
Community Reintegration for Persons with Spinal Cord Injury Living in Rural America

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Despite the Americans with Disabilities Act (ADA), physical, transportation, information, and health care barriers continue to impede full community reintegration for rural-living persons with spinal cord injury (SCI). Lack of a health care policy that recognizes the unique needs of rural populations is particularly problematic. Innovative enterprises, such as AgrAbility, telehealth, and collaborative programs with independent living centers are few but show promise for overcoming obstacles to community reintegration and full participation among people with SCI in rural areas. Rehabilitation professionals can facilitate this process by participating in advocacy efforts, collaborating with state surveillance systems, developing innovative outreach models, and participating in research to identify and remove barriers to community reintegration. Key words: *community reintegration, quality of life, rural populations, spinal cord injury*

PEOPLE living in rural America find that the benefits of rural life far outweigh its challenges. Preserving family and community, retaining stewardship of the land, and protecting personal freedom and independence are commonly held, deeply rooted beliefs throughout rural America. Rural economies are based on a variety of sources, including manufacturing, agriculture (farming and ranching), retirement, and mining and energy.¹ Social activities are community focused and include involvement in church, community clubs and organizations (eg, 4-H), and agriculture-related county/township activities. Many townships have community building rituals, such as Friday night fish fries at the Veterans of Foreign Wars or Elks club. Outdoor sports such as hunting, fishing, hiking, and snowmobiling are common recreational activities. The values and activities of people in rural areas do not change with spinal cord dysfunction, but the number and intensity of the challenges of rural living are increased.

Passage of the Americans With Disabilities Act (ADA) provided a mechanism to prevent discrimination on the basis of disability, but it has not resolved obstacles to community participation among individuals with spinal cord injury (SCI) in rural America. The barriers to community reintegration for persons

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with SCI in rural areas can be overcome with collaboration and innovation. This article will review the primary barriers to community integration, especially those related to health care and rehabilitation. Also, this article will highlight examples of innovative programs and provide suggestions for future endeavors to facilitate community integration among people with SCI in rural America.

One of the major challenges facilitating community reintegration in rural areas is lack of information. With the exception of the Breaking New Ground Resource Center of Purdue University² and the Rural Institute on Disabilities affiliated with Montana University,³ there have been few programs dedicated to documenting problems encountered by people with disabilities in rural areas or implementing programs to resolve these problems. Although a small amount of literature on people with disabilities living in rural areas does exist, very little of it addresses the specific problem of community reintegration among rural dwellers with SCI.

Accurate figures on the prevalence of SCI among persons living in rural areas are available only through extrapolation. Approximately 25% of the US population is rural, and the nationwide estimate of individuals with SCI is 230,000.⁴ Extrapolating from these figures, approximately 57,500 individuals with SCI are living in rural America. This extrapolation assumes that the distribution of SCI individuals in rural and urban areas is proportional to that of the general population. The only other prevalence data on SCI in rural areas is from The Breaking New Ground Resource Center. This center compiled injury and population data from a number of sources, including the National Spinal

Cord Injury Statistical Center, and estimated that between 4,500 and 6,000 persons directly involved in farming and ranching have SCI. Focusing on the agricultural population subset within the total rural population is vital owing to the hazardous nature of farm/ranch work and the resultant frequency of SCI. A 1986 survey of 500 farm operators who had sought services from the Breaking New Ground Resource Center found that 49% of them had incurred an SCI compared with 25% with amputations.² Nevertheless, further epidemiologic research is needed to more accurately estimate the prevalence of SCI in rural areas. Collaboration is needed among rehabilitation professionals and state public health departments and “surveillance” systems to better estimate the numbers of people injured in or residing in rural areas. Existing surveillance data either have not been adequately analyzed or have not been adequately disseminated in the rehabilitation community.

