set out two overarching goals for the U.S. population in 1998. The first is to increase health quality and the number of years of healthy life. The second is to eliminate health disparities among populations regardless of race, ethnicity, disability, socioeconomic status, gender, age, or geography. These two goals frame the rural health crisis. Health disparities between urban and rural regions and among rural populations have existed historically, and in some cases inequality seems to be increasing. Inadequate medical infrastructure limits access to and quality of the health care that rural populations are able to obtain. Further, underlying rural economic and social conditions—such as employment and occupational opportunities, income, education, civic structure, and transportation—influence the capacities of rural places to solve their population health problems.

**Health Status Disparities**

The U.S. National Center for Health Statistics reported a number of health differences between metropolitan and nonmetropolitan counties for the period 1996–1998 (Eberhardt et al. 2001). Death rates for children and young adults (ages one to twenty-four years) in the most rural counties in all regions except the Northeast were over 50 percent higher than the lowest rates reported in fringe counties of large metropolitan areas. In the South, death rates for working-age adults (ages twenty-five to sixty-four) during this period were highest in nonmetropolitan counties. Ischemic heart disease death rates in the South were over 20 percent higher in the most rural counties than in fringe counties of large metropolitan areas. Using a gradient of counties from more to less urban, the death rates from unintentional injuries increased nationally and within each region as counties become less urban. Most rural counties experienced death rates from motor vehicle traffic-related injuries that were twice as high as central counties of large metropolitan areas. Suicide rates for males fifteen years and over increased steadily from urban to nonmetropolitan counties. Male suicide was steepest in the West—almost 80 percent higher than large metropolitan county rates.

Using longitudinal mortality data from the U.S. Centers for Disease Control for the period 1968 to 1997, distinct patterns of mortality emerge as these data are disaggregated by urban influence (Fig. 22.1) (U.S. Centers for Disease Control 2001). Nonmetropolitan counties that are not adjacent to metropolitan areas and have places with populations less than 10,000 (codes 8 and 9 in Fig. 22.1) consistently experienced higher rates of age-adjusted mortality than counties with more populated places. A lag in health over time for the most rural counties (code 9 in Fig. 22.1) was also
economic conditions have undermined the ability of local communities to finance health care services. Most rural hospitals were built in the 1950s with federal matching funds obtained through the Hill Burton Act. Financing and administration crises plague rural hospitals as they struggle to modernize and respond to changing market conditions. County-level public health departments, the traditional provider of last resort, are responsible for collecting data on population health, assuring environmental quality and disease prevention, and carrying out health care planning. These institutions are experiencing budget stress due to declining local revenues, expectations for cost efficiencies and accountability, and new competition from the private sector. Emergency medical services (EMS) provide essential transportation and first response care. Composed primarily of local volunteers, rural EMS units across the United States report critical shortages of volunteers and resources for training, and underfunding to upgrade and replace equipment.

The traditional role of the hospital as the foundation of rural health care is undergoing reevaluation as health care costs burden rural citizens. Almost 10 percent of the nation's rural hospitals closed between 1980 and the late 1990s (Reif, DesHarnais, and Bernard 1999). Many of these hospitals had comparatively less technologically sophisticated equipment and strained budgets, which made it difficult for them to compete with urban hospitals or to be able to purchase the ever-expanding array of technical and biomedical innovations (Reardon 1996). Overall admission rates in rural hospitals declined as residents bypassed their local hospitals for the more sophisticated services provided by urban facilities (Morrisey et al. 1995). Rural hospitals are caught between providing basic medical care to an aging and increasingly chronically ill population, and a burgeoning medical infrastructure that focuses on specialization and technology. Bad debts, a higher percentage of Medicare patients than urban hospitals (Reardon 1996), and changes in Medicaid reimbursement have undermined the financial stability of many rural hospitals.

