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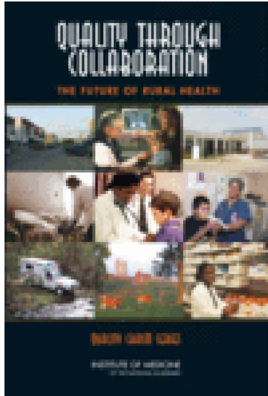

Quality Through Collaboration: The Future of Rural Health Care

Committee on The Future of Rural Health Care

ISBN: 0-309-09439-9, 272 pages, 6 x 9, hardback (2004)

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Executive Summary

Rural America is a vital component of American society. Representing nearly 20 percent of the population, rural communities, like urban landscapes, are rich in cultural diversity. From the Native American Indian tribes and Hispanic communities of the southwest, to the African American communities of the Mississippi Bayou, to the Amish settlements of Pennsylvania, to the European descendants of the Great Plains, rural communities are home to many of the earliest Americans, as well as more recent immigrants.

Rural communities are heterogeneous in other ways as well, differing in population density, remoteness from urban areas, and economic and social characteristics. Many such communities adjacent to urban areas are growing in population as they become popular destinations for those willing to commute or telecommute to jobs in urban areas. Rural America also includes thinly settled frontier areas, many with stagnant or declining economies as the result of an inability to transition from what was once a largely agricultural settlement.

In general, the smaller, poorer, and more isolated a rural community is, the more difficult it is to ensure the availability of high-quality health services. Compared with urban communities, rural communities tend to have fewer health care organizations and professionals of all types, less choice and competition among them, and broad variation in their availability at the local level.

THE HEALTH CARE QUALITY CHALLENGE

In 2001, the Institute of Medicine (IOM) released the report *Crossing the Quality Chasm: A New Health System for the 21st Century.* Based on a large body of evidence documenting serious shortcomings in the American health care system overall, the IOM report calls for fundamental reform of the U.S. health care system. The report identifies six aims for quality improvement—health care should be safe, effective, patient-centered, timely, efficient, and equitable. Recognizing the magnitude of the changes required to address the quality challenge, the IOM launched the Quality Chasm series. Thus far, eight

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Quality Through Collaboration: The Future of Rural Health Care
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reports have been produced in this series, addressing various aspects of the agenda for change. This report on rural health care quality is a part of this series.

The IOM Committee on the Future of Rural Health Care was asked to:

- Assess the quality of health care in rural areas.
- Develop a conceptual framework for a core set of services and the essential infrastructure necessary to deliver those services to rural communities.
- Recommend priority objectives, and identify changes in policies and programs required to achieve those objectives, including, but not limited to, payment policies and the necessary information and communications technology (ICT) infrastructure.
- Consider implications for federal programs and policy.

In many respects, rural communities have been on the periphery of discussions of national health care quality. A roadmap for applying the quality agenda now evolving at the national level to sparsely populated areas is needed.

ADDRESSING THE QUALITY CHALLENGE IN A RURAL CONTEXT

Rural communities likely face the same quality challenge as urban communities. Although the evidence pertaining specifically to rural areas is sparse, what does exist corroborates the general finding that, as documented for the nation overall in the *Quality Chasm* report, the level of quality falls far short of what it should be.

Some of the quality shortcomings in rural areas stem from the lack of access to "core health care services," defined for purposes of this report as primary care in the community, emergency medical services, hospital care, long-term care, mental health and substance abuse services, oral health care, and public health services. For some core health care services, most notably emergency medical services, mental health and substance abuse services, and oral health care, access is severely constrained in many if not most rural communities by long-standing shortages of qualified health professionals. Many rural communities have difficulty attracting and retaining clinicians because of concerns about isolation, limited health facilities, or a lack of employment and education opportunities for their families. Although steps have been taken in recent years to introduce a more favorable financial climate for rural health care providers, an underresourced health care delivery infrastructure persists.

Rural communities also confront a different mix of health and health care needs than do urban areas. Rural populations tend to be older than urban

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populations and to experience higher rates of limitations in daily activities as a result of chronic conditions. Rural populations exhibit poorer health behaviors (i.e., higher rates of smoking and obesity and lower rates of exercise) relative to most urban populations, although there is variability in health behaviors among rural communities. Unless action is taken now, the future burden of chronic disease in many rural communities will be enormous.

The IOM committee developed a five-pronged strategy to address the quality challenges in rural communities:

- Adopt an integrated, prioritized approach to addressing both personal and population health needs at the community level.
- Establish a stronger quality improvement support structure to assist rural health systems and professionals in acquiring knowledge and tools to improve quality.
- Enhance the human resource capacity of rural communities, including the education, training, and deployment of health care professionals, and the preparedness of rural residents to engage actively in improving their health and health care.
- Monitor rural health care systems to ensure that they are financially stable and provide assistance in securing the necessary capital for system redesign.
- Invest in building an ICT infrastructure, which has enormous potential to enhance health and health care over the coming decades.

ADDRESSING PERSONAL AND POPULATION HEALTH NEEDS

In 1990, the IOM adopted the following definition of quality of care:

> Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (IOM, 1990: p.4).