Barriers to Successful Community Reintegration

Transportation

Lack of accessible, reliable, and affordable transportation in rural areas is a significant barrier to obtaining adequate health care, independent living, and community integration for people with SCI and other disabilities. Transportation is especially important to rural living, given the long travel distances required to meet basic living and social needs. Lack of transportation to primary care and health maintenance services likely contributes to the development of secondary conditions, further impeding successful achievement of community integra-

tion. In its 1996 report to the President, the National Council on Disabilities called on the President and Congress to build transportation infrastructure in rural communities, citing transportation as the "linchpin to independence for people with disabilities."^{5(p123)} Transportation problems for patients are well known to rehabilitation professionals (eg, patients in rural areas are often forced to cancel outpatient clinic appointments because arranged transportation becomes unavailable). The National Council on Disabilities reported that in 1996, only 35% of rural, fixed-route vehicles were accessible to people with disabilities, whereas 60% of urban buses were accessible. Urban systems may be fully accessible by the year 2003,⁶ but rural systems will continue to lag behind without policy changes and infrastructure enhancement. Project Action reported that paratransit systems have grown dramatically since passage of the ADA in 1990, providing more than 37 million rides in 1995.⁶ It is unknown how many of these were provided to people living in rural areas. There is concern about the capacity of paratransit to meet the increasing demands for accessible transportation. A thorough search of the literature failed to reveal any empirically based studies published since 1990 on transportation for people with SCI. Difficulty in collecting data on transportation barriers for people with SCI, especially for those in rural areas, may account for the absence of empirical studies on this topic. Secondary data, such as number of paratransit rides requested, provides only indirect evidence of this barrier. Primary data will require direct observation or consumer report and adequate funding to support such data collection. In contrast to the vast recognition in the rehabilitation community of

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transportation problems, the extent of the problem or its impact on consumers has yet to be explicitly documented.

Physical and architectural inaccessibility

A great deal more data exist about physical and architectural barriers to community integration for persons with SCI, but these data present a similar picture. A 1990 survey of 149 farmers/ranchers with SCI from 32 states and 4 Canadian provinces found that most returned to their farms/ranches after injury, and nearly 70% obtained at least some of their income from farm-related activities.² These respondents were queried on a number of topics related to community integration. The results indicated poor access to most community buildings and activities, even for pivotal community institutions such as churches, schools, and local government buildings. For example, at least 40% of churches, local parks and recreation areas, county office buildings, libraries, and post offices were only partially accessible or not accessible.² Another survey of people with disabilities in rural areas revealed similar problems with access. SCI was the most common disability of the respondents, present in 20% of the sample. Survey results revealed that difficulty with access to private and public facilities was 5th out of the 40 most common problem associated with having a disability. Respondents also rated problems with access as one of the most troublesome problems of having a disability.⁷

Application of the ADA to public and governmental buildings has been slow in many rural areas. Limited access in rural areas is reducing independence, detracting from health, and preventing full community integration.

Most individuals prefer to return to their homes, or at least their communities, after SCI, but in rural areas this may be more difficult than in urban areas. Although no empirical data are available, consumers describe most rural houses as inaccessible, older, and difficult to modify. Less populous areas, of course, have fewer homes in general, and in most cases, accessible housing options are limited. For most rural communities, the only available housing that has full accessibility is a nursing home. Consequently, this is the only option available to some who wish to return to their community after an SCI. People with SCI find this an isolating and frustrating living arrangement. Young adults with SCI feel particularly out of place and isolated from the community when living with elderly citizens in a nursing home. Clinical experience suggests that nursing home “placement” adversely affects quality of life, although the emotional, social, and community reintegration consequences have not been empirically documented.

The implications of having few accessible homes has a significant effect on health care costs and community integration. Forrest and Gombas found that 10% of patients in an acute rehabilitation hospital had their discharge delayed because of lack of accessible housing.⁸ The average delay was 60 days, and costs averaged \$29,280. This study was not specific to rural areas, and any differences in discharge delay or costs between urban and rural areas is unknown. Despite

this lack of data, the current environment of cost containment and outcomes makes this level of financial burden and reductions in “length-of-stay efficiency” unacceptable to rehabilitation facilities. In addition, patients are maintained in a more restrictive environment. Some rural living patients choose to move to urban areas after leaving the rehabilitation hospital. These individuals give up longstanding interpersonal, social, and community ties. Forrest and Gombas recommended collaboration between rehabilitation facilities and transitional living units or independent living centers (ILCs).⁸ This recommendation holds some promise, but transitional living facilities and ILCs are not yet integrated into many rural areas.