Rural hospital restructuring in the past two decades took one of several possible pathways—closure, merger with neighboring rural hospitals or urban health systems, development of rural health care networks or alliances with multiple health institutions, and/or downsizing to a critical access hospital. Hospital closures resulted in resident distress over the loss of local emergency rooms, greater travel distances for hospital services, difficulty in recruiting physicians for routine care, and health services access issues for vulnerable populations such as the elderly and those with low incomes (Reif et al. 1999). Rural physicians who are expected to deliver a comprehensive set of health care services to their patients depend upon the
hospital (Phelps 1992; Krein, Christianson, and Chen 1997). Patients and the profitability of physician practices and pharmacy services tied to the location of the nearest hospital and hospitals that provide primary services. Thus, loss or changes in the rural hospital affect rural physician practices, as well as a number of auxiliary medical services. Absence of managed care under Medicaid waivers increased urban competition for primary care physicians (Rural Policy Research Institute 1996) and undermined an already short supply of rural medical providers. The Office of Rural Health Policy (1997) estimates that people who live in metropolitan areas are almost four times more likely to live in an area a shortage of health professionals, compared to residents of metropolitan areas.

Health departments, the second major health institution in rural areas, experiencing new competition from the private sector, loss of their ability to cross-subsidize services to the needy and medically underserved, and opportunities to partner with the medical community. Various factors lead to reduced public health clinical services away from public health departments, including competition from private providers, the Child Health Insurance Program, and Medicaid managed care requirements that a primary care provider refer patients prior to the delivery of health services. In several states with fully capacitated Medicaid managed care programs, rural health departments eliminated or decreased services such as rural well-child clinics (Silfkin, Goldsmith, and Ricketts 2000). A number of health department directors reported substantial loss of Medicaid reimbursements for these services and reduced health department financial stability.

What do reduced or eliminated public health clinical services mean to populations? Loda et al. (1997) report that in the rural Southeast, health departments are the primary source of services that prevent poverty and poor birth outcomes for adolescents, in contrast to urban areas which have a variety of family planning providers. In eleven states east of the Mississippi River, rural children who were immunized by public health departments had higher immunization completion rates than urban children in 1990 (Silfkin et al. 1997). Silfkin et al. (1997) suggest that rural families more dependent on public health clinics, and that rural health department professionals know their clientele more personally, allowing them to refer target families with children. These examples offer evidence that insured financial instability for rural public health departments could lead to lower health outcomes for low-income rural populations.

The third major component of rural medical infrastructure, emergency medical services, is experiencing labor and equipment crises. In 2000, a survey of rural EMS units identified a variety of needs—73 percent required communication equipment, 68 percent needed medical equipment, and 54 percent needed ambulances (Heinrich et al. 2001). As the rural economy shifts from many small farmers to a few large farmers, and as more of the rural nonfarm workforce commutes to neighboring urban centers, emergency medical services are finding it increasingly difficult to recruit volunteers for daytime shifts. Lack of advanced-care equipment and training and low volumes of some types of services prevent the transport team from maintaining adequate patient care skills (Morrissey et al. 1995). According to the U.S. General Accounting Office, one rural state reported that medical direction to EMS staff could be from a physician as far as one hundred miles away (Heinrich et al. 2001). The loss or downsizing of rural hospitals increases the distances that EMS personnel have to travel, and can double the time spent transporting patients. This makes it even more difficult to attain the Healthy People 2010 objective of a greater proportion of rural people reached by EMS within ten minutes. Without investments in rural EMS infrastructure, the current differences between rural and urban (whose goal is EMS service in five minutes) are likely to increase rather than decrease. For an aging rural population that is increasingly less able to drive and more likely to need emergency assistance, the availability and expertise of emergency medical services is an essential resource for extending longevity and quality of life.

The high fixed costs of rural hospitals, public health departments, and twenty-four-hour emergency service are major financing challenges for rural places. In 1992, rural local governments spent $10.8 billion to support local health infrastructure (Wellevier and Radcliff 1998). Zimmerman and McAdams (1999) reported that although an average of 12.1 percent of Kansas' 1996 county-level public budgets were spent on health care, ten of the 105 counties spent one-fourth to one-third of their budgets on health care. Morton's (1997) study of upstate New York counties from 1984 to 1995 found an upward trend over time with rural periphery and rural-suburban counties' total health spending (including local Medicaid share) in 1995 close to 30 percent of all county expenditures.

