of institutional antimicrobial use, and of pharmacist involvement on institutional committees as factors contributing to medication errors.⁴⁻⁶ Telepharmacy systems that are focused on the process of order review and medication dispensing may not address these issues. Adoption of telepharmacy without full consideration of other pharmacy services that contribute to the operation of a safe and effective medication-use system—such as medication reconciliation, medication therapy monitoring, medical and nursing staff education, and medication-use evaluations—may still leave the institution exposed to medication safety problems. Comprehensive evaluations of telepharmacy programs are needed to identify their impact on medication safety systems and define their role in the delivery of comprehensive pharmacy services.

As they consider the adoption of telepharmacy regulations, SBOPs 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 onsite at a hospital; and the roles of pharmacists, pharmacy techni-

cians, and nurses in medication distribution systems. SBOPs must consider not only systems that ensure safe dispensing of medications but also the operation of a comprehensive medication-use system, defining what role telepharmacy plays in this broader scope of pharmacy services in acute-care settings.

Conclusion

The application of telepharmacy in rural hospitals varies considerably across the United States. Some states are adopting telepharmacy regulations that address elements of the ASHP policy statement on regulation of telepharmacy services and key components of the NABP model act, but many states have not defined regulations for this expanding technology.

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