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Strengthening a Fragile Rural Health Care System: Critical Access Hospitals and Telemedicine

BY SUSAN M. CAPALBO, TYLER J. KRUZICH, AND CHRISTINE N. HEGGEM

Access to quality health care is important to the viability of rural communities. Although access has always been a challenge, the high rates of rural hospital closures since the late 1980s coupled with increased percentages of health care facilities that operate at a loss signal a need to examine the rural health care system. Declining and aging populations, increased poverty, and residents with no medical insurance present a dilemma regarding how to maintain the range of services and personnel required to meet the demands for health care services and how to comply with the federal/state licensing regulations for a full service hospital.

Recent changes in health care policy and technology provide options for the delivery of health care in rural areas. Telemedicine and critical access hospitals (CAHs) have changed the landscape for health care services by strengthening the likelihood of continued delivery of quality care for rural residents. Telemedicine is a rapidly growing technological application for delivery of services and information when distance separates the provider and the patient or institution. CAHs, formerly known as limited service hospitals, address the needs of rural communities where full service hospitals are not financially viable. We explore the growth of CAHs and telemedicine in rural communities, and consider how these innovations affect the health care services available to rural populations.

Telemedicine and CAHs seem quite different since one, telemedicine, attempts to expand services provided by a rural health care facility while the other, the CAH, limits the range of services provided by the local rural hospital. However, changes in federal legislation have led to incentives that make complements of telemedicine and CAHs: both are means to ensure continued access to

basic health care services and both offer the opportunity to enhance the quality of the care available to rural residents.

Rural Hospitals and Underserved Areas

Because they are small, rural hospitals are vulnerable to policy and market changes. Since 1980, approximately 400 of the nation's 2,200 rural hospitals have closed. Others have reduced the level of service and number of beds. Key factors cited for the closures include the dwindling paying-patient base, the difficulty in attracting and retaining physicians, and the restructuring of the Medicare reimbursement policies in the 1980s from a cost-based system to a prospective payment system (PPS). Under the PPS, a facility is paid a fixed amount for each patient in a particular treatment category, where the amount is intended to cover the cost of a treating a "typical" patient. The amounts are modified somewhat to account for differences in local wage rates and location.

The PPS was instituted with the idea that it would encourage the use of cost-reducing technologies. Data gathered to date suggests that PPS puts financial stress on smaller hospitals that offer a variety of services, have low patient volume, and have higher than average costs. Even with help from Medicare, nearly half of all small (less than 50 beds) rural hospitals operate at a loss (Figure 1). Studies suggest that the operating margins for these smaller rural hospitals will continue to decline over the next few years. The Medicare Payment Advisory Committee, in their 2002 Report to Congress, states that one out of every three rural hospitals is losing money.

The nationwide shortage of health care workers compounds the financial problems of rural hospitals. Over two-thirds of all rural

counties have been designated as Health Professional Shortage Areas with limited access to temporary medical professional staff and few options for diverting patients to other facilities when the need is high. These limitations on the availability of health care providers, particularly licensed physicians, often place hospitals in violation of federal staffing regulations for full service hospitals.

Critical Access Hospitals: Limiting Services While Preserving Access

Historically, rural communities have tried to maintain health care services by converting full service hospitals to limited service hospitals designed to match the needs of rural residents with financially viable health care. A limited service facility shifts its emphasis from inpatient and surgical services to emergency, primary, and outpatient care.

The Critical Access Hospital is a recent example of a federally recognized limited service model. Prior to 1997, two programs were in existence. The Rural Primary Care Hospital program was authorized in New York, West Virginia, North Carolina, South Dakota, Kansas, Colorado, and California, and the Medical Assistance Facility (MAF) program was developed and implemented in Montana. Because of the interest in these programs, Congress passed the Medicare Rural Hospital Flexibility Program (FLEX) as part of the Balanced Budget Act (BBA) of 1997.

FLEX created the Critical Access Hospital program, based on the MAF model, which was designed to become a part of the Medicare reimbursement classification system. The program was expected to prevent reductions in Medicare payments from causing an increase in rural hospital closures.

A Critical Access Hospital must be more than 35 highway miles or 15 secondary road miles from other full service hospitals. The number of beds and the length of stay must be limited, and 24-hour emergency care must be available. A Critical Access Hospital allows for reasonable cost-based reimbursement by Medicare, and licensing regulations allow mid-level providers (physician assistants and nurse practitioners) to practice and staff the emergency rooms without a supervising physician being present.

FLEX requires each participating state to develop a health plan prior to allowing CAHs to operate.

Acronym Soup

Critical Access Hospital (CAH)

Formerly known as limited service hospitals, critical access hospitals focus on delivery of emergency, primary, and outpatient care. In addition, a critical access hospital must be more than 35 highway miles or 15 secondary road miles from other full service hospitals. The number of beds and the length of stay must be limited, and 24-hour emergency care must be available.

Health Professional Shortage Area (HPSA)

HPSAs are generally rural areas where health care practitioners (particularly doctors) are unavailable, either directly in the area or by diversion to nearby facilities.