The ability to pay taxes to support a health care infrastructure and personally purchase medical services is dependent upon rural residents' employment, income, and health insurance. Although rural people have similar insurance coverage rates as urban populations, they are more likely to be underinsured (Comer and Mueller 1992). More rural than urban residents rely on individual health insurance plans or coverage purchased through small employers (Pol 2000). Uninsured rural residents are more likely to have low or modest incomes, and be self-employed—15 percent rural versus 9.5 percent urban—or employed in agriculture, mining, forestry, or fishing.
though rural health care institutions offer intervention strategies for disease and illness, they do not adequately address prevention issues and cannot address the root causes of disease and mortality (Morton 2001a). Ilbrecht, Clarke, and Miller noted the “large and consistent net effects on health status” (1998, 249) of rural community structural characteristics, such as percent with less than a ninth grade education, percent of Latino residents, and percent of people who do not speak English. Young and Hanson (2001) found that the social organization of communities (number of voluntary organizations, membership organizations, small businesses, and percentage who voted in national elections) explained 49 percent of the variance in mortality across U.S. counties.

There is a great deal of science that links poor health to lower education, lower income, lower social standing, and increasing age (Evans, Barek, and Farnor 1994). Some health outcomes are the result of limited access to health care services, but Evans et al. conclude that “there are underlying factors that influence susceptibility to a whole range of diseases” (1994, 6). This suggests that general, nonspecific risk factors are sources of poor health. Rural social and economic conditions such as schools, employment opportunities, economic conditions, transportation systems, and civic structure are general factors that are only beginning to be understood in relation to attaining health and well-being. These conditions are elaborated in other chapters of this book and are important underlying factors that must be considered in order for health intervention policies to be effective.

Health Care Policies

Transformations in rural health care in the past decades were precipitated in most places by the devolution of Medicaid regulatory practices to state and local health departments and revisions to the federal Medicare reimbursement rate structure. Corporate America embraced managed care practices as “their favorite techniques for controlling health care costs for their own employees” (Leyerle 1994, 109). By the mid-1990s, government dollars financed more than 44 percent of all U.S. health care expenditures (U.S. Department of Health and Human Services 1996), and efforts intensified to control public medical costs. Business pressures to embrace managed care and more competitive health care markets inevitably led the government to enact policies and practices that supported freer and more competitive health care markets (Morton 2001a). Competitive markets respond to individual demands for health services, but are not able to redistribute resources across populations.

A shift in 1982 to the prospective payment system for Medicare, and state-by-state adoption of Medicaid-managed care changed the rules for reimbursement and the amount of reimbursement dollars available to insurance companies, rural health care providers, and rural county health departments. Managed care combines the insurance and the delivery of health care, and redirects profits from hospitals and doctors to insurance companies. Managed care organizations compete primarily on the basis of price; incentives in the marketplace for quality and access are weak or nonexistent (American Public Health Association 1997). The federal Balanced Budget Act of 1997 allowed provider-sponsored networks to receive Medicare-managed care contracts, and supported the transition from fee-for-service payments for health care services to managed care payments. Despite rhetoric about preventative care, the real goals of these new policies were to achieve cost efficiencies and reduce the public economic burden of financing the health care system.

The critical access hospital (CAH) created by the Balanced Budget Act of 1997 offered rural hospitals flexibility in staffing and the potential to offset financial losses. The average number of rural hospital beds ranges from forty-eight to 132 beds per hospital (Reardon 1996). Conversion to a CAH means that rural hospitals must downsize to no more than fifteen acute beds (and ten swing beds), limit hospital stays to ninety-six hours, provide twenty-four-hour emergency services, and form a network with at least one other acute care hospital. This model defines rural medical services as basic health care only, with little or no specialty care. If this model is replicated across rural America, the extreme difference in availability of specialty care will produce an even more distinctly different set of services between rural and urban places than is true today. The impact on population health is yet unknown. If accompanied by investments in medical services that respond to chronic illness and increases in primary care providers, this could be an effective policy to reduce acute care costs without loss of longevity or quality of health. Without investments, disparities in access to health care between rural and urban places will increase with negative effects on rural health status.