Health care delivery barriers

Inadequate access to timely and appropriate primary and specialty care for people with SCI represents an indirect but substantial challenge to community integration. The maldistribution of the nation’s physician workforce has been well documented.⁹ Whereas many urban areas are experiencing a surplus of both primary care and specialty physicians, rural areas remain drastically underserved. Even when primary care physicians are adequate in rural areas, they are often not adequately trained or equipped to meet the unique health care needs of people with SCI. Few primary care physicians have training or experience in physiatry, and among those who do, few are able to remain current on treatment advances that could increase community involvement and quality of life among their patients. Furthermore, the increased privatization of health care delivery and the economic problems of many rural communities have resulted in the threat

of closure of many of the nation's small rural hospitals.¹⁰ Individuals with SCI who have complex medical needs requiring intermittent hospitalization are placed in a position of risking increased medical complications and morbidity or transfer to an urban center for hospital access.

The problems of rural health care are not limited to an undersupply of physicians and hospitals. The notable absence of skilled caregivers in rural areas has all but eliminated the possibility of reintegration in some rural communities. Typically, the only skilled personal care available is through a nursing home. Although trained family members can provide adequate care for many individuals with SCI, family members may not be able to provide adequate maintenance or preventive care for individuals with complex health care needs or high neurologic injury.

In addition to shortages of health care facilities and professional providers, rural areas do not have available a broad selection of health care supplies. For example, the third author recently prescribed urine test strips for self-detection of bladder infections and an antibiotic irrigation solution that a rural patient was to self-administer. None of the few local pharmacies stocked the test strips or the antibiotic irrigation solution. One pharmacy was willing to order these supplies, but the patient's urinary tract infection required more immediate treatment and monitoring. A survey of farmers and ranchers found that more than 58% of these respondents had to travel at least 26 miles to obtain rehabilitation services; more than 33% traveled at least 51 miles.² Similarly, 19.5% of respondents purchased and obtained service for their mobility aids between 26 and 50 miles from their home; for 18.1%,

this service was 51 to 100 miles away; and for 23.5%, it was 101 or more miles away.

If dedicated rehabilitation providers with specialty training are available for consultation, secondary conditions can be quickly treated and resolved without expensive tertiary center involvement. For example, a recent patient of the third author described an extensive pressure sore to the physician over the telephone. The patient was well known to the physician and was considered reliable and compliant with treatment recommendations. The physician and patient agreed that the patient would call in weekly to provide precise measurements and descriptions of the sore. The physician responded with detailed instructions for healing the sore. The sore healed completely; the patient began a sitting protocol, and eventually returned to his previous level of functional activities without having to travel more than 100 miles to see the physiatrist or an unknown family physician. This positive outcome was attained, however, only because of a fortunate set of circumstances. The patient was highly educated and had lived with his SCI for many years. Furthermore, the patient and physician knew each other quite well. Long-distance consultation for most patients will require additional infrastructure, such as telehealth, to be conducted safely and effectively.

Over the last several years, the health care environment has shifted dramatically in response to uncontrolled increases in health care costs. Batavia¹¹ provided an excellent overview of the issues of health care reform within disability policy. The larger issue of health care reform is beyond the scope of this article, however, and the interested reader is referred to the broader literature of health and disability policy.¹¹⁻¹⁵ Nevertheless, Batavia noted that people with disabilities, including

those with SCI, have higher than average health care costs but lower than average access to affordable, private insurance and health care services. Living without health insurance or being underinsured leaves people with SCI and other disabilities financially vulnerable or subject to reliance on entitlement programs that require financial destitution. Either situation prohibits full community reintegration, particularly in the realm of paid employment. Comprehensive health care reform that considers the unique needs of people with disabilities is required, but does not appear to be forthcoming in the near future. Incremental health care reforms, such as passage of the Health Insurance Reform Act, are small legislative steps toward improving health care access for people with disabilities. At this time, however, there appears to be no federal legislation that is likely to be signed into law that would significantly change the lives of most people with disabilities, especially those in rural and impoverished areas of the nation. Even more disturbing than the lack of movement toward disability-sensitive health care reform is the trend toward institutionally based care rather than community-based care.⁵