The above definition is consistent with the view that the health care system of the 21st century should balance and integrate the need for personal health care with broader communitywide initiatives that target the entire population and the environment (IOM, 2003). Many factors influence the health of individuals and populations, including the environment, social behaviors, and genetic predispositions.

The committee encourages rural communities to build a population health focus into decision making within the health care sector, as well as in other key

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areas (e.g., education, community and environmental planning) that influence population health. For example, there are many effective interventions available to rural communities to reduce the health burden of diabetes, some best implemented through the personal health care delivery system (e.g., reminder systems to prompt patients and clinicians when annual eye and foot exams are due) and others through communitywide programs (e.g., public policies that favor the provision of more nutritious food in public eating establishments and schools). Making explicit the full range of options available to rural communities to improve personal and population health should lead to closer to optimal allocation of scarce financial resources. Future work is needed to identify and prioritize the interventions that are available to rural communities to improve health and health care.

Key Finding 1. *A wide range of interventions are available to improve health and health care in rural America, but priorities for implementation are not yet clear. The Health Resources and Services Administration is the obvious agency to take the lead in setting priorities, in collaboration with other federal agencies, such as the Agency for Healthcare Research and Quality and the Centers for Disease Control and Prevention, as well as with rural stakeholders. This would entail systematically cataloguing and evaluating the potential interventions to improve health care quality and population health in rural communities.*

Each rural community will then need to set priorities for addressing personal and population health needs, and develop and implement an action plan. An earlier IOM report, *Fostering Rapid Advances in Health Care,* recommends the conduct of a set of community-level demonstrations intended to produce the first generation of 21st-century community health systems focused on meeting personal and population health needs. This IOM committee endorses this "bottom-up" approach to health system reform, and believes that rural communities, because of their smaller scale and other unique characteristics, offer an excellent setting for undertaking rapid-cycle experimentation.

Recommendation 1. Congress should provide the appropriate authority and resources to the Department of Health and Human Services to support comprehensive health system reform demonstrations in five rural communities. These demonstrations should evaluate alternative models for achieving greater integration of personal and population health services and innovative approaches to the financing and delivery of health services, with the goal of meeting the six quality aims of the *Quality Chasm* report. The Agency for

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Quality Through Collaboration: The Future of Rural Health Care
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Healthcare Research and Quality, working collaboratively with the Health Resources and Services Administration, should ensure that the lessons learned from these demonstrations are disseminated to other communities, both urban and rural.

Strong leadership will be needed to achieve significant improvements in health and health care in rural communities. Comprehensive community-based efforts will require extensive collaboration, both between stakeholders within the health care sector, and between health care and other sectors. It will be necessary to mobilize all types of institutions (e.g., health care, educational, social, and faith-based) to both augment and support the contributions of health professionals.

Key Finding 2. *Rural communities engaged in health system redesign would likely benefit from leadership training programs. Such training programs could be provided by the Agency for Healthcare Research and Quality and the Office of Rural Health Policy working collaboratively with private- and public-sector organizations involved in leadership development, such as the National Council for Healthcare Leadership and the W. K. Kellogg Foundation's Leadership for Community Change Program.*

ESTABLISHING A QUALITY IMPROVEMENT SUPPORT STRUCTURE

To achieve the six quality aims, rural communities must establish comprehensive quality improvement programs. Since the release of the *Quality Chasm* report, a great deal of national and local attention has been focused on enhancing the health care sector's quality improvement capabilities. Because of their small scale and low operating margins, rural providers have found it difficult to make such investments.

Although many of the elements of an effective quality improvement infrastructure will be the same for rural and urban areas, some customization is needed for rural areas. For example, when care processes in rural and urban areas differ because of differences in the mix of available services (e.g., urban areas have more ready access to tertiary-level care), rural-specific comparative data on some aspects of the care process (e.g., emergency care, stabilization, and transfer services for acute myocardial infarction patients) are most useful for quality improvement purposes.

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Quality Through Collaboration: The Future of Rural Health Care
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For the most part, current quality improvement programs and tools available at the national and local levels focus on the personal health care system. To assist rural communities in their efforts to promote both personal and population health, further thought should be given to how best to adapt quality improvement knowledge and tools (e.g., evidence-based reports, practice guidelines, standardized performance measure sets) to support an integrated approach to decision making. Rural communities must also have the flexibility and assistance needed to develop quality improvement programs likely to have the greatest impact in a rural context. In some areas, for example, a communitywide or even regional quality improvement program is likely to be preferable to having each provider setting develop its own approach. To this end, the Department of Health and Human Services needs to develop a coordinated and tailored approach to meeting the needs of rural communities.

Recommendation 2. The Department of Health and Human Services should establish a Rural Quality Initiative to coordinate and accelerate efforts to measure and improve the quality of personal and population health care programs in rural areas. This initiative should be coordinated by the Health Resources and Services Administration's Office of Rural Health Policy, with guidance from a Rural Quality Advisory Panel consisting of experts from the private sector and state and local governments having knowledge and experience in rural health care quality measurement and improvement.