Medical Assistance Facility (MAF)

A program developed in Montana that helped reduce Medicare costs associated with care delivery, including emergency services. Subsequently replaced by a CAH program.

Prospective Payment System (PPS)

Under the prospective payment system, a facility is paid a fixed amount for each patient in a particular treatment category, where the amount is intended to cover the cost of treating a "typical" patient. The amounts are modified somewhat to account for differences in local wage rates and location.

The plan mandates a network of care that includes an agreement between the CAHs and at least one full service hospital for the transfer of patients and sharing of other resources and personnel. The network also establishes standards for staff credentialing and quality assurance reviews. CAHs are further required to demonstrate that the quality of care for services has not diminished from predecessor facilities.

At the time of adoption, FLEX was an important turning point for rural health care because it signaled that the federal government was ready to help states provide improved health care to rural residents.

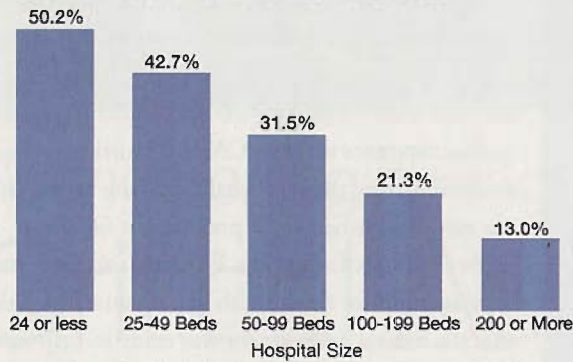
Forty-seven states are currently participating in FLEX, and, as of August 2002, there were 657 certified Critical Access hospitals (Figure 2). Nearly one-fourth of these are located in counties with no more than seven persons per square mile. The individuals living in the communities served by Critical Access Hospitals are older, poorer, and more likely to be unemployed, compared to the U.S. average. Without the Critical Access Hospital option, it is not clear that these counties could maintain access to basic health care services. The Rural Policy Research Institute reports that more than 600 rural hospitals are actively considering conversion to Critical Access hospitals.

Telemedicine Networks: Quality Enhancements

Telemedicine enhances the scope and quality of the services provided by rural health care facilities and their networks. Telemedicine uses several distance-bridging tools including tele-radiology, the use of telephones to perform diagnostic tests, and interactive video consultation. The most widely used specialty applications are mental health, dermatology, cardiology, orthopedics, and emergency room/triage services. Other uses include follow-up procedures for surgery patients, pediatrics, pathology, nutrition, primary care, and neurology, as well as radiology, clinical drug trials, and education.

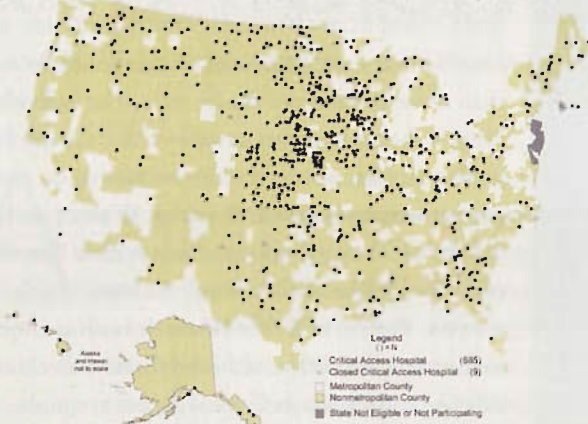
Until the late 1990s, reimbursement policies for telemedicine services were either lacking, unclear, or idiosyncratic. This, combined with patient privacy and licensure issues, restricted the use of telemedicine in rural America. However, in spite of uncertainties with respect to reimbursement, there has

Figure 1. Percent of Rural Hospitals with Negative Total Margins by Bed Size, 2000



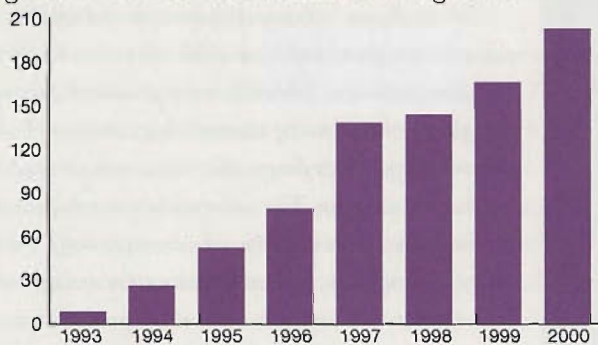
Source: TrendWatch, American Hospital Association, June 2002, Vol. 3, No. 1.

Figure 2. Certified Critical Access Hospitals



Source: North Carolina Rural Health Research and Policy Analysis Center, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, October 2002

Figure 3. Active Telemedicine Programs



Source: TrendWatch, American Hospital Association, June 2002, Vol. 3, No. 1. (Association of Telemedicine Providers, 2001 Report on U.S. Telemedicine, Portland, OR, 2001)

been a dramatic rise in the number of telemedicine networks in rural communities (Figure 3).

