Building a Sustainable Rural Health System in the Era of Health Reform

Matthew Hunsaker, MD and
Vivek S. Kantayya, MD, FAAFP

Introduction

Much has been written of health care reform in recent months. After the passage of federal legislation which changes the landscape of health care delivery in the USA, the novelty of "change" has given way to deep discussions about workforce capacity and the implications of an increased number of individuals accessing health care services. The daunting task of providing equal health care to all citizens has specific challenges in the rural context. Concerns of adequate provider workforce, availability of insurance products to rural residents, and logistical patterns of seeking care are important considerations in the policy discussion surrounding the transformation of the US Health Care System.

Challenges of Rural Health Care

The provision of primary care to large numbers of citizens in an outpatient primary care office that includes preventive services has been identified as a cost-saving strategy integrated in health reform. It is likely that in the past as many as 36% of USA citizens have only accessed health care through the emergency room or other point-of-care outlets. The transition of "undoctored" to primary care practices has renewed the discussion of shortage and an over-burdened medical infrastructure. One often imagines scenes of overcrowded urban emergency rooms and urban safety net providers struggling to meet increased demand. In reality, rural populations frequently face equal or greater challenges in accessing health services. Rural residents are more likely to be uninsured than urban residents.[1,2] Rural residents often travel farther to access care[3] and increasing distance to a safety net provider decreases usage.[4] The challenges of providing rural health care are not unique to the USA.[5,6] In this context, the provision of health care to rural populations is challenging due to a number of factors.

Dis Mon 2010;56:698-705
0011-5029/2010 $36.00 + 0
doi:10.1016/j.disamonth.2010.10.003

Despite all the unknowns of health reform, there are some central concepts that have emerged as "critical issues" in the ongoing discussion of access. Among them is health workforce capacity. In rural health, 1 very important factor affecting the availability of care in rural communities is the number of providers present. In the USA, more than 6000 Health Professions Shortage Areas (HPSAs) exist. Among these shortage areas, rural communities dominate, representing nearly two thirds of the HPSAs. The Health Resources Service Administration estimates there are 65 million people living in HPSAs and it would take an additional 16,643 practitioners to meet the unmet primary care need.[7] There is a substantial impact that health worker shortage alone plays in rural health care access. Recalling the predominance of HPSAs in rural locations, 1 becomes aware that 1 obvious focus of policy innovation should be rural health workforce development. As far back as the 1920s, turn of the century authors were describing rural health workforce shortages where "the rural areas are not receiving their fair share of physicians."[8] Although there were calls to modify medical education to encourage rural primary care practice and rural geographic distribution, sadly, 100 years later, we are still struggling with the issues of proper specialty mix and appropriate geographic distribution. In many rural communities, family physicians dominate the provider landscape. In fact, family physicians were much more likely than other types of primary care physicians to practice in a HPSA.[9] This has specific implications in determining the medical specialty distribution of programs targeted at improving rural health shortages in the context of current health reform discussion. In this rural context, the trend of rural physicians moving away from owning their own practice is of unclear significance. It would appear that the lack of management and business skills, often absent in medical school curricula, in an ever increasingly sophisticated workplace may cause new graduates to shy away from independent practice. In this changing marketplace, it will be the function of the employing agency whether the hospital employed physician (prohibited in some states in the USA), the small medical group, or the remaining independent physician practice will distribute health care services to HPSA shortage areas. An aging rural physician workforce coupled with increasing demand for care emphasizes the importance of regional succession planning to ensure the availability of physician services.

Specialty Choice and Skills

To achieve enhanced specialty choice in primary care coupled with rural geographic distribution, a number of authors have explored the factors affecting specialty choice and distribution. In recent years, approximately 75% of the USA medical school matriculates are from

families in the top quintile of combined parental income and with increasing combined parental income the choice of primary care specialties has been unlikely. Several authors have researched the effect that birth origin and life experiences have on both specialty choice and practice location upon the completion of residency training.[10-15] Perhaps predictably, urban origin, elite social status, and elevated cultural family expectations play a nearly inverse role in primary care specialty practice and rural geographic distribution choice.