The agenda of this proposed initiative should include the following:

- *Applying evidence to practice*—The Agency for Healthcare Research and Quality should assume a lead role in developing educational programs and tools to assist rural communities in applying evidence to practice.
- *Standardized measure set for rural communities*—The Rural Quality Advisory Panel should work collaboratively with stakeholders from both the public and private sectors on the identification of appropriate standardized measures for rural areas, including: (1) measures from leading measure sets that are applicable to all geographic areas; (2) where necessary, new measures to reflect aspects of care processes that are rural-specific; and (3) standardized population health measures to be piloted in rural areas.
- *Public reporting*—Centers for Medicare and Medicaid Services (CMS) and the Rural Quality Advisory Panel should work collaboratively to ensure that rural providers are included in public reporting initiatives and that public reports for rural providers make fair and meaningful comparisons.

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- *Community-based technical assistance*—CMS should ensure that the Quality Improvement Organizations devote resources to rural areas commensurate with the proportion of Medicare beneficiaries in a state that reside in rural areas. Consideration should be given to establishing a Quality Improvement Organization Support Center to focus on application of the above standardized quality measures to rural areas. The Office of Rural Health Policy should convene a series of regional conferences for Critical Access Hospitals, rural health clinics, community health centers, and other providers to share quality improvement processes and techniques.
- *Data repository*—CMS should expand its data repositories to include rural-specific quality data so that rural providers have access to both urban and rural data for benchmarking purposes.

STRENGTHENING HUMAN RESOURCES

Human resources are critical to every rural community's efforts to improve individual and population health. Human resources include health care professionals, both those in practice and those in training, as well as the population at large in the community.

The IOM committee believes that a renewed and vigorous effort must be made to enhance the health professions workforce in rural areas. This effort should focus on enhancing the quality improvement knowledge and skills of practicing professionals and the supply and preparedness of future professionals working in rural areas.

The 2003 IOM report *Health Professions Education: A Bridge to Quality* identifies five core competencies that all health care professionals should master to provide high-quality care: (1) provide patient-centered care, (2) work in interdisciplinary teams, (3) employ evidence-based practice, (4) apply quality improvement, and (5) utilize informatics. The federal government sponsors numerous workforce education programs that provide experientially based training for practicing health professionals, and these should be expanded to focus greater attention on helping professionals master the core competencies.

Recommendation 3. Congress should provide appropriate resources to the Health Resources and Services Administration to expand experientially based workforce training programs in rural areas to ensure that all health care professionals master the core competencies of providing patient-centered care, working in interdisciplinary teams, employing evidence-based practice, applying quality improvement, and utilizing informatics. These competencies are relevant to

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Quality Through Collaboration: The Future of Rural Health Care
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the many discipline-specific and multidisciplinary programs supported under Titles 7 and 8 of the Social Security Act.

Specifically, more stable and generous funding should be provided for the Quentin Burdick Program to conduct demonstrations in several rural communities that provide for (1) the training of leadership teams to mobilize community resources, (2) communitywide health literacy programs, and (3) interdisciplinary health professions education in the core competencies essential to improving quality. Workforce programs such as the Health Resources and Services Administration's (HRSA) funding of Area Health Education Centers, Health Education and Training Centers, and Geriatric Education Centers should explicitly target rural localities, and broaden their scope beyond physician supply to include midlevel providers in specialties in short supply in rural areas (e.g., mental health and substance abuse services and emergency care). Also, programs that recruit students from minority and underserved communities for health professions careers in rural areas—such as the Health Careers Opportunity Program, HRSA's Centers of Excellence program, scholarship and loan repayment programs for disadvantaged students, and such programs offered by the Indian Health Service—should expand their recruitment and placement efforts in rural communities.

In expanding experientially based workforce training programs, the federal government should place particular emphasis on the types of health professionals that are in very short supply and on the geographic areas experiencing the greatest difficulty in recruitment and retention. Essential health professions data at the state and local levels are needed to support decisions about targeting resources to rural areas, including the designation of shortage areas. This is especially true with regard to mental and behavioral health services and oral health.

Key Finding 3. *To target workforce training programs most effectively, federal, state, and local governments need better information on the current supply and types of health professionals. Data that would be particularly useful include the numbers of providers and provider hours of clinical practice, practice specialties, and sites of service. Financial and policy incentives at the federal and state levels could be put in place to facilitate the gathering, analysis, and retention of health professions workforce data that are comparable across states.*

Enhancing education and training programs for practicing professionals is an important first step, but it will not be enough. Fundamental change in health professions education programs and institutions will be needed to produce an adequate future supply of properly educated professionals for rural and frontier

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communities. A multifaceted approach to the recruitment and retention of health professionals in rural areas is needed, including interventions at every point along the rural workforce pipeline: (1) enhanced preparation of rural elementary and high school students to pursue health careers; (2) stronger commitment of health professions education programs to recruiting students from rural areas, educating and training students in those areas, and adopting rural-appropriate curricula; and (3) a variety of strong incentives for health professionals to seek and retain employment in rural communities.

