

# Commentary: Rehabilitation for Rural and Remote Residents Following a Traumatic Hand Injury\*

Gail A Kingston<sup>1,2</sup>

<sup>1</sup>Occupational Therapy Department, The Townsville Hospital, Townsville, QLD, Australia.

<sup>2</sup>Occupational Therapy Department, College of Healthcare Sciences, James Cook University, Townsville, QLD, Australia.

Rehabilitation Process and Outcome  
Volume 6: 1–5  
© The Author(s) 2017  
Reprints and permissions:  
sagepub.co.uk/journalsPermissions.nav  
DOI: 10.1177/1179572717734204



**ABSTRACT:** A traumatic hand injury can involve damage to a number of structures including skin, nerves, tendons, muscle bone, and soft tissue. Impairments such as pain or stiffness and loss of range of motion can last for many years and result in a moderate to extreme impact on a person's day-to-day life. Work, leisure, financial security, and emotional well-being often most affected. This commentary provides an analysis of those factors that inhibit (barriers) and support (enablers) the provision of hand therapy rehabilitation in rural and remote areas. Providing a collaborative and flexible rehabilitation programme to rural and remote residents following a traumatic hand injury can be seen as a challenge due to issues such as a limited access to health care services. Established protocols that work in regional or metropolitan locations are unlikely to be effective and innovative and pragmatic strategies are required. The provision of a collaborative and flexible rehabilitation programme regardless of residential location is an important part of the therapist's intervention plan.

**KEYWORDS:** Rural and remote, hand injuries, hand therapy

**RECEIVED:** February 14, 2017. **ACCEPTED:** September 4, 2017.

**PEER REVIEW:** Five peer reviewers contributed to the peer review report. Reviewers' reports totalled 1098 words, excluding any confidential comments to the academic editor.

**TYPE:** Review

**FUNDING:** The author(s) received no financial support for the research, authorship, and/or publication of this article.

**DECLARATION OF CONFLICTING INTERESTS:** The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**CORRESPONDING AUTHOR:** Gail A Kingston, Occupational Therapy Department, The Townsville Hospital, PO Box 670, Townsville, QLD 4810, Australia.  
Email: gail.kingston@my.jcu.edu.au

## Introduction

Hands provide us with independence in work, leisure, self-care, and social interactions. They are used to communicate and express feelings and are an important part of a person's body image.<sup>1,2</sup> The ability to reach out, touch, and grasp allows people to explore, develop skills, and interact with the environment around them.<sup>3</sup> A traumatic hand injury can involve damage to a number of structures including skin, nerves, tendons, muscle bone, and soft tissue.<sup>4</sup> Impairments such as pain or stiffness and loss of range of motion can last for many years after a hand injury.<sup>5</sup> A traumatic hand injury can result in a moderate to extreme impact on a person's day-to-day life, with work and leisure often most affected.<sup>5</sup> Hand injuries can also affect financial security and emotional well-being.<sup>2,4</sup>

The health of Australians in rural and remote areas is generally poorer than that of people who live in major cities and towns.<sup>6</sup> There are notably higher risks of injury and deaths associated within the agricultural, mining, forestry, and fishing industries. Falls from animals, motorcycles, and other farm injuries are common.<sup>7</sup> Poor road conditions, longer travelling times as well as higher speeds, fatigue from longer driving times, and the danger of animals on the road also increase the risk of injury.<sup>6,8</sup>

Rural people see themselves as 'different' from people who live in cities. There is a strong belief that hard work will help in times of hardship, isolation, and when faced with

tough geographical conditions.<sup>9,10</sup> People who live in rural and remote locations have been described as self-sufficient, stoic, pragmatic, resilient, and independent, particularly in times of adversity.<sup>11</sup> Stoicism refers to enduring pain or hardship without showing feelings or complaining, and in rural and remote residents, it is the result of an emphasis on function rather than personal comfort.<sup>12</sup> Resilience is a dynamic process in which people demonstrate positive adaptive behaviours despite being exposed to adversity, similar to a 'rubber ball' which can 'bounce back'.<sup>13</sup> For rural and remote residents, having a connection with the land is considered an important part of being resilient as well as working hard; embracing change; being positive, adaptive, and flexible; and seeking help from others.<sup>13</sup> Metropolitan and regional areas tend to view health as the absence of disease or dysfunction, whereas people who live in rural and remote locations believe that being healthy generally means the ability to perform home and work duties.<sup>14,15</sup> This 'functional' view of health will often result in rural and remote residents holding back from seeking help until their illness or disability prevents them from doing their usual tasks, which can contribute to poorer health outcomes.<sup>16</sup>

This commentary provides an analysis of those factors that inhibit (barriers) and support (enablers) the provision of hand therapy rehabilitation in rural and remote areas. This commentary will identify and synthesise evidence that is specific to rural and remote Australia but has relevance across an international context.