Besides initial selection, several authors have reviewed the idea of the scope of skills required for a physician to be successful in rural practice. Some of those skills are knowledge or procedure based; others are related to performance of professional activities, and some are behavioral in scope.[16] Coordination of care, cooperation with other health professionals, and management of critical resources are valuable skills for the rural practitioner, yet frequently these skills fall outside of the "revenue-generating activities" of a practice.[16,17] The evolution of payment models that include reimbursement for these activities would likely inspire their inclusion in medical education curricula, triggering enhanced patient health outcomes and financial satisfaction of rural physicians who currently provide these services as a critical component of daily practice operation. The importance of coordination of care, interprofessional cooperation, and management of health care resources as factors in providing quality health care has been identified by numerous authors, yet most reimbursement models have yet to encourage system-wide physician engagement by elevation of these professional behaviors to affect the individual physician's financial "bottom line." This continues to be 1 strategy proposed in health reform to enhance reimbursement of the rural safety net provider.

Numerous authors have focused on the environment in which practitioners train during medical education as an enhancing or modifying factor on specialty choice and practice location. The cohort of confirming literature extends beyond the borders of the USA as shortage concerns plague the global health workforce. Data regarding the outcomes of rural workforce training programs that have been established are producing a limited number of physicians who received specialized training for rural practice.[18-28] Despite global evidence, integration of the concepts enumerated and replication of these workforce experiments has been slow to be adapted in national health workforce policy. As the USA and other countries struggle to meet the demand for an increased number of rural practitioners, attention to factors which drive specialty choice and geographic distribution will enhance health workforce policy interven-

tions. Failure to focus expansion of medical education based on increased production of physicians for shortage practice will likely yield the same result experienced in the last century as described by Pusey.[8]

Retention of rural workforce is also an important factor in the projecting adequate rural health infrastructure. Weeks and Wallace[29] suggest 3 areas that require critical consideration and change to improve retention of rural physicians: longer work hours for rural physicians, lower salaries, and dependence on government insurance, such as Medicaid. The effect to which these factors may encourage relocation from rural communities has also been described.[30] Others have suggested that workload and call schedules play a significant role in provider dissatisfaction and may contribute to relocation away from rural practice.[31,32] A comprehensive view of physician retention considering factors, such as parenting a minor-aged child, and the sense of satisfaction from owning one's own practice as factors positively affecting retention, and these "nonpractice" factors clearly play a role. Spousal satisfaction and employment opportunities as important satisfaction determinants also have been noted. The dividends of retaining rural physicians versus an ever-renewing engagement of short-term placements is apparent to many rural hospitals as they incentivize through recruitment packages, salary, and benefits the rural physician to remain in local rural practice. In many states small rural hospitals have enhanced primary care salaries with revenue from nonphysician-generated sources to ensure appropriate medical staff succession and the retention of the appropriate number and specialty distribution of rural physicians.

Disparities Among the Rural Population

Superimposed on the dialogue of health shortages is the awareness that some rural populations may have other complicating factors inhibiting their access to health care. One such factor is the lack of insurance for many rural citizens.[33,34] In many rural areas employer-based insurance is less common. Coburn and colleagues[35,36] suggest that small business size, low wage level, and self-employment all negatively affect the likelihood of rural residents to have insurance when compared with urban citizens. In some cases poverty serves as a surrogate indicator for the inability to access health care services. In some rural regions of the USA, rural residents are less likely to access government-offered insurance products even when offered for reasons that remain unclear.[36] Despite this, individuals not accessing insurance are at increased risk for poorer health outcomes. Specific benefits of access to health care insurance have been demonstrated for individuals suffering from acute and chronic

conditions for which effective treatments are available.[37-42] Research indicates that having a longitudinal relationship with a health care provider increases the use of wellness and preventive services, particularly in children.[43] Among rural children, the uninsured are less likely to have a health care provider from whom they usually receive services.[44] As health reform efforts move forward, both addressing the availability of such insurance schemes as well as engaging a large percentage of the currently un- or underinsured will be of key importance in improving health outcomes. In many locales, changing the pattern of care access from disease treatment alone to preventive and early intervention will require a change in the understanding of basic definition of "health" currently held by many rural citizens. The absence of disease symptoms alone falls short of the comprehensive definition of "health" that includes preventive screening and early intervention in the disease process.