Enhancements to the basic curriculum, particularly the science curriculum, for middle and high school students are needed to better prepare rural students for careers in the health professions. HRSA's Office of Rural Health Policy could work collaboratively with the various federal agencies (e.g., Bureau of Health Professions, Department of Education, Bureau of Indian Affairs, and Indian Health Service), professional associations, and rural constituencies to identify appropriate enhancements and develop an action plan. A rural health professions mentoring program might be established to expose rural students to potential careers in health care. Changes are also needed in health professions education programs.

Recommendation 4. Schools of medicine, dentistry, nursing, allied health, and public health and programs in mental and behavioral health should:

- **Work collaboratively to establish outreach programs to rural areas to attract qualified applicants.**
- **Locate a meaningful portion of the educational experience in rural communities. Universities and 4-year colleges should expand distance learning programs and/or pursue formal arrangements with community and other colleges, including tribal and traditionally African American colleges, located in rural areas to extend the array of rural-based education options while encouraging students to pursue higher levels of education.**
- **Make greater effort to recruit faculty with experience in rural practice, and develop rural-relevant curricula addressing areas that are key to improving health and health care, including the five core competencies (i.e., providing patient-centered care, working in interdisciplinary teams, employing evidence-based practice, applying quality improvement, and utilizing informatics), the fundamentals of population health, and leadership skills.**
- **Develop rural training tracks and fellowships that (1) provide students with rotations in rural provider sites; (2) emphasize**

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primary care practice; and (3) provide cross-training in key areas of shortage in rural communities, such as emergency and trauma care, mental health, and obstetrics.

Furthermore, the federal government should provide financial incentives for residency training programs to provide rural tracks by linking some portion of the graduate medical education payments under Medicare to achievement of this goal.

The residents of rural communities also have a key role to play in improving population health. Residents can contribute to improving their own health and that of others by pursuing healthy behaviors and complying with treatment regimens, assuming appropriate caregiving roles for family members and neighbors, and volunteering for community health improvement efforts. As is the case with many urban populations, many rural populations have low levels of health literacy (the degree to which individuals have the capacity to obtain, process, and understand basic health information) that currently hamper efforts to engage residents in health-related activities. The Department of Education and state education agencies should work in partnership with local nonprofit literacy associations and libraries to measure and improve the health literacy of rural residents by, among other things, providing access to Internet-based health resources.

PROVIDING ADEQUATE AND TARGETED FINANCIAL RESOURCES

To achieve the six quality aims, rural communities must have adequate and appropriately targeted financial resources. In the health care sector overall, a great deal of experimentation is currently under way to identify ways of better aligning payment incentives with the quality aims, and rural communities should be part of these efforts. At the same time, it is important to recognize that historically, rural health care systems have been financially fragile, and many still have small operating margins, making it difficult for them to participate in innovative efforts intended to stimulate fundamental redesign of the delivery system.

Many public- and private-sector purchasers are conducting demonstrations or pilot projects that make some portion of provider payments contingent upon performance. The committee supports these early efforts to redesign payment programs and is concerned that rural communities may be left behind. It would be wise to conduct demonstration projects in rural communities to field test the applicability of both standardized performance measures and performance-based payment approaches to rural providers.

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Recommendation 5. The Centers for Medicare and Medicaid Services should establish 5-year pay-for-performance demonstration projects in five rural communities starting in fiscal year 2006. During the first 18 months, the communities should receive grants and technical assistance for establishing processes to capture the patient data and other information needed to assess performance using a standardized performance measure set appropriate for rural communities. For the remaining 3.5 years, different approaches to implementing pay for performance should be tested in the various demonstration sites. The selected communities should be diverse with respect to sociodemographic variables, as well as the degree and type of formal integration of local and regional providers.

The proposed demonstration projects will likely yield many important lessons learned. CMS could work collaboratively with HRSA to ensure that this information is widely disseminated to rural stakeholders, as well as to public and private purchasers engaged in pay-for-performance programs.

Recognizing that the health system is experiencing a period of fundamental change, careful attention should also be paid to ensuring the financial stability of rural health care delivery systems. Although significant steps have been taken to correct historical underpayment of rural providers under Medicare, the operating margins of many rural hospitals are still low, and concerns about the equity of physician payments persist. Rural providers have been heavily impacted as states have modified eligibility criteria or lowered provider payments under Medicaid and the Children's Health Insurance Program in response to worsening state financial conditions.

Recommendation 6. Rural health care delivery systems must be sufficiently stable financially to underwrite investments in human resources and information and communications technology and to implement pay-for-performance initiatives. The Agency for Healthcare Research and Quality should produce a report by no later than fiscal year 2006 analyzing the aggregate impact of changes in the Medicare program, state Medicaid programs, private health plans, and insurance coverage on the financial stability of rural health care providers. The report should detail specific actions that should be taken, if needed, to ensure sufficient financial stability for rural health care delivery systems to undertake the desired changes described in this report.

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The IOM committee also wants to draw special attention to the very limited availability of mental health and substance abuse services in many rural communities, which is likely attributable in part to a lack of adequate funding. The committee recognizes that this is a complex area. The mental health needs of populations are diverse, and mental health care services are provided in both general and specialized settings and by a plethora of health care professionals. Patients likely have different preferences for settings and providers, and there may well be differences in the quality, accessibility, and cost of services by type of setting and provider. The financing of mental health services is equally complex, consisting of a patchwork of direct service programs financed through federal and state grants and public and private insurance programs.

