

ORIGINAL ARTICLE

Issues and Challenges for Development of a Sustainable Service Model for People With Spinal Cord Injury Living in Rural Regions

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ABSTRACT. Middleton JW, McCormick M, Engel S, Rutkowski SB, Cameron ID, Harradine P, Johnson JL, Andrews D. Issues and challenges for development of a sustainable service model for people with spinal cord injury living in rural regions. *Arch Phys Med Rehabil* 2008;89:1941-7.

Objective: To develop and implement a service model for people with spinal cord injury (SCI) living in rural regions.

Design: Service development, pilot evaluation study.

Setting: Regional and remote areas of the state of New South Wales, Australia.

Participants: Persons with SCI, caregivers, and health professionals.

Intervention: Phase 1 included initial needs analysis, followed by education and resource development tailored to needs of rural health professionals, caregivers, and persons with SCI. Phase 2 included coordination, professional support, and network development by part-time rural key worker and metropolitan-based project officer, documenting health- and service-related issues.

Main Outcome Measures: Self-perception of confidence as a result of education as well as reported issues, adverse health events, and barriers to service provision.

Results: Clinician confidence in managing people with SCI improved after education. Various health-related, environmental, and psychosocial issues were reported. Limited availability of resources and health infrastructure, particularly in more isolated or smaller towns, challenged service provision. Rural key workers played a central role in supporting local clinicians and service providers, improving communication and service

coordination between rural health professionals and metropolitan SCI services.

Conclusion: Education and support for rural workforce that may be limited in numbers and capacity, and a model facilitating communication and coordination between services, are essential for improving health outcomes of rural people with SCI.

Key Words: Community networks; Community outreach; Education; Rehabilitation; Rural health services; Spinal cord injuries.

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AUSTRALIA IS A LARGE continent, occupying 5% of the world's land mass, yet supporting 0.3% of the world's population (22 million people). Its most populated state (NSW) covers an area of just over 800,000km², which is 10% of the total area of Australia and approximately 3 times the size of Great Britain. It is highly urbanized, with approximately 75% of the NSW population (6.65 million) living in capital cities or urban centers near the coast.¹ However, for the other quarter of the NSW population living outside these urban areas, health outcomes tend to be worse, particularly in poorer inland agricultural towns, due to higher levels of socioeconomic disadvantage (lower incomes and lower levels of education), to poorer access to health services, increased personal health risk factors such as smoking, and to environmental issues associated with road travel and occupation.²

In NSW, approximately 30% of people who sustain an SCI return to live in rural and remote regions, where population densities vary widely (eg, about 1–10 people/km²) compared with metropolitan areas (\approx 780 people/km²). Community reintegration and timely access to appropriate primary and specialized health care services have been reported to be more difficult for people with SCI living in rural and remote communities than for those living in metropolitan areas.^{3,4} In addition to a general undersupply of health practitioners in rural areas, few health professionals are specifically skilled or adequately resourced to address the unique and sometimes complex needs of people with SCI.⁵ Limited availability of specialized investigations, treatments, services, and equipment further compound the problems. Hagglund et al³ noted that lack of transportation, physical and architectural barriers, and slow health care reform further confounded community reintegration in rural regions.

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Presented in part to the Australian and New Zealand Spinal Cord Society Conference, November 1–3, 2007, Sydney, Australia.

Supported by the Motor Accidents Authority of New South Wales, the Commonwealth Government through the Medical Specialist Outreach Assistance Program (travel support), the Paraplegic and Quadriplegic Association of New South Wales (travel and accommodation costs), the Australian Quadriplegic Association (now Spinal Cord Injuries Australia), and the New South Wales Spinal Outreach Service.

No commercial party having a direct financial interest in the results of the research supporting this article has or will confer a benefit on the authors or on any organization with which the authors are associated.