Important in the discussion of rural health care is the logistics of where and how care is offered to rural citizens. As the overall density of physicians decreases, the location of both physician offices and hospitals becomes a consideration in patterns of seeking care. In rural shortage environments, distance to be traveled for care is frequently farther, and the number of physician practices to choose from is by definition less than in non-HPSA locations. Despite the success of the Critical Access Hospital program in decreasing the number of rural hospitals on the brink of financial ruin, rural hospitals have trended to focus on developing outpatient service lines of care. Increasing financial pressures have driven this change due to shorter length of stays and decline in the overall number of admissions. Groups at particular risk for poorer rural health outcomes include the elderly; the poor; people with HIV or AIDS; the homeless; mothers, children, and adolescents; racial or ethnic minorities; and persons with disabilities.[45] Additionally, complicating the logistics of accessing health care in rural communities is the lack of comprehensive public transportation systems or other mechanisms for citizens that are unable to transport themselves to care due to illness, infirmity, lack of financial resource, or ineligibility to provide self-transport to care.

Conclusions

As the USA health policy leaders struggle to implement the strategies of health reform, it quickly becomes apparent that a "one size fits all" solution will likely fail when rural implementation is attempted. The specific challenges of adequate primary care workforce, the availability of insurance products to rural residents, and overcoming the logistical challenges of providing care to rural residents are challenges inherent to

evolving the system of rural health care. These issues are not unique to rural health, but are prominent barriers identified through research in designing a sustainable system of rural health for the future. The attention to these difficult challenges during the design of the evolving health reform will allow the greatest chance of implementing a system that meets the long-term health goals of the USA.

REFERENCES

1. Lenardson JD, Ziller EC, Coburn AF, et al. Profile of rural health insurance coverage: A Chartbook. Portland, ME: University of Southern Maine, Muskie School of Public Service, Maine Rural Health Research Center, 2009.
2. Hartley D, Quam L, Lurie N. Urban and rural differences in health insurance and access to care. J Rural Health 2008;10(2):98-108.
3. Ayanian JZ, Weissman JS, Schneider EC, et al. Unmet health needs of uninsured adults in the United States. JAMA 2000;284(16):2061-9.
4. Hadley J, Cunningham P. Availability of safety net providers and access to care of uninsured persons. Health Serv Res 2004;39(5):1527-46.
5. Kroneman M, Verheij R, Tacken M, et al. Urban–rural health differences: primary care data and self-reported data render different results. Health Place 2010;16(5):893-902.
6. Quine S, Bernard D, Booth M, et al. Health and access issues among Australian adolescents: a rural-urban comparison. Rural Remote Health 2003;3(3):245.
7. Shortage Designation Home Page. Health Resource Service Administration Web site http://bhpr.hrsa.gov/shortage/ Accessed June 4, 2010.
8. Pusey WA. Medical education and medical service. JAMA 1925;84(7):281-5.
9. Grumbach K, Hart LG, Mertz E, et al. Who is caring for the underserved? A comparison of primary care physicians and nonphysician clinicians in California and Washington. Ann Fam Med 2003;1(2):97-104.
10. Rabinowitz HK, Diamond JJ, Hojat M, et al. Demographic, educational and economic factors related to recruitment and retention of physicians in rural Pennsylvania. J Rural Health 1999;15(2):212-8.
11. Salafsky B, Glasser M, Ha J. Addressing issues of maldistribution of health care workers. Ann Acad Med Singapore 2005;34(8):520-6.
12. Glasser M, Stearns MA, Stearns JA, et al. Screening applicants for a rural medical education program. Acad Med 2000;75(7):773.
13. Hsueh W, Wilkinson T, Bills J. What evidence-based undergraduate interventions promote rural health? NZ Med J 2004;117(1204):U1117.
14. Wilkinson D, Laven G, Pratt N, et al. Impact of undergraduate and postgraduate rural training, and medical school entry criteria on rural practice among Australian general practitioners: national study of 2414 doctors. Med Educ 2003;37(9):809-14.
15. Topps D, Crutcher R, Norton P, et al. The Rurality Index—are we selecting the "best" students? Fifth WONCA World Rural Health Conference, 2002.
16. Topps D, Rourke J, Wanted NP. Trainees for rural practice. Aust J Rural Health 2003;11(2):96-8.
17. Maley M, Denz-Penhey H, Lockyer-Stevens V, et al. Tuning medical education for rural-ready practice: designing and resourcing optimally. Med Teach 2006;28(4): 345-50.