Recommendation 7. The Health Resources and Services Administration and the Substance Abuse and Mental Health Services Administration should conduct a comprehensive assessment of the availability and quality of mental health and substance abuse services in rural areas. This assessment should cover services provided in both primary care and specialty settings, and should include the following:

- **A review of (1) the various insurance and direct service programs in the public and private sectors that provide financial support for the delivery of mental health and substance abuse services, and (2) the populations served by these payers and programs.**
- **An evaluation of the adequacy of current funding, and an analysis of alternative options for better aligning the various funding sources and programs to improve the accessibility and quality of these services. Attention should be focused on identifying and analyzing options designed to encourage collaboration between primary care and specialty settings.**

UTILIZING INFORMATION AND COMMUNICATIONS TECHNOLOGY

ICT is a powerful tool with great potential to enhance health and health care in rural communities. Appropriate use of ICT can bridge distances by providing more immediate access to clinical knowledge, specialized expertise, and services not readily available in sparsely populated areas. However, many rural communities are unprepared to participate fully in the information age, having little or no access to the Internet and populations with minimal ICT

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experience. Most rural health care systems are in critical need of financial and technical assistance to establish electronic health records (EHRs) and secure platforms for health data exchange.

To ensure that no rural community is left behind as the nation moves to EHRs and an electronic highway for health data exchange, the committee has identified a strategy consisting of six action items: (1) including a rural component in the National Health Information Infrastructure (NHII) plan, (2) providing all rural communities with high-speed access to the Internet, (3) eliminating regulatory barriers to the use of telemedicine, (4) providing financial assistance to rural providers for investments in EHRs and ICT, (5) fostering ICT collaborations and demonstrations in rural areas, and (6) providing ongoing educational and technical assistance to rural communities so they can make the best use of ICT.

With the recent establishment of the Office of the National Coordinator for Health Information Technology, the federal government has assumed a leadership role in the development of the NHII over the next 10 years. If rural communities are to participate fully in the NHII, it is essential that the national planning process take into consideration the specific challenges faced by rural communities and target program activities and resources to meet these challenges.

Recommendation 8. The Office of the National Coordinator for Health Information Technology should incorporate a rural focus, including frontier areas, into its planning and developmental activities for the NHII.

- **The NHII strategic plan should include a component that is specific to rural and frontier areas, and this component should provide the programmatic and financial resources necessary for rural areas to participate fully in the NHII.**
- **The Office of Rural Health Policy should be designated as the lead agency for coordination of rural health input to the Office of the National Coordinator for Health Information Technology. In providing this input, the Office of Rural Health Policy should seek the expert advice of the Department of Health and Human Services' Rural Task Force.**

Many health-related ICT applications require access to high-speed Internet connections; however, broadband networks have not yet reached many rural and frontier communities. Broadband networks can benefit rural communities as a whole by giving local firms direct access to customers, suppliers, and larger markets, thus making it less expensive and more efficient for firms to locate in

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rural areas. In addition, these networks make it possible for residents of small towns to participate in distance education, training, and learning opportunities, a capability that is particularly important for building a health professions workforce and promoting health literacy.

Rural areas face another barrier to use of the Internet—the cost associated with the use of telecommunications lines. Surcharges and administrative fees levied by local area telecommunications access (LATA) networks often make data exchange prohibitively expensive, and this is especially true when the data transmission is between geographic areas located in different LATA networks.

Recommendation 9. Congress should take appropriate steps to ensure that rural communities are able to access and use the Internet for the full range of health-related applications. Specifically, consideration should be given to:

- **Expanding and coordinating the efforts of federal agencies to extend broadband networks into rural areas.**
- **Prohibiting local area telecommunications access networks from imposing surcharges for the transfer of health messages across regions.**
- **Expanding the Universal Service Fund's Rural Health Care Program to allow the participation of all rural providers and to increase the amount of the subsidy.**

The regulatory and payment environments have a significant impact on the ability of providers to make the best use of ICT. Currently, the use of telemedicine and other ICT applications is impeded by the absence of clear and consistent definitions and requirements across (1) state governments that license health professionals; (2) health care organizations (e.g., hospitals, health plans, nursing homes) that credential clinicians for practice within the organization; and (3) major payers, such as Medicare, that establish payment policies for telemedicine services.

Key Finding 4. *Telehealth warrants special attention to facilitate its use while maintaining appropriate regulatory protections. Some changes in government regulatory processes and health insurance programs may be desirable, but a detailed analysis of current practices for purposes of identifying barriers to telehealth has yet to be conducted. The Office of the National Coordinator for Health Information Technology might*

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provide leadership and coordination for such work.

If rural communities are to benefit from the NHII, financial assistance from the federal government will be required. Most rural health care is provided in small ambulatory practice settings and small hospitals, many of which are financially fragile and have limited access to capital for investing in EHRs. Rural health systems are also more dependent than urban systems on public payment programs, such as Medicaid, safety net grant programs for community and rural health clinics, and Medicare. In rural areas, such as Indian reservations, the federal government may also be the dominant provider of services.