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0003-9993/08/8910-01024\$34.00/0
doi:10.1016/j.apmr.2008.04.011

List of Abbreviations

NSW	New South Wales
SCI	spinal cord injury

Others have also identified health care workforce; reimbursement, cost, and funding; and access and transportation as key barriers to providing quality health care to rural communities in the United States overall.⁶

Anson and Shepard⁷ described that people with SCI attending outreach clinics in rural towns and remote regions reported more medical problems than people living in metropolitan areas. Although rehospitalization rates in persons with SCI are known to be increased due to secondary conditions such as urinary tract infection, pneumonia, gastrointestinal problems, pressure ulcers, pain, and spasticity,⁸⁻¹¹ the effect of residing outside a metropolitan area on health outcome and likelihood of readmission is unclear. Certain health conditions, such as pressure ulcers, which can impact adversely on activity, employment, interpersonal relationships, and overall emotional well-being,¹² may have a delayed diagnosis or healing due to reduced access to skilled nursing care or specialized surgical management out of metropolitan areas. Difficulty accessing medical care and transportation has been shown to predict a greater number of secondary conditions in persons with high-level SCI.¹³

To date, little research has focused on provision of health care to people with SCI living in rural and remote regions. The Rural Spinal Cord Injury Project developed as a joint initiative between the SCI units in Sydney and SCI consumer nongovernment organizations to examine ways to improve the provision and coordination of services for people with SCI living in rural and remote regions of NSW. Broadly, the project aimed: (1) to raise awareness, knowledge, and competence among rural medical practitioners and other health professionals in managing health issues relating to SCI; (2) to increase the level of communication and coordination between the metropolitan-based specialist spinal units, regional health services, and outreach services; and (3) to determine an appropriate model to develop sustainable rural spinal networks.

This study reports on the development, pilot testing, and baseline data collection of a rural SCI model, providing a basis for future evaluation and service enhancement.

METHODS

Procedure

We conducted this pilot project between 2000 and 2005 in 2 phases. Phase 1 (planning and implementation) involved undertaking an initial needs analysis, developing specialized educational resources, providing education to rural health professionals, clients with SCI, and their care providers, and running multidisciplinary outreach clinics in 4 pilot health regions. Phase 2 (network development) focused on investigating a local support model for developing sustainable spinal networks between rural health professionals and care providers and metropolitan specialized SCI units or services, based on experience and knowledge gained during phase 1. It was anticipated that this would improve coordination of care and service provision to people with SCI, as well as professional support and systemic advocacy in rural NSW.

Phase 1

Needs analysis. We undertook a needs analysis to identify: (1) existing expertise and key contacts; (2) target groups for education and training; and (3) educational requirements and strategies in 4 participating rural health regions. A comprehensive process was undertaken to collect representative data using focus group discussions, key informant interviews, and postal questionnaires from persons with SCI, caregivers, and health

professionals identified through various databases, local health provider directories, and advertisements in local papers and consumer newsletters.

After thorough consultation, results of needs analysis were grouped thematically and presented to a forum of participants from each rural health region to validate and prioritize the recommendations. This shaped the development of resources and educational strategies used for training. The process also provided an important mechanism to engage local communities in taking ownership of the project, thereby promoting long-term sustainability.

Planning and implementation. Three themes emerged consistently from the needs analysis across all rural areas, which were education, effective communication, and community reintegration and service coordination. Feedback identified that the target groups sought information on topics including: autonomic dysreflexia; bladder and bowel management; skin management; pain management; sexuality and fertility; aging with SCI; psychosocial issues; and equipment and technology.

Resources were developed for these topics and education sessions presented collaboratively by staff of the spinal units and 2 community organizations. Multidisciplinary outreach clinics reviewed clients with SCI and also provided a way to reinforce education and provide skills training for rural staff and caregivers.

Evaluation of education sessions and resource development. We evaluated levels of self-perceived confidence for each target group before and after education, as well as 3 months later following a protocol specified by division of general practice (for continuing medical education credits) using a custom-designed questionnaire tailored to the group's learning objectives. The questionnaire (appendix 1) contained 10 questions, measuring self-perception of confidence in areas such as: recognizing the signs and symptoms, and managing autonomic dysreflexia; principles of managing neurogenic bladder, bowel, skin integrity, pain, and spasticity; sexuality and fertility; recognizing difficulties in adjustment and coping with disability; recognizing when a specialist referral is necessary; and accessing specialized resources when needed. The following is an example:

How confident are you now that you can recognize the signs and symptoms of autonomic dysreflexia?
 Very confident Confident Somewhat confident
 Not confident

Phase 2

Network model implementation. The second phase of the project from 2003 to 2005 involved employment of 7 local clinicians for 1 day a week as rural key workers in 5 NSW area health services and the Australian Capital Territory. A project officer coordinated the project centrally. The rural worker role was to facilitate provision of health and other services for people with SCI living in rural communities, including both persons with established SCI and those recently injured who were being transitioned home from metropolitan spinal units after rehabilitation. It involved tasks such as direct client contact and support, individual goal planning, liaison with local health care providers and metropolitan services, education and outreach clinic support, mapping of existing local services, and network development. The rural workers facilitated continuity across the spectrum of care, promoting access to appropriate services, and determining the needs of rural people with SCI, their caregivers, and service providers.