In most rural areas, reimbursement for health care services is through a fee-for-service system. Under this system, people with SCI receive services from numerous agencies and providers, resulting in fragmented, uncoordinated health care. This fragmentation may result in contraindicated treatment by one or more providers who were not aware of other ongoing treatments, potentially causing additional medical problems. This fragmentation could be avoided with consistent primary care. Access to primary care has been a longstanding problem for people with SCI and other disabilities,^{16,17}

but this is especially true for people in rural areas. Because fee-for-service reimbursement focuses on individual units of treatment and relies on the market to create an adequate network of providers, the complete health care needs of individuals are not considered, and few plans can be developed for coordinated care within the local health care system. In addition, the fee-for-service compensation system does not compare outcomes of care or equip consumers with reliable data about their provider choices, such as consumer satisfaction ratings, health outcomes, accessibility, or quality of care. Because the fee-for-service system is unable to respond to health care needs or monitor the quality and effectiveness of its expenditures, people with SCI and other disabilities experience poorer health, reduced quality of life, higher health care costs, and community isolation.

The challenges of obtaining health care in a rural environment are exacerbated because individuals with disabilities, including SCI, are highly vulnerable to health care problems. A recent survey revealed that people living in rural areas experienced an average of 13 secondary conditions or problems per year. These secondary conditions included pressure sores, urinary tract infections, poor nutrition, pain, depression, and problems with nutrition.⁷ Comparable data on the number of secondary conditions for SCI patients specifically or for urban populations could not be located in the existing literature. The National Spinal Cord Injury Statistical Center, however, reported that 14.9% of people with SCI who were part of the National SCI Model System database had pressure ulcers one year post injury, and 10.5% experienced autonomic dysreflexia.¹⁸ These data suggest that secondary conditions are prevalent and may place rural populations at greater risk for

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worsened impairment because of their isolation from health care providers.

Furthermore, people with SCI often have concomitant psychological and social difficulties, including substance abuse or dependence, depression, anxiety, and social isolation.¹⁹ People with SCI from rural communities may be at higher risk for these types of dysfunction, given the limited supportive services, social isolation owing to long travel distances, and lack of options for employment and entertainment. For many, behavioral difficulties such as poor adherence to treatment recommendations result in costly medical complications. Fee-for-service systems inadequately meet the complex interactions or psychological, social, and medical needs of individuals with disabilities, particularly those in rural areas. When psychological and social needs go untreated, quality of life and medical status worsen, and health care costs are often significantly increased.²⁰

Theoretically, people with disabilities will benefit from participating in managed care systems that incorporate timely primary care; coordinated services; and a focus on enhancing long-term outcomes, including community reintegration. There have only been two model managed care programs for people with disabilities—the Community Medical Alliance in Boston²¹ and the managed care model at Wayne State University/Rehabilitation Institute of Michigan²²—but neither has demonstrated success in a rural setting.