Recommendation 10. Congress should provide appropriate direction and financial resources to assist rural providers in converting to electronic health records over the next 5 years. Working collaboratively with the Office of the National Coordinator for Health Information Technology:

- **The Indian Health Service should develop a strategy for transitioning all of its provider sites (including those operated by tribal governments under the Self-Determination Act) from paper to electronic health records.**
- **The Health Resources and Services Administration should develop a strategy for transitioning community health centers, rural health clinics, Critical Access Hospitals, and other rural providers from paper to electronic health records.**
- **The Centers for Medicare and Medicaid Services and the state governments should consider providing financial rewards to providers participating in Medicare or Medicaid programs that invest in electronic health records. These two large public insurance programs should work together to re-examine their benefit and payment programs to ensure appropriate coverage of telehealth and other health services delivered electronically.**

The ultimate goal is to establish a national and even global health information infrastructure that allows for the exchange of patient data between authorized users in a secure environment. The NHII will likely be built community by community, with local or regional health information infrastructures adhering to national data standards. In October 2004, the Agency for Healthcare Research and Quality awarded $139 million in contracts and grants to communities and health systems to enhance ICT capabilities. The committee applauds this effort, but is concerned that current funding is too limited.

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Recommendation 11. The Agency for Healthcare Research and Quality's Health Information Technology Program should be expanded. Adequate resources should be provided to allow the agency to sponsor developmental programs for information and communications technology in five rural areas. Communities should be selected from across the range of rural environments, including frontier areas. The 5-year developmental programs should commence in fiscal year 2006 and result in the establishment of state-of-the-art information and communications technology infrastructure that is accessible to all providers and all consumers in those communities.

Rural communities, like urban areas, are embarking on a period of enormous change. Communities will need both technical and educational assistance to make this transition smoothly and successfully.

Recommendation 12. The National Library of Medicine, in collaboration with the Office of the National Coordinator for Health Information Technology and the Agency for Healthcare Research and Quality, should establish regional information and communications technology/telehealth resource centers that are interconnected with the National Network of Libraries of Medicine. These resource centers should provide a full spectrum of services, including the following:

- **Information resources for health professionals and consumers, including access to online information sources and technical assistance with online applications, such as distance monitoring.**
- **Lifelong educational programs for health care professionals.**
- **An on-call resource center to assist communities in resolving technical, organizational, clinical, financial, and legal questions related to information and communications technology.**

SUMMARY

Rural communities should focus on improving both personal and population health programs to realize the greatest improvement in health and health care. An integrated approach to identifying priorities and allocating resources is needed. It will also be necessary to cultivate a new cadre of health care leaders capable of viewing clinical care within the broader context of population health and building communitywide collaborative structures.

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The federal government should establish a Rural Quality Initiative to assist rural communities and providers in acquiring the knowledge and tools needed to improve quality. Steps should be taken immediately to ensure that rural communities are not left behind in the many quality-related initiatives, including standardized performance measurement, public reporting, and pay-for-performance programs.

It will also be important to remain vigilant in addressing long-standing shortages of health professionals pursuing practice in rural settings, while at the same time taking steps to better prepare health professionals to provide quality care in rural environments. ICT is a transformational tool that has great potential to improve health and health care. Federal financial and technical assistance will be required to ensure that rural providers transition from paper to electronic health records, and that rural communities benefit fully from the ICT infrastructure being built over the coming decade.

REFERENCES

IOM (Institute of Medicine). 1990. *Medicare: A Strategy for Quality Assurance, Volume I. Washington, DC: National Academies Press. p.4.*

IOM (Institute of Medicine). 2003. *Fostering Rapid Advances in Health Care.* Washington, DC: National Academies Press.

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Committee on The Future of Rural Health Care

Board on Health Care Services

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This study was supported by Contract No. 282-99-0045, T.O. #14 between the National Academy of Sciences and the Health Resources and Services Administration. Support was also provided by Contract No. 03M00025301D from the Substance Abuse and Mental Health Services Agency and Contract No. P0105938 from the W.K. Kellogg Foundation. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the Institute of Medicine's Committee on the Future of Rural Health Care and do not necessarily reflect the view of the organizations or agencies that provided support for this project.

International Standard Book Number 0-309-09448-8

Additional copies of this report are available from the National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area); Internet, http://www.nap.edu.

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museum in Berlin.