The distribution of participants in this project for differing geographic zones based on population and an index of remoteness is shown in figure 1.¹⁴ Almost half of the project partic-

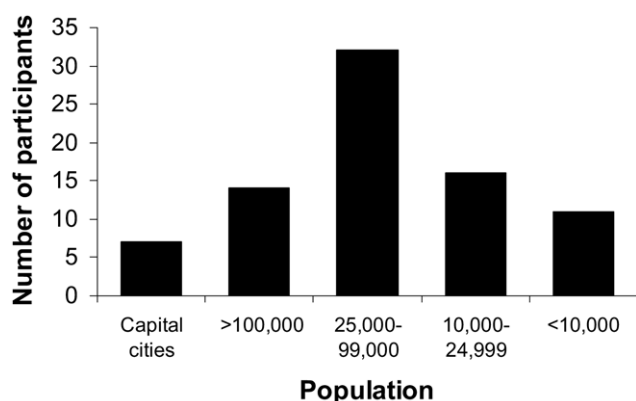


Fig 1. Distribution of rural participants with SCI for different geographic zones based on population size.

Participants live in large rural centers (with a population between 25,000 and 99,999); with a further 15% coming from smaller rural centers (with populations between 10,000 and 24,999) and 10% from other rural towns/remote communities (with populations <10,000).

Baseline Data Collection

In addition to model implementation, the methodology for phase 2 involved: (1) recording and collating issues and adverse events arising for participants during the project, as well as issues impacting on service delivery; (2) examining rural worker activity logs and service maps, in addition to running several focus groups with rural workers; (3) surveying key rural and metropolitan health professionals; and (4) interviewing participants with SCI. Different types of rural worker activities were combined into key performance areas, including direct client activity, networking, education, and outreach clinic support.

RESULTS

Phase 1

Education outcomes. In total, 357 health professionals and consumers attended the education sessions over the 4 rural areas. Of those, 315 (88%) participants completed the pre-education questionnaire, 326 (91%) the posteducation questionnaire, and 193 (54%) completed the 3-month follow-up. Response rates at follow-up were generally good between 60% to 65% for all groups, apart from general practitioners (only 36%). Reasons for attrition at 3-month follow-up included no response to phone messages left ($n=69$), incorrect contact details ($n=23$), being on leave ($n=22$), or having left workplace ($n=17$).

Results of the pre-questionnaire revealed that the majority of health professionals lacked knowledge and self-confidence in most if not all, areas of spinal specific practice. Importantly, the consumer and carer groups identified proportionately higher levels of self-confidence than the rural health professionals. After education, all groups showed improvement in self-perceived confidence and ability to recognize and manage the range of issues covered by the sessions (figs 2A, 2B). Improved self-confidence tended to be maintained at the 3-month follow-up. However, incomplete follow-up (particularly general practitioner group) with possible bias due to preferential dropout of participants who lack experience, and inability to match pre-education, posteducation, and 3-month fol-

low-up data due to required deidentification of questionnaires, unfortunately somewhat limits interpretation of the data.

Resource development. A series of 10 clinical information booklets (or fact sheets) were developed to support the education sessions and to meet identified needs by focus groups. These fact sheets covered management of the following: autonomic dysreflexia, neurogenic bladder, neurogenic bowel, skin, pain, sexuality and fertility; health maintenance; occupational therapy intervention; psychologic adjustment issues after SCI, and nutrition for a person with SCI. (Fact sheets or booklets are available at <http://www.health.nsw.gov.au/gmct/spinal/resources.html>.) In addition to a clinical information booklet about autonomic dysreflexia, a treatment algorithm and wallet-sized concertina folding emergency treatment card for autonomic dysreflexia were also developed, and ultimately endorsed by the Australian and New Zealand Spinal Cord Society.