\* Parts of this manuscript have previously been published as a PhD Thesis.



## Barriers to Providing Rehabilitation for Rural and Remote Residents Following a Traumatic Hand Injury

### *Access to health care services*

Geographical isolation, the distance from both health care and support networks, as well as long distance travel, have a physical and a psychological impact on people living in rural and remote locations.<sup>9,17,18</sup> Complex hand injuries in Australia are treated in metropolitan and larger regional facilities, and people from rural and remote areas are generally referred back to their local community to be treated by local occupational therapists or physiotherapists (therapists) following the acute surgical phase. The large caseloads managed by rural therapists and lack of resources to provide a hand therapy service often means that patients have to travel back to the metropolitan or regional facility for therapy and surgical reviews. Follow-up appointments that are organised at the metropolitan or regional facility are often poorly coordinated, delayed, or cancelled. The cost of travel can be significant, with family members required to take time out of their employment to drive patients to appointments, which often take only 30 minutes.<sup>5,19</sup> As a result, patients receive a sporadic hand therapy service that fails to address ongoing hand impairments which can impact on functional outcomes.<sup>19</sup>

### *Restrictive postsurgical precautions and exercise programmes*

There is a strong emphasis on restrictive protocols and guidelines in hand therapy with limited consideration regarding their 'fit' within the life of the patient. Hand therapists prefer to focus on the preservation of surgical repairs or the restoration of body structures and functions rather than addressing issues regarding participation in daily activities.<sup>20,21</sup> Rehabilitation strategies that address functional activity is considered an unnecessary intervention during the acute phase following tendon repair given the temporary nature of the injury and a patient's ability to find their own adaptive solutions.<sup>21</sup> Therapists highlight a lack of time during appointments and feel that the most important aspect is to ensure adherence to surgical precautions, prescription of home exercise programmes, scar, and oedema management.<sup>21</sup> Home exercise programmes in hand therapy can also be rigid and require the patient to complete specific exercises. These exercises are seen as an intrusion into day-to-day life in which day-to-day chores and occupations are considered most important.<sup>22,23</sup>

Hand therapy protocols are based on previous studies that examine forces following surgical repairs. Advances in surgical techniques, however, require an evaluation of the forces needed to complete functional activities and whether participation in activities should be strictly limited.<sup>24</sup> Sandford et al explored adherence to a splinting regime following hand

surgery and found that 67% of patients reported removing their splint to wash their hand, get dressed, have a bath or shower, or because of discomfort.<sup>25</sup> Despite removal of the splint, the tendon rupture rate was within the average range of all ruptures. A number of participants in the study by Sandford et al also drove a car, with Sandford noting that in rural areas this would be higher due to lack of public transport.<sup>25</sup> A study exploring postsurgical precautions following tendon repairs revealed that participants had difficulty undertaking day-to-day tasks one-handed, particularly self-care and household chores.<sup>20</sup> As a result, more than half of the participants flexed their injured hand against resistance to complete important activities despite being cautioned against this. Failure to consider the impact of rigid hand therapy protocols and splinting regimes on day-to-day activity can affect a rural and remote resident's livelihood.