Disability advocacy groups and providers have expressed concerns about transition to managed care health delivery and rapid privatization of Medicaid and Medicare involving managed care organizations (MCOs). The large majority of MCOs have no experience in providing comprehensive, coordinated services to people with disabilities, nor do they have adequate infrastructure to begin serving this population. MCOs have emphasized maximizing profits by controlling short-term costs. High-cost patients, such as those with SCI, have been excluded from enrollment, allowed to enroll with pre-existing condition clauses, provided access to limited services, or “skimmed” from the risk pool before high long-term costs are realized. MCOs have not yet demonstrated a willingness or ability to modify their health care delivery practices to meet the needs of people with disabilities; such modifications might include loosening restrictions to specialty care, providing durable medical equipment, or offering personal care services. Access to extensive services and specialized providers is essential to prevent secondary disabilities or death²³ among people with disabilities, but MCOs may not have existing relationships with specialty providers or services. Many MCOs may not have any rural providers in their network of providers. In addition, most managed care systems “carve out” mental health benefits, often contracting with providers who have little or no relationship with the primary care physicians and who are often located long distances from primary care physicians, precluding coordinated care.

Advocacy groups are also concerned about the level of consumer direction available in managed care programs. Community reintegration is dependent on consumers as-

sessing their own health care and other needs, determining how and by whom these needs will be met, and monitoring the quality of services received. Although research continues to suggest that increased consumer control results in positive health outcomes and prevention of unnecessary medical costs,^{24,25} consumer direction has not been an integral component of most managed care programs. In fact, managed care and consumer control are often considered to be antithetical concepts. New models that integrate consumer direction into managed care programs are necessary to effectively meet the needs of people with disabilities.

The health care and disability systems are faced with the challenge of developing programs to meet the unique needs of this population in an efficient and cost-effective manner. Innovative programs to address the needs of rural residents with disabilities, including case management models,²⁶ and educational programs aimed at health promotion and reducing the risk of secondary conditions, conducted with ILCs, have shown initial promise. These programs are few, and more data are needed to guide the development of similar cost-effective programs to address the multitude of issues unique to reintegration after a disability.

Experiments to Improve Community Reintegration for People with SCI

Progress toward community reintegration for people with SCI in rural areas is being made through the work of several innovative programs funded by government and private organizations. The Montana University Affiliated Rural Institute on Disabilities,³ one of the American Association of the University Affiliated Programs, is dedicated to “the full

participation in rural life by individuals of all ages and disabilities by developing and disseminating innovations in teaching, research, community service, and policy advocacy.”^{27(p1)} Through a combination of funding sources, this institute has conducted numerous programs that facilitate community reintegration among people with SCI and other disabilities, including informational publications, a quarterly newsletter, a resource information center, and other outreach programs. Incorporating the results of their survey on secondary conditions, the Rural Institute on Disabilities developed interdisciplinary outreach health promotion workshops in collaboration with the University of Kansas and ILCs in Montana and Kansas that provided individualized health assessments, education, peer support, counseling, and follow-up services.²⁸ ILC staff received training and then conducted workshops that included information on topics such as goal setting, problem solving, adopting a hopeful and optimistic attitude, and overcoming depression. In addition, a number of specific behavioral repertoires are taught, including communication skills, medical information-seeking skills, changing one’s nutritional intake and level of physical activity, and an introduction to advocacy skills. A 6-month follow-up evaluation revealed a “37% decrease in disability due to secondary conditions” and a “45% decrease in physician visits.”^{28(p1)}

Telehealth

Telehealth systems offer one of the best opportunities to better meet the health care needs of people with SCI in rural areas. Telehealth projects are exploding across the country, with hundreds of millions of dollars being put into research and demonstration

projects. Nearly every state has a telehealth project, and initial results are indicating that telehealth is a valuable tool for patients and providers in rural areas.²⁹ Telehealth systems vary in their specifics, ranging from simple electronic mail and telephone link conferencing systems to sophisticated real-time interactive videoconferencing capabilities. A primary model being established in many rural areas involves a two-way interactive television that allows for specialty health care consultation, including limited physical examination, counseling, and provider-to-provider or provider-to-patient education. Telehealth is especially helpful for delivery of health care services to persons with SCI in rural areas, because it can overcome the physical barriers that prevent transfer of information between patients and health care providers. As noted above, transportation to urban hub sites for specialty care is a significant barrier for persons with SCI who live in rural areas, creating poor access to health care and the potential for increased morbidity. Specialty health care services are typically unavailable to rural communities, because the cost of staffing and infrastructure are prohibitive. Rehabilitation providers can use telehealth to provide treatment for people with SCI who would otherwise travel great distances or would be seen by providers without specialty training. Increased access to high-quality care potentially would prevent secondary conditions, promote healthy living with SCI, increase patient satisfaction with treatment, and facilitate community reintegration. Clearly, telehealth may be a form of "least restrictive" health care delivery for persons with SCI in rural settings.