Recommendations from phase 1 informing development of phase 2. Based on findings from the first 2 years of the project (phase 1), recommendations for the project's second phase included: (1) establishing spinal networks in each rural region to provide ongoing education, communication, and support; (2) creating a state-wide SCI prevalence database and map of services in NSW; (3) providing regular education sessions in each region for the same target groups; (4) developing partnerships with general practitioners for regular health

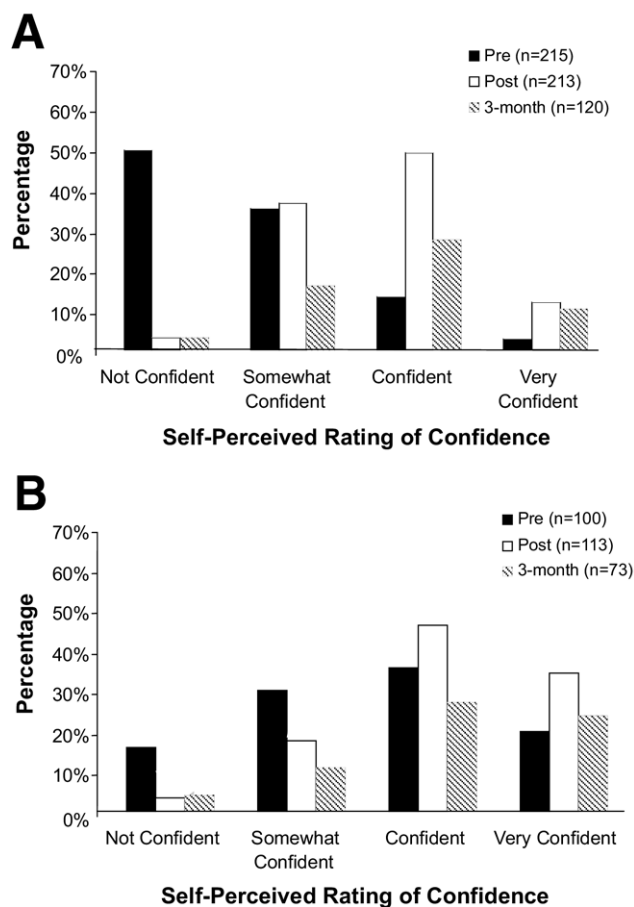


Fig 2. Results of education for: (A) health professionals (medical practitioners, nurses, allied health practitioners), ambulance officers, and other community workers; and (B) people with SCI, family, and caregivers.

Table 1: Demographic and SCI-Related Characteristics

Variable	Value
Participants (n=80), %	
Male	75
Female	25
Mean age (y)	45.4
Duration postinjury (%)	
<5y	57.5
5-10y	10.0
11-20y	12.5
>20y	20.0
Phase (%)	
Acute transitional	52.5
Long-term community	47.5
Neurologic impairment (%)	
Paraplegia/tetraplegia	52.5/47.5
ASIA grade A (complete lesion), %	50

Abbreviation: ASIA, American Spinal Injury Association.

surveillance; and (5) conducting regular outreach clinics to review people with SCI in collaboration with local rural health professionals.

Phase 2

Issues reported by SCI participants. Eighty rural clients with SCI participated in phase 2, with most clients in the sample (84%) having sustained a traumatic injury (table 1). Client goals related most frequently to resolving health issues, functional mobility, community participation, accommodation, and psychosocial (eg, relationships, sexuality) issues (fig 3).

Participants with SCI reported a broad range of issues impacting on their health and functional status, including: pressure ulcers and other skin-related issues (21%), urinary tract infections (7%), gastrointestinal problems (9%), pain (8%), spasms (9%), other health-related issues (22%), activities of daily living (14%), and psychosocial concerns (9%). Negative health events were defined as a significant change in health status requiring treatment and/or hospitalization related to SCI. Negative health events were reported by 41 participants, comprising 14 out of 42 persons with recent SCI in acute transition/reintegration phase (33%) and 27 out of 38 persons with established SCI living in community (71%) (table 2). Pressure

Table 2: Frequency of Negative Health Events Reported During Phase 2 of Project (n=41)

Negative Health Event	Frequency (no. episodes)
Autonomic dysreflexia	2
Bowel impaction	3
Carpal tunnel	1
Depression	2
Hemorrhoids	1
Pain	3
Pressure areas	24
Other skin/burns	3
Respiratory infection	2
Sleep apnea	2
Uncontrolled spasms	2
Urinary tract infection	9

NOTE. Some participants reported more than 1 negative health event.

ulceration, the most frequent complication, was reported to have a significant impact on quality of life for the person with SCI. It often proved quite challenging to manage serious skin breakdown in rural areas due to lack of availability of specialized pressure-relieving mattresses; difficulty in accessing updated equipment in a timely manner to accommodate pressure ulcer management; and limited capacity for service providers to change care regimes to accommodate bedrest.