### *Understanding of rural health issues*

Rural therapists report that metropolitan therapists lack understanding of the breadth of the work they do, the distances travelled, and the high caseloads.<sup>26</sup> Rural practitioners often feel undervalued by metropolitan therapists due to a lack of understanding and appreciation of rural issues.<sup>27</sup> Rural and remote patients have a mistrust of practitioners who lack 'local knowledge' or understanding of the issues and concerns relevant to rural and remote living.<sup>19</sup> This mistrust is reported to be the result of health professionals that do not try to understand the specific needs in rural and remote areas.<sup>28</sup>

The 'functional' view of health highlighted by rural and remote residents appears to clash with views of metropolitan therapists.<sup>14,29</sup> Hand therapists in metropolitan regions state that they recommend patients use passive and restrictive protocols, a decision that seems to not have been based on the quality of the surgical repair or on the activities that the patient had to do but on their rural and remote residence and whether the metropolitan or a local therapist were able to see the patient for follow-up.<sup>26</sup> Metropolitan therapists report that they lower their expectations regarding outcomes for rural patients who are happy to return to work, whereas they (the therapist) felt that they could achieve more.<sup>26</sup> Hand therapists often believe that small improvements in active range of motion will benefit patients, yet these improvements may actually not be relevant to overall function.<sup>30</sup> These differing attitudes towards health and outcomes of therapy prevent a truly collaborative approach between patients and therapists.

To ensure relevant and comprehensive hand therapy rehabilitation services to rural and remote residents, there are some key *enablers* who can improve overall care and outcomes. At the core of these strategies is a person-centred approach which asks the following questions: 'What does this person want to achieve?' 'What rehabilitation programme will meet their needs?'

## Enablers to the Provision of Rehabilitation in Rural and Remote Areas

### *Focus on resuming activity and occupation*

Involvement in meaningful activities and occupations can help to manage pain and assist in recovery for rural and remote residents following a traumatic hand injury.<sup>31</sup> Patients who have quickly resumed work and activity report that they would not have the strength and functional ability they had achieved had they not returned to work.<sup>31</sup> Fisher reports that the more meaningful and enjoyable the task, the greater the success in diverting focus from pain.<sup>32</sup> In rural areas, engaging in an activity such as going shopping for groceries not only helps to manage the pain but can also become a social activity and a link to the local community.<sup>33</sup>

Rural and remote residents with a traumatic hand injury report that they would 'go mad if they were not working', thus highlighting the importance of functional activity following hand injury.<sup>31</sup> People can demonstrate their contribution to society and can encourage personal growth and development by engaging in occupation.<sup>34</sup> It has been reported that less rural (when compared with metropolitan) patients report a loss of upper limb strength following a hand injury which may be the result of returning to farming and trades that may have required physical strength to complete.<sup>35</sup> Farming, for example, is a highly physical role that requires strength and stamina to undertake tasks such as tagging (for identification) or mustering cattle or using special tools and equipment.

Rural residents' well-being is influenced by their active involvement in daily activities.<sup>31,36</sup> They value the opportunity to return to activity and employment and feel 'useless' when they are unable to do so.<sup>31</sup> Rural and remote patients who have had a traumatic hand injury report being 'grateful' for the function they have and appreciate the opportunity to return to work.<sup>31,37</sup> Therapists need to incorporate daily activities as part of a patient's exercise programme and design a rehabilitation programme that fits within a patient's busy day-to-day routine.<sup>38</sup>

### *Sharing the care*

Despite the limited opportunity for specialised clinical positions in rural areas,<sup>39</sup> rural health professionals report that they are expected to undertake a broad range of hand therapy intervention such as splinting and exercise prescription.<sup>26</sup> The large scope of practice and caseload can be quite overwhelming for rural health professionals.<sup>27</sup> Of concern is the lack of access to professional development for hand injury treatment, poor professional support, and professional supervision for rural health professionals. The need to manage a large caseload in an isolated area with little access to professional development and support is cited as a reason for the low retention of therapists in rural and remote areas.<sup>39</sup>

Rural and remote therapists benefit from clinical supervision and support from experienced hand therapists to assist with relevant hand therapy interventions.<sup>26</sup> Metropolitan health professionals suggest a shared care approach in which

the metropolitan therapist provides formalised collaboration and support to rural and remote therapists with patient care.<sup>26</sup> A shared care approach has been used in rural palliative care, whereby general practitioners are able to deliver a palliative care service to rural and remote residents who may not be able to access specialist input through palliative care specialists.<sup>40</sup>

Shared care involves an integrated and planned delivery with joint responsibility of patient care between generalist health professionals and specialists. In a shared care approach, the different areas of expertise can be used so that there is a combined knowledge base working towards common goals and objectives regarding patient care.<sup>41,42</sup> Thus, the clinical expertise of the metropolitan therapist combined with the rural expertise of the rural and remote therapist can provide a comprehensive intervention plan for a patient with a traumatic hand injury. Developing collaborative goals, clear guidelines, and expectations formalises this relationship and promotes an ongoing relationship between therapist and patient.