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"Knowing is not enough; we must apply.
Willing is not enough; we must do."
—Goethe

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Adviser to the Nation to Improve Health

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Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the NRC Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

KIM BATEMAN, HealthInsight
LONNIE R. BRISTOW, Past-President, American Medical Association
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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations nor did they see the final draft of the report before its release. The review of this report was overseen by **Neal A. Vanselow, Chancellor**

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Emeritus, Tulane University Health Sciences Center, and **Charles E. Phelps, University of Rochester.** Appointed by the National Research Council and Institute of Medicine, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

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Preface

In too many ways, rural communities have been at the margins of the health care quality movement. Most quality initiatives in the United States have been developed with urban health care features in mind and as a result have not always been directly applicable to rural health care settings. Before formulating a health care quality agenda in rural America, it will be necessary to determine the rural relevance of quality efforts broadly, while also developing new quality initiatives that directly recognize distinctive features of both the context in which care is given and care systems themselves in rural settings. For example, inpatient care in rural hospitals is often a smaller part of the total set of services than is the case in urban hospitals. Smaller case volumes and long-standing shortages of key health care services, such as those for mental health and substance abuse, draw a mix of providers different from the norm in urban settings. Historically, moreover, the financing of rural health care has been a particularly fragile endeavor. Along with the lack of established applicability of many quality efforts to rural settings, access and finance concerns have frequently hampered the ability of rural health care providers to fully address quality improvement.

While acknowledging these challenges, the Institute of Medicine's (IOM) Committee on the Future of Rural Health Care has charted an agenda for rural communities that fulfills the six aims set forth in the 2001 IOM report *Crossing the Quality Chasm: A New Health System for the 21st Century* of making health care safe, effective, patient-centered, timely, efficient, and equitable. This agenda also reflects the need to improve both the quality of personal health care and the health of the rural population as a whole, as well as to apply the newest tools available, such as information technology, to the work of delivering high-quality health care in rural settings. Specifically, the agenda addresses the need to modify existing quality indicators and processes to reflect the special characteristics of rural communities, to strengthen the human resources for health care networks in rural areas, and to implement a health care information infrastructure across rural communities. In the process, the committee also notes the

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importance of leveraging the unique strengths of rural communities.

Implementation of the recommendations contained in this report, combined with the determination of rural communities to develop creative ways of improving their own health care systems, will set the stage for the consistent delivery of high-quality health care regardless of where one lives in the United States. Capitalizing on their unique strengths, rural communities and health care systems can meet the expectations associated with delivering the highest quality of care possible.

Finally, this report represents the culmination of the dedicated efforts of many individuals. I would like to thank my fellow committee members, who worked long and diligently on this challenging study; the many experts who provided formal testimony to the committee and informal advice throughout the study; and the staff of the Health Care Services Board who managed the study and coordinated the writing of the final report.

Mary Wakefield, Ph.D., R.N., F.A.A.N.
Chair
November 2004

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Foreword

The Institute of Medicine (IOM) has had a long-standing focus on quality of care. In the first phase of the IOM quality initiative, the National Roundtable on Health Care Quality highlighted serious problems with the overall quality of care delivered in the United States. In the second phase, two reports, *To Err Is Human: Building a Safer Health System* and *Crossing the Quality Chasm: A New Health System for the 21st Century*, were released. Both reports called for a fundamental redesign of the health care delivery system.

In the third and current phase, the IOM has sought to elaborate and to realize the vision of a future health system as set forth in the *Quality Chasm* report. The *Quality Chasm* report identified six aims for the delivery of health care: care should be safe, effective, patient-centered, timely, efficient, and equitable. Among the profound changes needed to achieve these aims are that information technology must play a central role in support of the delivery of care; that provider payment systems must reward the provision of quality care; and that the education and training of health professionals must encompass evidence-based skills and working in interdisciplinary teams.

The study presented here marks another step in this third phase of the IOM's quality initiative. Rural America, with about a fifth of the U.S. population, is a vibrant part of the nation. Its people are independent-minded, but with a strong sense of the need to work with others to provide services that many urban dwellers take for granted. Rural communities differ widely, both among themselves and from urban communities, in their economic and social characteristics. They also vary greatly in their population densities and their remoteness from urban areas. The set of health problems faced by rural communities differs from those faced by urban communities. Thus, realizing the vision and six aims set forth in the *Quality Chasm* report poses special challenges for rural areas that are not present in urban areas.

The present report identifies ways to assure that rural America benefits

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from the many changes unfolding in the health care sector and especially from efforts to redesign health care to deliver the highest possible quality.

Harvey V. Fineberg, M.D., Ph.D.
President, Institute of Medicine
November 2004

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Acknowledgments

The Committee on The Future of Rural Health Care wishes to acknowledge the many people whose contributions and support made this report possible.

The committee benefited from presentations by a number of experts on various issues addressed during its meetings over the past 14 months. The following individuals shared their research, experience, and perspectives with the committee: Walter Stewart, Geisinger Health Systems; Glenn Steele, Geisinger Health Systems; Steven Pierdon, Geisinger Health Systems; Regina Schofield, Office of the Secretary, Department of Health and Human Services (DHHS); Marcia Brand, Health Resources and Services Administration (HRSA); Helen Burstin, Agency for Healthcare Research and Quality (AHRQ); Ulonda Shamwell, Substance Abuse and Mental Health Services Agency (SAMHSA); Carolyn Clancy, AHRQ; Elizabeth Duke, HRSA; Brent James, InterMountain Health Care; Larry Gamm, Texas A&M University; Michael Beachler, Pennsylvania State University; David Kibbe, American Academy of Family Physicians; Ravi Nemana, The Health Technology Center; Howard Rabinowitz, Thomas Jefferson University; Kathleen Buckwalter, University of Iowa; Robert Galvin, General Electric Company; Stuart Guterman, Centers for Medicare and Medicaid Services; Cathleen Pfaff, Cypress Healthcare, LLC; Richard Palagi, St. John's Lutheran Hospital; and Pamela Wirth, Susquehanna Health System.