Widespread clinical applications of telehealth have yet to be fully demonstrated.

There have been no clear tests of delivery of care to persons with SCI using telehealth. Descriptive reports indicate that telehealth is successful, but there are few quantitatively based analyses of its accuracy, reliability, or clinical utility.³⁰ Nevertheless, initial concerns and skepticism regarding its effectiveness as a diagnostic and therapeutic tool are being replaced by positive views on its potential effectiveness. It appears that the next expansion of telehealth will be in protocol development and in developing an infrastructure to support its application within a wide geographic area. There also exists, however, a number of legal and social issues that need to be resolved before telehealth may be used in many circumstances. For example, questions remain about the licensing requirements for providers of interstate telehealth services. At least 10 states currently require physicians to have full licensure in their states before they can provide telehealth services to residents. Similarly, several state Medicaid programs and private insurers reimburse for telehealth consultation, although this is not a widespread phenomenon.

Area health education centers and efforts to increase provider supply in rural areas

The area health education center (AHEC) program is funded by the US Department of Health and Human Services with matching funds from states, universities, and other organizations. The mission of the approximately 120 AHECs are varied, although many of them involve partnerships between medical schools and communities and incorporate rural service areas. Rural AHECs may be one method to secure survival of rural

hospitals and increase the number of family and specialty practitioners serving rural communities. Many rural AHECs, of course, are not only physician focused but interdisciplinary, training other professionals, such as psychologists and nurse practitioners.

Efforts to increase the number of rural health care professionals have been modestly successful to date. Some programs have focused on licensing professionals who were previously thought of as physician extenders to provide more primary care services (eg. advanced practice nurses, physicians' assistants, etc).³¹ It is doubtful that many rural areas can support entire interdisciplinary teams, but telehealth, the Internet, and other electronic information systems may provide a forum for sufficient outreach services from a tertiary care center to local midlevel practitioners who could provide a range of services under long distance supervision arrangements. These electronic information systems also provide a means for rural practitioners at all levels to obtain up-to-date, focused information that will facilitate their care of people with SCI or other disabilities. Likewise, consultation with rehabilitation specialists can cost-effectively improve quality of care and consequently quality of life. Tertiary rehabilitation centers should explore collaboration with rural providers through these means.

Office of Rural Health Policy

The Office of Rural Health Policy (ORHP) of the Department of Health and Human Services has been established to seek solutions to the health care problems faced by rural Americans. Through collaboration with other federal and state agencies, private foundations, and other policy organizations,

this federal office is conducting numerous projects that may enhance the welfare of people with disabilities, including those with SCI. Current ORHP projects involve improving access to health care through telehealth and AHECs, improving dissemination through rural information center health services, and improving rural health care policy through the National Advisory Committee on Rural Health, which advises the secretary of the US Department of Health and Human Services directly. Rehabilitation professionals should consider pursuing involvement with this office through one of its many rural health projects.

AgrAbility project

The 1990 Farm Bill created the AgrAbility project for the purpose of facilitating postinjury return to careers in agriculture. Technical expertise, information, onsite evaluations and recommendations, and other services are provided to injured farmers, ranchers, and agricultural workers. The focus of AgrAbility services is on returning the individual to work. AgrAbility is directed by the US Department of Agriculture Cooperative, Research, Education, and Extension Service in cooperation with the National Easter Seal Society and Purdue University's Breaking New Ground Resource Center.³² AgrAbility operates in 22 states, and its consumers are 500,000 agriculture workers with various disabilities, although people with SCI have been a primary constituency.