Shared care incorporates a collaborative and formal link between professionals, where clear expectations of each professional's role in the patient care can be established. Shared care also provides an opportunity for metropolitan therapists to understand the difficulties faced by rural and remote therapists and can enhance their own learning. These formal links can become embedded within a service with potential for sustainability and longevity regardless of staff turnover.

### *Maintain flexibility and encourage resilience*

Stoicism is a term often used to describe rural and remote residents and is demonstrated by rural residents through their delay in seeking help for a medical condition and seeking help only when symptoms disrupt day-to-day activities such as employment.<sup>43,44</sup> However, recent research exploring the experience of a traumatic hand injury noted that rural and remote participants demonstrated resilient, rather than stoic, qualities.<sup>31</sup> Resilience refers to the ability to thrive or adapt despite adversity, through anticipating and welcoming change.<sup>13</sup> Rural and remote patients demonstrate resilient qualities when they adapt their treatment programme to fit with their lifestyles and ask for support to get tasks done until they have the ability to do this for themselves in the future.<sup>31</sup> Being resilient requires a focus on what a person has now, not what they have lost.<sup>13,31</sup>

The willingness to adapt, seek help and support, and look towards the future are important attributes to 'tap into' when planning a treatment programme. Therapists need to consider the roles and day-to-day responsibilities of the rural and remote patients and their goals for therapy to promote adherence to therapy and home programmes and ensure a collaborative approach to therapy.<sup>45</sup> Moreover, rural and remote patients should be afforded the same opportunity as metropolitan/regional patients to follow active hand therapy protocols that can promote improved outcomes.<sup>46</sup>

The emphasis patients placed on returning to activity and occupation highlights the importance of therapists being flexible with rehabilitation programmes. Exploring strategies to fit the exercise regime into a rural and remote patient's busy daily routine or incorporating daily activities as part of a patient's exercise programme can promote adherence to rehabilitation programmes. Improving the relevance of rehabilitation programmes for rural and remote patients can therefore contribute to accessible and appropriate health care.<sup>16</sup> Collaboration and flexibility are vital when designing a treatment programme to meet the individual needs of the rural and remote patient. Importantly, the types of activities that are allowed or encouraged following a traumatic hand injury should be reviewed. Therapists need to take time to discuss daily activity participation and any problems a patient may encounter with certain tasks.<sup>20,25</sup> Strategies can be identified about how tasks can be adapted and simplified as opposed to a focus on strict protocols and guidelines.<sup>33</sup>

### Technology

Technology is a useful adjunct to treatment and can be included as part of a treatment plan. The use of telehealth or telerehabilitation has an important role in the delivery of patient care in rural and remote areas by providing additional treatment sessions in conjunction with face-to-face intervention. Technology can assist in addressing the limited access to specialist health professionals for the patients and also the lack of professional development opportunities for rural and remote therapists. Therapists need to consider a range of flexible and innovative strategies regarding appointment scheduling that do not rely on the need for patients to travel to appointments each week.<sup>47,48</sup>

Telehealth and telerehabilitation are believed to be effective ways of complementing health care services by reducing the need to travel and by giving timely access to specialists and medical services. The use of telehealth can also support training and education of rural and remote health workers.<sup>49,50</sup> Health professionals can use technology such as telehealth or videoconferencing for team meetings, to discuss clinical cases with other professionals, and for training and development. Technology can also allow access to specialist clinical assessment and intervention, to clinics in metropolitan areas and to assist with professional development and clinical supervision of rural and remote therapists involved in direct patient care.<sup>51</sup> This contact can help to reduce professional isolation and increase the skills and confidence of rural and remote health professionals.<sup>52</sup>

Telehealth is generally viewed positively by patients and therapists who believe that it can improve communication and clarify the correct exercises.<sup>26,31</sup> Therapists report a reticence about replacing face-to-face contact with technology, particularly regarding hand assessment.<sup>26</sup> Face-to-face contact in hands is still seen as the preferred option due to the need to make splints and conduct physical assessments.<sup>31</sup> Therapists believe that patients disclose more information during face-to-face contact

which assists with clinical decision making.<sup>53,54</sup> Technology is, however, seen as a useful way of being able to clarify concerns and maintain contact.<sup>31</sup>