Many participants reported problems with accessing a general practitioner (also commonly referred to as family physician), relating to limited general practitioner numbers, vacancies, or transient medical workforce in rural areas. Some participants reported being unable to access a new general practitioner, because the practice books were closed, often having to wait up to 4 weeks for a general practitioner appointment. Many participants reported that general practitioners were “too busy,” did not have a comprehensive knowledge of SCI-related issues and could not perform a thorough examination (due to poor access). Participants also reported that it was not possible in many cases for their general practitioners to attend a home visit. Some also reported that a proliferation of medical centers within their rural area had resulted in the person seeing a different general practitioner each time and had led to a lack of continuity of care.

Key rural worker activities. A review of rural worker logs revealed that their pattern of activity was primarily client-related, including liaison with, and referral to, other services. Their activity frequently related to issues such as seating or wheelchair scripting and sourcing equipment, advocating to the equipment provision scheme, driving, and home modifications. Through this activity the rural workers were able to provide peer and professional support to consumers and health professionals, in addition to highlighting the needs of rural people with SCI. Service coordination and communication between local, metropolitan, and rural service providers was also a key focus resulting in appropriate access to information, resources and health interventions for people with SCI that might previously have been unavailable.

Rural workers identified a range of issues impacting on effective service delivery in rural regions (summarized in appendix 2). In addition, rural workers reported on factors that interfered with performance of their role and limited achievement of all project objectives. They included time constraints (only 6-8h/wk were funded as part of the program), large geographic distances to cover, role delineation and diffusion with usual clinical duties, and lack of resources and systems to

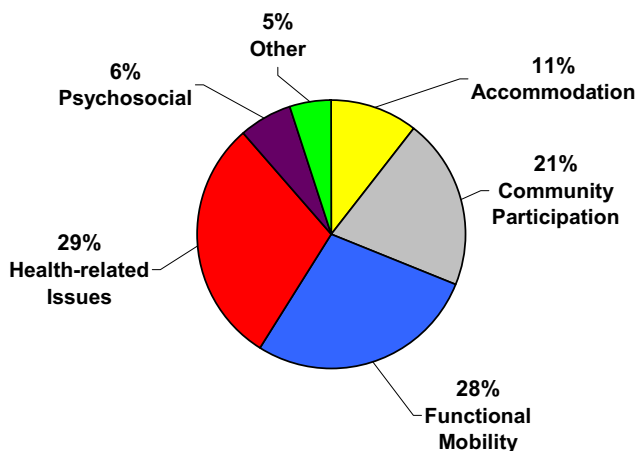


Fig 3. Frequency of goal categories.

follow long-term clients with SCI, suitable assessment tools and reporting mechanisms.

Documenting and maintaining a current map of all existing services proved a difficult task requiring more resources than were available. However, it was identified during the project as a very useful adjunct to the delivery and networking of services. Despite these limitations, feedback provided by consumers, rural and metropolitan clinicians, and the rural workers strongly endorsed the need for increased support for clients with SCI, health professionals, and service providers in rural areas. Improving access to services in their own area at least for routine reviews was considered a high priority to overcome issues of transport, accommodation, cost, social impact and adverse health outcomes of travelling long distances to clinics (eg, pressure ulcer from sitting on a car seat for extended periods).

DISCUSSION

The project has enabled the collection and analysis of health information that has not been previously documented, or tabulated. It has provided baseline information regarding health issues for people with SCI that may in the past have not had the benefit of appropriate or preventive health interventions. In addition to identifying a high rate of health-related issues, our results support previous research that environmental (housing, equipment, transportation) and psychosocial issues also have a significant impact on community participation for rural consumers.¹⁵ This knowledge can now be used to more specifically target future health interventions, service initiatives, and education.