A number of experts were important sources of information, generously contributing their time and knowledge to further the committee's aims. Sunga Kay Carter, Research Coordinator at the Emergency Medical Services for Children National Resource Center, provided useful unpublished research data on workforce strength in emergency medical services. The committee also thanks Liane Pinero Kluge, Association of University Programs in Health Administration; Peter Keller, Professor and Chairperson, Department of Psychology, Mansfield University; David E. Cockley, Assistant Professor, Department of Health Sciences, James Madison University; and Jeptha W. Dalston, President and CEO, Accrediting Commission on Education for Health Services Administration.

The committee commissioned four papers that provided important back-

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ground information and insights for the report. Calvin Beale, in association with John Cromartie, U.S. Department of Agriculture, authored a paper describing and analyzing data needed to understand rural population trends, the changes and diversity in the rural population, and the issues associated with defining "rural." Larry Gamm, in collaboration with Linnae Hutchinson, Texas A&M University, produced a paper describing and analyzing prevalence and rural disparities in mental health conditions and substance abuse behaviors, along with barriers to accessing professionals and services in these areas. Keith Mueller, in association with Timothy D. McBride, University of Nebraska Medical Center, authored a paper describing and analyzing reimbursement, financing, and payment policies for rural health care. Thomas Nesbitt, working with Peter Yellowlees, University of California-Davis Health System, wrote a paper on information technology for the rural health care context.

The committee also benefited from the work of other committees and staff of the Institute of Medicine that conducted studies relevant to this report. The committee benefited particularly from the work of the Committee on the Quality of Health Care in America and the Committee on Identifying Priority Areas for Quality Improvement. The committee on the Quality of Health Care in America produced the 2000 report *To Err Is Human: Building a Safer Health System* and the 2001 report *Crossing the Quality Chasm: A New Health System for the 21st Century*. The committee on Identifying Priority Areas for Quality Improvement produced the 2003 report *Priority Areas for National Action: Transforming Health Care Quality.*

The committee recognizes the hard work of staff at the Institute of Medicine. Maria Hewitt of the National Cancer Policy Board, Institute of Medicine, was very gracious in lending copies of a study on rural health and rural emergency medical services, conducted from 1989 to 1990 during her tenure at the Office of Technology Assessment.

Finally, funding for this project came from HRSA, AHRQ, SAMHSA, and the W. K. Kellogg Foundation. The committee extends special thanks to HRSA, AHRQ, SAMHSA, and Kellogg for providing this support.

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Contents

EXECUTIVE SUMMARY 1
The Health Care Quality Challenge, 1
Addressing the Quality Challenge in a Rural Context, 2
Addressing Personal and Population Health Needs, 3
Establishing a Quality Improvement Support Structure, 5
Strengthening Human Resources, 7
Providing Adequate and Targeted Financial Resources, 10
Utilizing Information and Communications Technology, 12
Summary, 16
References, 17

1 INTRODUCTION 19
Rural Health Policy, 20
Purpose and Scope of This Study, 21
Building of the IOM's Quality Chasm Series, 22
Guiding Principles for Reforming Rural Health Care, 24
Organization of the Report, 27
References, 28

2 AN INTEGRATED APPROACH TO IMPROVING HEALTH AND HEALTH CARE IN RURAL COMMUNITIES 30
Quality of Care in Rural Communities, 31
Health Behaviors and Health Threats in Rural Communities, 37
Improving Population Health and Personal Health Care, 38
Conclusions and Recommendations, 51
References, 54

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This executive summary plus thousands more available at http://www.nap.edu

Quality Through Collaboration: The Future of Rural Health Care
http://books.nap.edu/catalog/11140.html

3 QUALITY IMPROVEMENT ACTIVITIES IN RURAL AREAS 58
Key Components of a Comprehensive Quality Improvement Program, 59
Current State of Quality Improvement Efforts in Rural Areas, 63
Conclusions and Recommendations, 70
References, 72

4 HUMAN RESOURCES 74
Fundamental Reforms to Improve Quality, 76
Enhancing the Rural Health Professions Workforce, 84
Options for Mobilizing Community Resources, 100
Conclusions and Recommendations, 103
References, 106

5 FINANCE 113
Pay for Performance, 114
The Funding of Rural Health Care, 119
The Funding of Rural Mental Health and Substance Abuse Services, 132
Conclusions and Recommendations, 133
References, 135

6 RURAL HEALTH CARE IN THE DIGITAL AGE 140
ICT Applications in Rural Settings, 143
Current Status of ICT in Health Care, 150
Accelerating the Adoption of ICT in Rural Settings, 157
Conclusions and Recommendations, 159
References, 170

APPENDIXES
A Biographies of Committee Members 183
B Characteristics of Rural Populations 189
C The Rural Health Care Delivery System 208

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