The correct execution of exercises is considered an important component of ensuring positive outcomes, and the use of technology for home exercise programmes is viewed favourably.<sup>55</sup> Having the exercises recorded and the ability to play back when required can also enhance understanding and clarity. Most of the hand therapy interventions require the therapist to be able to physically touch the patient and assess limitations in range of motion, scar adhesion, and oedema. Adaption of conventional intervention may be possible, with studies demonstrating that the range of motion for the shoulder, wrist, elbow, and forearm can be tested through the use of an Internet-based goniometer.<sup>56</sup> Grip and pinch strength testing and finger dexterity can also be administered via telerehabilitation.<sup>57</sup> Concerns related to pixilated video image and video quality may affect clarity of assessment and treatment in hand injuries, although this is likely to be addressed with ongoing improvement to Internet and broadband access in Australia.<sup>58,59</sup> Telehealth in Australia has been designed to expand on and not to replace existing services including face-to-face contact, which is still considered the preferred method of service delivery.<sup>52,60</sup> Given its acceptance and pervasiveness in our daily lives, using technology to demonstrate home exercise programmes for patients, regardless of residential location, can ensure clarity and understanding of home exercise programmes. Technology can be used in conjunction with face-to-face treatment and address the issues of distance and expense.<sup>60</sup>

### Conclusions

Providing a collaborative and flexible rehabilitation programme to rural and remote residents following a traumatic hand injury can be seen as a challenge. The barriers may appear too large to overcome, and relying on previously established procedures and protocols is the preferred option. Established protocols that work in regional or metropolitan locations, however, are unlikely to be effective, and innovative and pragmatic strategies are required. The key to a successful rehabilitation programme for rural and remote residents with a traumatic hand injury is basing intervention on their needs first, rather than the rural and remote location in which they live. Identifying and recruiting strategies that provide a tailored and flexible rehabilitation programme, regardless of residential location, is an important part of the therapist's intervention plan.

### Author Contributions

GAK reviewed and approved the final manuscript.

### REFERENCES

1. Haese JB. Psychological aspects of hand injuries their treatment and rehabilitation. *J Hand Sur.* 1985;10:283-287.
2. Meyer TM. Psychological aspects of mutilating hand injuries. *Hand Clin.* 2003;19:41-49.
3. Black RM. Cultural considerations of hand use. *J Hand Ther.* 2011;24:104-111.