The Disparity Between Health Status and Health Policies

U.S. health policy primarily focuses on the health care system and its ability to respond to sick individuals’ demands for health care (Henly et al. 1998;
As long as health issues are framed as individual rather than population concerns, competitive market strategies will continue to be applied in hopes of controlling costs. However, the health care system lacks the critical components necessary for markets to efficiently operate: disease and illness are not voluntary, so patients are captive to market offerings and cannot voluntarily exit the market; patients often lack the clinical knowledge to rationally purchase health services; and health care providers (the real demanders of services) are accountable to health insurers, not patients.

The source of the disconnection between health policies that attempt to control medical costs and the ability to reach Healthy People 2010 goals of minimizing health disparities and increasing longevity and quality of life is in the conflict between individual and population health. Pooling sources that target population health averages out what each person has to pay for health care, and allocates care efficiently across patients (Eddy 1991). This is in contrast to individual patients choosing resources that optimize their own personal care. Competitive markets and managed care entail cost shifting in order to squeeze out excess payments, yet small hospitals (Ginzberg 1996) and public health depend on cross-subsidization to over patient-care losses. Mechanisms that spread the high financial costs of medical care among populations are dismantled by policies that reward competitive markets that operate based on individual demand.

Rural areas lack the population characteristics, geographic density, and economic conditions that are necessary to make competitive health care markets efficient and effective. Competitive markets merely accentuate the differences between consumers who can afford and those who cannot afford the growing array of medical services. Wysong et al. (1999) reported that managed care firms found rural markets less attractive than urban areas because rural areas had lower incomes and higher poverty rates. Policies whose main focus is competitive markets cannot eliminate health disparities among rural and urban populations unless economic disparities are also eliminated. Moreover, these policies reinforce medical solutions, when improvements to health may actually be gained through a host of different actions and policies that have nothing directly to do with health care. For example, smoking and obesity, two risk factors associated with major chronic health conditions, have population-level interventions that target disease prevention rather than medical responses.

The 1960 U.S. Surgeon General report on smoking and cancer bore fruit in the 1990s with successful private and public lawsuits against tobacco firms. Higher tobacco taxes and indoor smoking bans that local and state governments have enacted are examples of socially constructed political interventions designed to reduce smoking and cancer rates (Sturm 2002). However, adults and adolescents living in the most rural counties were found to smoke more than those in central counties of large metropolitan areas. The South—where tobacco is a major agricultural cash crop in some areas—experienced large increases in smoking in 1999 (Eberhardt et al. 2001). Are Southern counties less likely than others to have indoor smoking bans or incentives that deter smoking due to economic and cultural biases? Are incomes and occupations the real sources of poor health? Research is necessary to answer these questions.

The effects of obesity on chronic health are now recognized as larger than excessive drinking or current or past smoking (Sturm 2002). Declared a national epidemic in 2001, obesity is considered one of the nation's most important health problems because of associations with heart disease, stroke, cancer, and diabetes, and health care costs for overweightness and obesity are estimated at $117 billion annually (Squires 2001). Iowa, a highly rural state, reported a substantial increase (from 25.3 percent to 32.7 percent) in the incidence of obesity from 1989 to 1997 (USDHHS 2000c). Diet and the structure of our food systems are implicated as sources of obesity. The International Obesity Task Force causal web depicts the interrelationships of health to global food marketing, media, national and state policies related to food and agriculture, urban design, education, and transportation systems (Kumanji 2001). Smoking and obesity are only two examples of proximate causes of poor health that will not be alleviated by competitive health care markets. Underlying smoking and obesity behaviors are poverty and low education levels—both disproportionate problems in rural areas.