Collaboration with ILCs

Among the most likely avenues to improve community reintegration among people with SCI in rural areas is through collaboration with ILCs. The independent

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living philosophy is consistent with rehabilitation center-based programs to facilitate community reintegration. ILCs have demonstrated a willingness to collaborate with rehabilitation facilities and other organizations providing care to people with SCI. In fact, Fuher and colleagues³³ found that ILCs that had ongoing relationships with medical rehabilitation programs served significantly more consumers than ILCs without such relationships. Their survey found that some relationships have been formalized through written agreements or contracts, but many relationships were informal. This study also found ILCs and medical rehabilitation programs were moderately satisfied with their partnerships. ILCs provide patients of rehabilitation facilities with peer counseling, referrals, and training in daily living skills. Conversely, rehabilitation facilities tend to provide referrals for ILC consumers to ILC health maintenance programs and to other educational activities. Rehabilitation facilities bring the latest knowledge and technology about rehabilitation to the relationship, and ILCs bring a flexible, responsive, consumer-driven advocacy focus. ILCs are a natural resource to facilitate transition from acute rehabilitation to community living.

Based on historical success in partnering with ILCs, the Rural Institute on Disabilities has recommended that third-party reimbursement for education, technical assis-

tance, and other advocacy services provided by ILCs should be pursued.³⁴ Regardless of the potential for direct reimbursement from third-party payers, ILCs are better distributed geographically than rehabilitation facilities or tertiary care centers and are an important link in the chain to promote community reintegration. A larger number of rural dwellers with SCI could be afforded a fuller range of rehabilitation and advocacy services if rehabilitation centers were to serve as the “hubs” and ILCs as the “spokes” of overlapping “wheels” across the United States. The Missouri Model Spinal Cord Injury System has established such a model. A physiatrist from this system visits individual ILCs in rural Missouri at the rate of about one every month. The physiatrist provides lectures or discussions for local health care professionals and consumers on the latest rehabilitation techniques that can be applied in rural areas to facilitate health and independent living. Each ILC designates a space where the physiatrist can see patients in a pseudo-clinic setting to provide limited but important medical services. Similar programs have been established in other states and serve as an effective means of enhancing community integration for people with SCI in rural areas.

Summary and Recommendations

The dearth of published information, especially empirical data on the barriers to community reintegration among people with SCI in rural areas, is troubling and presents a challenge to the rehabilitation and policy communities. A few innovative and effective programs have demonstrated success in facilitating community reintegration, but these

programs are too few to have widespread impact. Centers such as the Rural Institute on Disabilities and Breaking New Ground Resource Center provide models for development of rural programs that enhance independence and community integration. These models can be utilized by rehabilitation facilities in collaboration with state and local government, ILCs, and advocacy groups. Unfortunately, few of these other agencies/groups have addressed the challenge of community integration in rural areas, nor have many effective partnerships been developed to advocate for people with SCI or other disabilities in rural areas. The lower population density of rural areas and the barriers created by inadequate transportation and housing appear to have prevented organization of local advocacy groups to effect improvements in local or regional policy or infrastructure. The remedy to this paradoxical problem is unclear but may come in the form of telecommunications technology. As personal computer and telephone systems become integrated and less expensive, rural dwellers may be able to overcome geo-

graphic and infrastructure barriers with the use of electronic mail and video conferencing. Realistically, however, effective linkages to many rural areas may still be many years in the future. Continued grant support for telehealth is needed, as is increased grant support for rural models aimed at improving independence and community integration and participation among rural people with disabilities. Existing information indicates that individuals with SCI who live in rural settings are underserved by health delivery systems and the nation's telecommunications and transportation infrastructure. The struggling rural economy exacerbates these problems. Additional public and private funding is needed to better understand the complex barriers that detract from community reintegration so that effective intervention programs can be designed. Health services research in particular is needed to identify the resources critical to improve health care delivery and infrastructure in rural areas, thereby and improving community reintegration and quality of life for persons with SCI living in rural areas.

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