Factors threatening sustainability of rural health services in general include populations insufficient in size to support traditional models of care, difficulties recruiting and retaining adequate health workforce, geographic isolation, and reliance on periodic visiting services.¹⁶ Low-incidence conditions such as SCI do not create enough of a market to support development of specialized rural services. Having sufficient local capacity and, in particular, a single point of contact in the local rural area, was shown in this project to facilitate more timely and effective discharge planning because metropolitan-based health professionals often lack a full understanding of regional peculiarities that helps to anticipate problems and find solutions. Booth and Kendall⁴ have highlighted challenges to undertaking transitional rehabilitation for rural clients with SCI in metropolitan settings, including difficulty approximating regional home environments to facilitate skill transfer and social isolation hindering adjustment to community living. Promoting local expertise, knowledge and ownership of issues and solutions appear crucial for creating successful and sustainable networks. In this project, the State Spinal Cord Injury Service Spinal Outreach Service played an instrumental role in facilitating improved links between rural and metropolitan spinal services, and this enhanced support role was factored into the model development.

Health policies worldwide generally recommend that patients have access to high quality health care and related services as close to home as is both clinically and geographically feasible. Specialized services, such as pain management and wheelchair seating, were frequently difficult to access in rural areas, as were some diagnostic tests such as videourodynamics. In addition, timely access to primary and specialty health care was often problematic, along with availability of specialized equipment (eg, pressure-relieving mattresses). Evidence suggests that improved access can be achieved to some extent by specialist "fly in-fly out" outreach services, as

part of a more complex "shared care" model with primary health providers.¹⁷

Addressing inequity of access and service provision for people with SCI living in rural or remote regions of Australia requires improved primary health care arrangements,¹⁸ as well as access to support, advice, and consultation from metropolitan-based specialist SCI services.⁵ Although the Australian population distribution and geography presents certain unique challenges, difficulties encountered and strategies employed in this project can be readily generalized to other countries, although implementation of models of care may differ. Donnelly et al¹⁹ discovered different utilization patterns of family physicians and rehabilitation specialists by persons aging with SCI in the United States, Canada, and the United Kingdom, related to factors such as health care delivery models, funding arrangements, insurance coverage, geographic dispersion of services, and regional coordination mechanisms. Local services need to be able to provide routine review and health maintenance with support of specialist services, and specialist spinal services should be retained for acute and complex management. An integrated "hub-and-spoke" model where local health professionals are supported with specialist advice, education, training, and resources builds local capacity and responsiveness to meet community needs and allows suitable triaging and treatment planning. Benefits flow both ways because urban-based specialists are provided with important contextual information about living circumstances and community services and infrastructure.⁴ Developing an alternate model for transport and ambulatory care accommodation, as well as for accessing financial subsidies, may be helpful for providing specialty access where timely admission to spinal units is constrained.⁴

The general practitioner (family physician) is an integral part of the rural network requiring support, although providing specialized services within the context of a busy rural practice and limited medical workforce remains challenging. Specialist teams rely on general practitioners and local clinicians to provide referrals and follow-up after review. General practitioners requested telephone support for complex patients, preferring 1 point of contact to help them negotiate the system. Fitting education into an already busy calendar with competing priorities proved very difficult. Piloting of joint patient reviews undertaken with the general practitioner in their rooms were reported to be an excellent educational tool; however, uptake was limited and reviews were time consuming and resource intensive for attending specialists. Case conferencing after a patient's clinic review proved valuable for discussing recommendations and developing general practitioner management plans, both of which activities are billable under Medicare extended primary care items in Australia. A comprehensive health questionnaire was developed to support systematic identification of new health issues, prompt preventive care activities, and alert the clinician to red flags that require attention.¹⁸ Ongoing association with local divisions of general practice (support organizations for general practitioners) should be encouraged to promote linkages to spinal specialty services and development of specific education programs. Training in future could target rural general practitioner trainee registrar positions and engage university departments of rural health and rural clinical schools.

Workforce planning for isolated rural areas must take into account different practice environments in which rural clinicians conduct their work. They often cover vast geographic areas with greater role diversity managing multiple case loads, requiring increased independence and wider range of skills.²⁰ Australia is increasingly recognizing these specific needs and providing a greater range of regional educational facilities with

courses in rural and remote health. Telehealth may help to bridge geographic distance, providing consultation, support, and education to local health professionals and persons with SCI living in rural communities,^{21,22} although this approach is not without limitations.