18. Eley D, Baker P, Chater B. The Rural Clinical School Tracking Project: more IS better—confirming factors that influence early career entry into the rural medical workforce. Med Teach 2009;31(10):e454-9.
19. Eley D, Baker P. Will Australian rural clinical schools be an effective workforce strategy? Early indications of their positive effect on intern choice and rural career interest. Med J Aust 2007;187(3):166-7.
20. Magnus J, Tollan A. Rural doctor recruitment: does medical education in rural districts recruit doctors to rural areas? Med Educ 1993;27(3):250-3.
21. Playford D, Denz-Penhey H, Skinner L, et al. Will Australian rural clinical schools be an effective workforce strategy? Early indications of their positive effect on intern choice and rural career interest. Med J Aust 2008;188(3):190.
22. Rabinowitz H, Diamond J, Markham F, et al. Medical school programs to increase the rural physician supply: a systematic review and projected impact on widespread replication. Acad Med 2008;83(3):235-43.
23. Kaufman A, Mennin S, Waterman R, et al. The New Mexico experiment: educational innovation and institutional change. Acad Med 1989;64(6):285-94.
24. Ranmuthugala G, Humphreys J, Solarsch B, et al. Where is the evidence that rural exposure increases uptake of rural medical practice? Aust J Rural Health 2007;15(5):285-8.
25. Reuter H, Couper I. Influences on the choice of health professionals to practice in rural areas. S Afr Med J 2007;97(11):1060.
26. Worley P, Prideaux D, Strasser RP, et al. Why we should teach undergraduate medical students in rural communities. Med J Aust 2000;172(12):615-7.
27. Matsumoto M, Inoue K, Kajii E. Characteristics of medical students with rural origin: implications for selective admission policies. Health Policy 2008;87(2):194-202.
28. Glasser M, Hunsaker M, Sweet K, et al. A comprehensive medical education program response to rural primary care needs. Acad Med 2008;83(10):952-61.
29. Weeks WB, Wallace AE. Rural-urban differences in primary care physicians' practice patterns, characteristics, and incomes. J Rural Health 2008;24(2):161-70.
30. Berk M, Feldman J, Schur C, et al. Satisfaction with Practice and Decision to Relocate: an Examination of Rural Physicians. Bethesda, MD: Walsh Center for Rural Health Analysis, 2009.
31. Cutchin MP. Physician retention in rural communities: the perspective of experiential place integration. Health Place 1997;3(1):25-41.
32. Pathman DE, Konrad TR, Dann R, et al. Retention of primary care physicians in rural health professional shortage areas. Am J Public Health 2004;94(10): 1723-9.
33. DeVoe JE, Fryer GE, Phillips R, et al. Receipt of preventive care among adults: insurance status and usual source of care. Am J Public Health 2003;93(5):786-91.
34. Callahan ST, Cooper WO. Uninsurance and health care access among young adults in the United States. Pediatrics 2005;116(1):88-95.
35. Coburn AF, Kilbreth E, Long SH, et al. Urban–rural differences in employer-based health insurance coverage of workers. Med Care Res Rev 1998;55(4):484-96.
36. Larson SL, Hill SC. Rural-urban differences in employment-related health insurance. J Rural Health 2005;21(1):21-30.
37. Hadley J. Sicker and poorer—the consequences of being uninsured: a review of the research on the relationship between health insurance, medical care use, health, work, and income. Med Care Res Rev 2003;60(2)(Suppl):3S-75S.

38. Hadley J. Insurance coverage, medical care use, and short-term health changes following an unintentional injury or the onset of a chronic condition. JAMA 2007;297(10):1073-84.
39. Institute of Medicine. Care without coverage: too little, too late. Washington, DC: National Academies Press, 2002.
40. Levy H, Meltzer D. The impact of health insurance on health. Annu Review Public Health 2008;29:399-409.
41. Franks P, Clancy CM, Gold MR. Health insurance and mortality: evidence from a national cohort. JAMA 1993;270(6):737-41.
42. Freeman JD, Kadiyala S, Bell JF, et al. The causal effect of health insurance on utilization and outcomes in adults: a systematic review of US studies. Med Care 2008;46(10):1023-32.
43. Newacheck PW, Hughes DC, Hung Y, et al. The unmet health needs of America's children. Pediatrics 2000;105(4):989-97.
44. Callahan S, Cooper WO. Uninsurance and health care access among young adults in the United States. Pediatrics 2005;116(1):88-95.
45. Improving health care for rural populations. Agency for Healthcare Research and Quality (AHRQ) Web site http://www.ahrq.gov/research/rural.htm Accessed June 1, 2010.