Putting the "Rural" into Health Policy

Why do rural regions need special attention in health policy? Healthy People 2010 lists six categories where health disparities exist: race and ethnicity, socioeconomic status, gender, age, disability, and geographic location. As noted in other chapters of this book, rural areas have age, socioeconomic status, and race and ethnicity disparities that are critical factors in explaining geographic differences in population health. A large proportion of American resources is invested in a medical/industrial complex in the hopes that we can achieve longer and higher quality lives and reduce disparities among populations. While policies that target the medical infrastructure may reward cost efficiencies and encourage medical science to continue to innovate, they will not reduce health disparities until rural


populations have an equal ability to purchase these products and services. Further, an increasingly elderly rural population, the high costs of medical care, and the fact that almost 30 percent of all hospitalized Medicare patients die within twelve months (Ginzberg 1996) suggest that investments in the rural medical infrastructure may increase quality of life (comfort and reduced pain) but will not reduce mortality.

If better health for rural populations is the goal, I suggest that policymakers start with five assumptions. First, nationwide and rural policies must be evaluated on their ability to achieve improved population health as reflected in Healthy People 2010 goals rather than individual health gains. Second, generalized risk factors such as social and economic infrastructures affect population health. Rural regions differ among themselves and in comparison to urban regions on a number of characteristics: geography, population density, racial and ethnic mix, age, occupations, and social and economic conditions. These differences influence inequities in health status and the adequacy of rural medical infrastructures. Third, connections among rural and urban insurance risk pools and medical infrastructures are necessary to share costs and risks. Rural primary care services must be reoriented into a larger system that incorporates interventions for primary, secondary, and tertiary care. Fourth, health decisions are political. Local civic structures, including human and social capitals, affect capacities for local problem solving, including the integration of rural health, social, and economic goals. Fifth, rural population characteristics prevent competitive market solutions from solving basic rural health problems. Place-based interventions will be necessary if health and well-being are to be shared across U.S. populations.

Solutions to rural health issues lie in policies and incentives that encourage partnerships among public and private rural institutions and connections with urban resources (Morton 2001b). One of the most critical needs is to increase access to affordable health insurance. This means that public policies should be structured to spread the risk-of-disease cost burden among populations, rather than providing incentives to form niche, profitable markets for insuring healthy populations. The Child Health Insurance Program (CHIP) is a beginning, but it targets a generally already healthy population. The greatest risk-sharing need is for our aging, chronically ill population. Young and old, healthy and sick populations must share the risk and cost burdens for disparities to be reduced. Telemedicine infrastructure links specialized knowledge available in urban centers to many rural medical sites; however, its full potential is not currently being utilized.

Lastly, integrated approaches to rural health research and interventions need to examine the associations among generalized socioeconomic factors and health. This acknowledges the complex interrelatedness of rural economics, civic structure, occupations, incomes, poverty, agricultural structure, and environmental health to rural population health. Examples of public policies that would benefit from this understanding are national farm bills, Health Care Financing Administration rules and regulations that distinguish between place-based population characteristics, Environmental Protection Agency policies and practice recommendations on land use and water quality, nutritional policies that affect food systems and food safety, and a new structure for emergency medical services that designates a lead agency instead of four federal agencies offering fragmented guidance and direction.

Conclusion

Healthy People 2010 goals were not lightly chosen on the whim of one sector or interest group. They were developed through the broad input of public institutions and private citizens, organizations and firms, employers, health departments, and health care providers. As such they represent the aspirations of an America that tries to practice democracy (representation of diverse interests and populations) and strives toward fairness. To effectively achieve these goals, public leaders must incorporate three important areas: the sciences of diseases and their relationships to rural people and their environments, evaluations of policies and interventions based on their
impacts on rural health, and mobilization of the political will to enact policies in the rural interest. The test of any rural health policy should be this: Does it reduce health disparities within rural populations and between rural and urban places and increase the quality of life that they experience? This does not mean that strategies that encourage market efficiencies are avoided. It does mean, however, that rural health policies go beyond incentives to the medical infrastructure, and address social and economic inequalities that are the root cause of poor health.

PART IV

People and the Environment: Tough Tradeoffs in an Era with Vanishing Buffers