The legislation that established the Critical Access Hospital program also provided the impetus for expanding rural telemedicine. Although far from the ideal legislation, the BBA expanded reimbursement policies and opened the door linking telemedicine and the hospitals. Under the BBA, "interactive consults" in rural HPSAs were allowable for reimbursement, but only physicians could refer a patient to a specialist. This posed a limitation for rural areas since the majority of health care workers are not physicians. With these limitations, reimbursement was next to impossible to obtain.

Legislation passed in 2000 removed some of the key barriers for clinical use of telemedicine by increasing the number of reimbursable services and allowing payments to mid-level providers. Telemedicine offers a rural hospital or clinic the opportunity to expand the scope and quality of its services, as well as to increase its cost-effectiveness in providing existing services. Small facilities enjoy enhanced opportunities to collaborate with larger hospitals.

Telemedicine and CAHs in Montana

Montana provides an opportunity to observe the impacts of limited service hospitals and telemedicine on health care services available to rural communities. The Critical Access Hospital program — formerly the MAF program — has been in place since 1987, and the Eastern Montana Telemedicine Network, providing video connections to Critical Access Hospital communities throughout eastern Montana, has been in operation for nearly ten years.

A case study of five communities in Montana suggests that the MAF program contributed to maintaining and improving access to basic health care services. The study also found that the more viable MAFs were located at some distance from urban medical centers and had established formal network relationships with these centers. Residents gave strong approval ratings to enhanced networking efforts. Telemedicine is seen as a means of developing new and needed services, and as a way to provide a quality-check on existing basic services.

But are the costs of delivering health care services using CAHs and telemedicine higher compared to full-service hospitals? In 1995, the U.S. Government Accounting Office studied the cost for treating Medicare patients at Montana's MAFs compared to the costs that would have been incurred for treating the same conditions at full service hospitals. Medicare costs for patients served by the MAFs were on average lower than if the patients had been treated at a full service rural hospital and substantially lower than if they had been treated at urban hospitals. The empirical evidence indicates that MAFs in Montana have reduced the cost of emergency and primary care in rural communities.

Determining the cost savings from telemedicine is more difficult since the savings to this technology often accrue to the patient as

communities served by critical access hospitals are older, poorer, to be unemployed, compared to the U.S. average.

reduced transaction costs. Heggem used data from EMTN to estimate the cost savings to telemedicine patients who required outpatient mental health services. The estimates of averted costs reflect travel expenses saved and the opportunity cost of the patients' time. The averted costs ranged from a low of \$250 per site per year to a high of \$53,000 per site per year.

The Heggem study also explained variations in the per capita use of the network at each telemedicine site. Many factors affected a community's use of telemedicine resources, including distance to alternative care and the number of years a site had been in operation. The analysis indicated that a 10 percent increase in either distance or longevity of the telemedicine program resulted in a comparable 10 percent increase in the per capita use rate. The increases in per capita use rates came from a shift toward a local treatment option and an increase in the total number of patients responding to lower time and travel cost.

Prognosis for Sustaining the Rural Health Care Sector

The challenge for rural health care policy is to design a system that can adapt to the needs of different communities. It must be flexible enough to utilize technology and demographics to a community's advantage. "One size fits all" is not a suitable prescription for limited service hospitals and telemedicine technologies. Sensible combinations of full service hospitals, limited service hospitals,

telemedicine, and other options will depend on underlying spatial and demographic conditions in particular areas. The increased flexibility afforded by current legislative changes in rural health care regulations and policy is a move in the right direction.

Measuring quality is a multidimensional challenge and, in rural areas, is further hampered by the small sample sizes for any given procedure or treatment. However, one of the legislative conditions of the CAH program is the requirement to document that the quality of care has not lessened from what was available under the predecessor facility. How this is

accomplished and measured is still an open question. CAHs and telemedicine fit well with the FLEX mandate to improve the networks between the CAH, rural hospitals, larger medical centers, and the rural community. Development and support of these networks will ultimately strengthen the rural health infrastructure and enhance access to and quality of care for rural populations.

For More Information

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Susan M. Capalbo is Professor of resource and production economics in the Department of Agricultural Economics and Economics at Montana State University. Tyler J. Kruzich is a graduate student in economics at Montana State University. Christine Heggem (not pictured) is an aide to Senator Conrad Burns, R-MT. The views expressed in this article do not necessarily reflect those of Sen. Burns.



Telemedicine: Phone Call As House Call

Telemedicine is defined as the use of electronic information and communications technologies to provide and support health care when distance separates the participants. A telemedicine network connects distant 'spoke' sites, often located in rural communities, with one another and also with a 'hub' site, which is usually a larger urban center. One recent example of telemedicine in action that received wide media coverage was the case of Dr. Jerri Nielsen, the physician who discovered she had breast cancer while on station in Antarctica. Using equipment flown in by aircraft, Dr. Nielsen performed a needle biopsy upon herself. Doctors in the United States examined the tissue samples via videoconference link and confirmed the on-site diagnosis.