4. Schier JS, Chan J. Changes in life roles after hand injury. *J Hand Ther.* 2007;20:57–69.
5. Kingston G, Tanner B, Gray MA. The functional impact of a traumatic hand injury on people who live in rural and remote locations. *Disabil Rehabil.* 2010;32:326–335.
6. Australian Institute of Health and Welfare. *Australia's Health: The Twelfth Biennial Health Report of the Australian Institute of Health and Welfare.* Australian Institute of Health and Welfare ed. Canberra, ACT: AIHW; 2010.
7. Safe Work Australia. *Work-Related Traumatic Injury Fatalities, Australia 2010–11.* Safe Work Australia ed. Canberra, ACT: Safe Work Australia; 2012.
8. Australian Institute of Health and Welfare. *Health in Rural and Remote Australia.* Australian Institute of Health and Welfare ed. Canberra, ACT: AIHW; 1998.
9. Veitch C. Impact of rurality on environmental determinants and hazards. *Aust J Rural Health.* 2009;17:16–20.
10. Tham R, Humphreys J, Kinsman L, et al. Evaluating the impact of sustainable comprehensive primary health care on rural health. *Aust J Rural Health.* 2010;18:166–172.
11. Smith JD. Advance rural Australia. In: Smith JD, ed. *Australia's Rural and Remote Health: A Social Justice Perspective.* 2nd ed. Croydon, VIC: Tertiary Press; 2007:1–19.
12. Tollefson J, Usher K. Chronic pain in the rural arena. *Aust J Rural Health.* 2006;14:134–135.
13. Hegney DG, Buikstra E, Baker P, et al. Individual resilience in rural people: a Queensland study, Australia. *Rural Remote Health.* 2007;7:620.
14. Elliott-Schmidt R, Strong J. The concept of wellbeing in a rural setting: understanding health and illness. *Aust J Rural Health.* 1997;5:59–63.
15. Bourke L. Australian rural consumers' perceptions of health issues. *Aust J Rural Health.* 2001;9:1–6.
16. Humphreys JS. Key considerations in delivering appropriate and accessible health care for rural and remote populations: discussant overview. *Aust J Rural Health.* 2009;17:34–38.
17. Tham R, Humphreys J, Kinsman L, Buykx P, Asaid A, Tuohey K. Study protocol: evaluating the impact of a rural Australian primary health care service on rural health. *BMC Health Serv Res.* 2011;11:52.
18. Bourke L, Humphreys JS, Wakerman J, Taylor J. Understanding rural and remote health: a framework for analysis in Australia. *Health Place.* 2012;18:496–503.
19. Kingston GA, Judd J, Gray MA. The experience of medical and rehabilitation intervention for traumatic hand injuries in rural and remote North Queensland: a qualitative study. *Disabil Rehabil.* 2015;37:423–429.
20. Kaskutas V, Powell R. The impact of flexor tendon rehabilitation restrictions on individuals' independence with daily activities: implications for hand therapists. *J Hand Ther.* 2013;26:22–29.
21. Powell RK, von der Heyde RL. The inclusion of activities of daily living in flexor tendon rehabilitation: a survey. *J Hand Ther.* 2014;27:23–29.
22. Miller JS, Litva A, Gabbay M. Motivating patients with shoulder and back pain to self-care: can a videotape of exercise support physiotherapy? *Physiotherapy.* 2009;95:29–35.
23. Kirwan T, Tooth L, Harkin C. Compliance with hand therapy programs: therapists' and patients' perceptions. *J Hand Ther.* 2002;15:31–40.
24. von der Heyde RL. Clinical commentary in response to 'The impact of flexor tendon rehabilitation restrictions on individuals' independence with daily activities: implications for hand therapists. *J Hand Ther.* 2013;26:30–31.
25. Sandford F, Barlow N, Lewis J. A study to examine patient adherence to wearing 24-hour forearm thermoplastic splints after tendon repairs. *J Hand Ther.* 2008;21:44–53.
26. Kingston GA, Williams G, Judd J, Gray MA. Hand therapy services for rural and remote residents: results of a survey of Australian occupational therapists and physiotherapists. *Aust J Rural Health.* 2015;23:112–121.
27. Mills A, Millstead J. Retention: an unresolved workforce issue affecting rural occupational therapy services. *Aust Occup Ther J.* 2002;49:170–181.
28. Hays R. *Practicing Rural Medicine in Australia.* Emerald, VIC: Eruditions Publishing; 2002.
29. Lannin N, Longland S. Critical shortage of occupational therapists in rural Australia: changing our long-held beliefs provides a solution. *Aust Occup Ther J.* 2003;50:184–187.
30. MacDermid JC. Measurement of health outcomes following tendon and nerve repair. *J Hand Ther.* 2005;18:297–312.
31. Kingston GA, Judd J, Gray MA. The experience of living with a traumatic hand injury in a rural and remote location: an interpretive phenomenological study. *Rural Remote Health.* 2014;14:2764.
32. Fisher GS, Emerson L, Firpo C, Ptak J, et al. Chronic pain and occupation: an exploration of the lived experience. *Am J Occup Ther.* 2007;61:290–302.