Requests for regular rural clinics, including specialist medical and multidisciplinary reviews, were a recurring theme throughout the project. Many rural clients are aging, with health needs likely to increase in the future. A health promotion/maintenance model needs to be pursued to prevent deterioration in health status and sustain community participation.^{4,19}

Results of this study support previous research showing that limited local knowledge is a frequent reason for community needs going unmet,⁵ with the most common barrier to rural health professionals obtaining education reported to be not knowing how and where to access SCI resources.²³ Ongoing education programs should support collaborative networks to increase level of specialized knowledge and skills for “generalists” using media, including in-services, workshops and seminars, training manuals, topic booklets, videotapes and CDs, internet, and telehealth.

Finally, consumers living in rural areas often report being a significant source of information about their condition and its treatment for their local health care providers. Results of the present study confirmed that persons with SCI and their informal caregivers already possessed substantial levels of knowledge and self-confidence in managing SCI, which on average exceeded that of local health providers; however, this improved further with education. Consumer education and development of competencies within an “expert patient” model is therefore important in promoting self-management and direction of professional care.^{15,18}

Study Limitations

The main limitation of this study was that, due to focusing on service development, its methodology did not allow for pre- and postevaluation of participants’ health status after implementation of an “ideal” model. In addition, it is extremely difficult to gather comparative health outcome data for the prevalent population living in the community. The project was also significantly constrained by limited resources, with rural workers funded to work on the project for only 1 day a week.

CONCLUSIONS

The project showed that a rural spinal network can build capacity when partnered with metropolitan specialty services, where local providers receive support through consultation and advice, education, outreach clinics, networking and communication, being empowered to take ownership of issues. A health promotion approach is fundamental to optimizing health and community participation outcomes in people with SCI, assisting in the prevention of negative health events and hospital readmissions. This can only be achieved by regular and networked access to specialized services, knowledge and expertise, coordinated through a dedicated local worker who is knowledgeable about SCI management.

Acknowledgments: We thank all rural and regional staff who helped with the organization and conduct of local clinics and education sessions, and, in particular, acknowledge the strong commitment and support provided by the rural key workers during this project. In addition, we thank Steering Committee members Karen Filocamo, MPH (Paraplegic and Quadriplegic Association of NSW); Deni Gliddon and Margaret Noonan, BA, BEc (Spinal Cord Injuries Australia); Don Ireland, BEc (consumer representative), and Kathy McCosker, BSc, MBA (Hunter Disability Services, Newcastle, Australia).

APPENDIX 1: QUESTIONNAIRE USED TO MEASURE SELF-RATED LEVEL OF PERCEIVED CONFIDENCE BEFORE AND AFTER EDUCATION

1. Could you please indicate your level of experience dealing with people with spinal cord injury.

<i>Very experienced</i>	<i>Experienced</i>	<i>Somewhat experienced</i>	<i>Not experienced</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How confident are you that you can recognize the signs and symptoms of autonomic dysreflexia?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. How confident are you that you could appropriately help a person with signs of autonomic dysreflexia?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How confident are you that you understand the key principles for the management of bladder dysfunction in people with spinal cord injury?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. How confident are you that you understand the key principles for the management of bowel dysfunction in people with spinal cord injury?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. How confident are you that you understand the functional impact of pain and spasticity in people with spinal cord injury?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. How confident are you that you understand the key principles of pressure management in people with spinal cord injury?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. How confident are you that you understand issues related to sexuality or fertility in people with spinal cord injury?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How confident are you that you can access information relating to recent medical advances, equipment, or technology relevant to people with spinal cord injury?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. How confident are you that you know about the range of support groups and specialized services that may be able to provide assistance to a person with a spinal cord injury or their carer?

<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not confident</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 2: ISSUES IDENTIFIED BY RURAL KEY WORKERS IMPACTING ON EFFECTIVE SERVICE DELIVERY

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- Limited local infrastructure and health workforce capacity
 - Limited availability of specialized services and expertise
 - Difficulty in accessing primary care and general practitioners
 - Limited resources and funding for equipment and housing
 - Large geographic distances
 - Lack of transportation
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