33. Tollefson J. *I Live My Life According to the Pain: The Lived Experience of Chronic Pain in Adults Living in Rural Queensland.* Townsville, QLD: School of Nursing, Midwifery and Nutrition, James Cook University; 2009.
34. Wilcock A. A theory of the human need for occupation. *J Occup Sci.* 1993;1:17–24.
35. Kingston G, Williams G, Judd J, Gray M. The functional impact of a traumatic hand injury: a comparison of rural/remote and metropolitan/regional populations. *Int J Ther Rehabil.* 2016;23:406–413.
36. Hasselkus B. *The Meaning of Everyday Occupation.* Thorofare, NJ: Slack Incorporated; 2002.
37. de la Rue M, Couson I. The meaning of health and wellbeing: voices from older rural women. *Rural Remote Health.* 2003;3:192.
38. Molyneux-Smith L, Townsend E, Guernsey JR. Occupation disrupted: impacts, challenges, and coping strategies for farmers with disabilities. *J Occup Sci.* 2003;10:14–20.
39. Brown L, Williams L, Capra S. Going rural but not staying long: recruitment and retention issues for the rural dietetic workforce in Australia. *Nutr Diet.* 2010;67:294–302.
40. Howell D, Marshall D, Brazil K, et al. A shared care model pilot for palliative home care in a rural area: impact on symptoms, distress, and place of death. *J Pain Symptom Manage.* 2011;42:60–75.
41. Paquette-Warren J, Vingilis E, Greenslade J, Newnam S. What do practitioners think? A qualitative study of a shared care mental health and nutrition primary care program. *Int J Integr Care.* 2006;6:e18.
42. Woodhouse G. Exploration of interaction and shared care arrangements of generalist community nurses and external nursing teams in a rural health setting. *Aust J Adv Nurs.* 2009;26:17–23.
43. Smith JD. *Australia's Rural and Remote Health: A Social Justice Perspective.* 2nd ed. Croydon, VIC: Tertiary Press; 2007.
44. Emery JD, Walter FM, Gray V, et al. Diagnosing cancer in the bush: a mixed-methods study of symptom appraisal and help-seeking behaviour in people with cancer from rural Western Australia. *Fam Pract.* 2013;30:294–301.
45. O'Brien L. Adherence to therapeutic splint wear in adults with acute upper limb injuries: a systematic review. *Hand Ther.* 2010;15:3–12.
46. Groth GN. Pyramid of progressive force exercises to the injured flexor tendon. *J Hand Ther.* 2004;17:31–42.
47. Australian Government Department of Health and Ageing. *National Strategic Framework for Rural and Remote Health.* Ageing DoHa ed. Canberra, ACT: Australian Government Department of Health and Ageing; 2012.
48. Kingston GA. *Occupational Therapy and/or Physiotherapy Services Following a Traumatic Hand Injury for People Who Live in Rural and Remote Locations.* Townsville, QLD: James Cook University; 2014.
49. National Rural Health Alliance. *Ehealth and Telehealth in Rural and Remote Australia.* Canberra, ACT: NRHA; 2013.
50. Boshoff K, Hartshorne S. Profile of occupational therapy practice in rural and remote South Australia. *Aust J Rural Health.* 2008;16:255–261.
51. Services for Australian Rural and Remote Allied Health. *Telehealth and Allied Health.* Dickson, ACT: S.A.R.R.A.H; 2012.
52. Moffatt JJ, Eley DS. The reported benefits of telehealth for rural Australians. *Aust Health Rev.* 2010;34:276–281.
53. Russell T, Truter P, Blumke R, Richardson B. The diagnostic accuracy of telerehabilitation for nonarticular lower-limb musculoskeletal disorders. *Telemed J E Health.* 2010;16:585–594.
54. Hinck G, Bergmann TF. Video capture on student-owned mobile devices to facilitate psychomotor skills acquisition: a feasibility study. *J Chiropr Educ.* 2013;27:158–162.
55. Kingston G, Gray MA, Williams G. A critical review of the evidence on the use of videotape or DVD to promote patient compliance with home programmes. *Disabil Rehabil.* 2010;5:153–163.
56. Hoffmann T, Russell T, Cooke H. Remote measurement via the Internet of upper limb range of motion in people who have had a stroke. *J Telemed Telecare.* 2007;13:401–405.
57. Hoffmann T, Russell T, Thompson L, Vincent A, Nelson M. Using the Internet to assess activities of daily living and hand function in people with Parkinson's disease. *NeuroRehabilitation.* 2008;23:253–261.
58. Russell TG. Physical rehabilitation using telemedicine. *J Telemed Telecare.* 2007;13:217–220.
59. Australian Government Department of Communications. National broadband network. [www.communications.gov.au/broadband/national\\_broadband\\_network](http://www.communications.gov.au/broadband/national_broadband_network), 2014.
60. Hoffmann T, Cantoni N. Occupational therapy services for adult neurological clients in Queensland and therapists' use of telehealth to provide services. *Aust Occup Ther J.* 2008;55:239–248.