Functional improvement of the Australian health care system — can rehabilitation assist?

Peter W New and Christopher J Poulos

ABSTRACT

- Strategies for managing increasing health system demand have focused on the acute sector and chronic disease management in the community, with little attention on the role of rehabilitation.
- There were over 53 000 inpatient rehabilitation episodes in Australia in 2006. We argue that rehabilitation can improve patient flow and outcomes in acute care if engaged early.
- The effectiveness of rehabilitation can be enhanced by increasing the intensity of therapy and developing models of rehabilitation that provide alternatives to inpatient care.
- Factors that reduce the efficiency of rehabilitation services include the location of many services in small, stand-alone hospitals without acute support; the lack of options for managing younger people with acquired disability in the community; and deficiencies in government programs for the supply of aids, equipment and home modifications.
- Improving the organisation of rehabilitation services should improve access to acute and rehabilitation inpatient beds, improve patient outcomes and reduce costs.

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Management of demand for services in public hospitals is a key challenge for the health care system. The situation will intensify with the ageing of Australia's population and increases in the prevalence of chronic disease and disability. Strategies to date have focused on the acute care sector,[1,2] reducing hospital attendances, post-acute support, and management of chronic disease in the community. The rehabilitation sector is generally seen as separate from the acute care system,[3,4] and there is relatively little focus on patient flow into and through rehabilitation, or on the secondary and tertiary prevention strategies that optimal rehabilitation intervention can offer. We feel that the lack of focus on rehabilitation is detrimental to our health care system.

Twenty per cent of Australians have a disability, and more than 6% of the population has a profound or severe core-activity limitation.[5] With an increasing proportion of older people living alone,[6] the ability to keep living in the community is often more dependent on functional independence than on medical factors, suggesting a role for rehabilitation.

Rehabilitation has been defined as "a health strategy ... that aims to enable people with ... disability to achieve and maintain optimal functioning in interaction with the environment".[7] In the context of this article, rehabilitation refers to the provision of multidisciplinary, medically directed services that aim to improve the functioning of an individual after illness or injury and that are evidenced by comprehensive assessment of function and realistic and negotiated goals.[8]

Here, we provide an overview of public rehabilitation services in the two most populous Australian states, New South Wales and Victoria, but many of the issues raised are likely to apply to the rest of the country. We highlight preventable systems factors that contribute to access block "upstream" in the acute care sector and exit block "downstream" in rehabilitation, and present possible solutions. The issues identified relate to people of all ages with disabilities.

Current rehabilitation services in NSW and Victoria

Data on over 53 000 inpatient rehabilitation episodes in Australia for 2006 were recently reported.[9] Most of these (39 168 [77.5%]) were in NSW and Victoria (Frances Simmonds, Manager, Australasian Rehabilitation Outcomes Centre, personal communication). Patients were mostly aged over 70 years, but about a fifth were aged under 65 years. More episodes from private hospitals were reported, but patients treated in the public sector tended to be more disabled. Most patients returned to living in the community after discharge. Rehabilitation has been described as the "glue" between the acute care and community sectors.[10]

Victoria and NSW are generally well served in the availability of public rehabilitation beds and rehabilitation physicians (1 per 62 000 and 1 per 46 000 people, respectively, at June 2008 [Rebecca Forbes, Senior Executive Officer, Australasian Faculty of Rehabilitation Medicine, personal communication] and calculated using Australian Bureau of Statistics estimates). In Victoria, most public rehabilitation beds are in stand-alone facilities, while in NSW, co-location with acute care facilities occurs more frequently. The trend over recent decades has been to re-allocate the role of small hospitals to that of subacute care, including rehabilitation, in an effort to satisfy the political imperative of keeping these hospitals open, while acknowledging that the provision of acute care in small facilities is no longer appropriate.

Ambulatory rehabilitation is generally more widely available in Victoria than in NSW, with the former offering comprehensive outpatient public rehabilitation programs and the availability of home-based rehabilitation, typically for 2–6 weeks.

Problems with the current organisation and delivery of rehabilitation services

System issues, funding and workforce constraints, and conflict between federal and state responsibilities[11,12] all contribute to reducing the positive potential of rehabilitation in the acute care hospital and community sectors. Critical factors are outlined below.

Provision of hospital-based care

Functional decline in patients secondary to inactivity is ubiquitous in acute care hospitals, resulting in prolonged recovery times. Systems are generally not in place to minimise this. Preventable complications, such as pressure ulcers,[13] falls, malnutrition[14] and contractures also affect outcomes and increase length of stay.

In acute care hospitals, rehabilitation services are often not engaged early enough to help prevent functional decline and

complications. Delays in obtaining rehabilitation assessments in acute care are common, due to delays in referral or in availability or responsiveness of the rehabilitation team.[15] Under-resourcing of allied health staff in some acute care hospitals results in patients receiving minimal therapy and discharge planning once they have been identified for rehabilitation or other subacute care. This contributes to functional decline and increases subsequent length of stay in subacute care.

As private rehabilitation capacity has expanded to target patients with predominantly single-system impairments (eg, elective orthopaedic conditions and milder strokes), the nature of public hospital rehabilitation has moved towards the management of older patients with multiple morbidities and general debility, often requiring ongoing interaction with the acute care system.

We question the appropriateness of providing inpatient rehabilitation services that are isolated from the back-up of an acute care facility — for efficiency, safety and workforce reasons. Acute care patients in need of rehabilitation must wait till they are medically stable before they can be transferred to a stand-alone rehabilitation facility, creating a hiatus in their care (both acute care and rehabilitation). When acute care and rehabilitation hospitals are not collocated, the elective transfer of patients from acute care to rehabilitation often takes place later in the day — effectively wasting a day by the time the admission process is completed. Interruptions to rehabilitation then occur if patients are transferred back to acute facilities for medical review or investigations. In stand-alone facilities, on-site after-hours medical rostering in an environment of workforce shortage is problematic and costly.

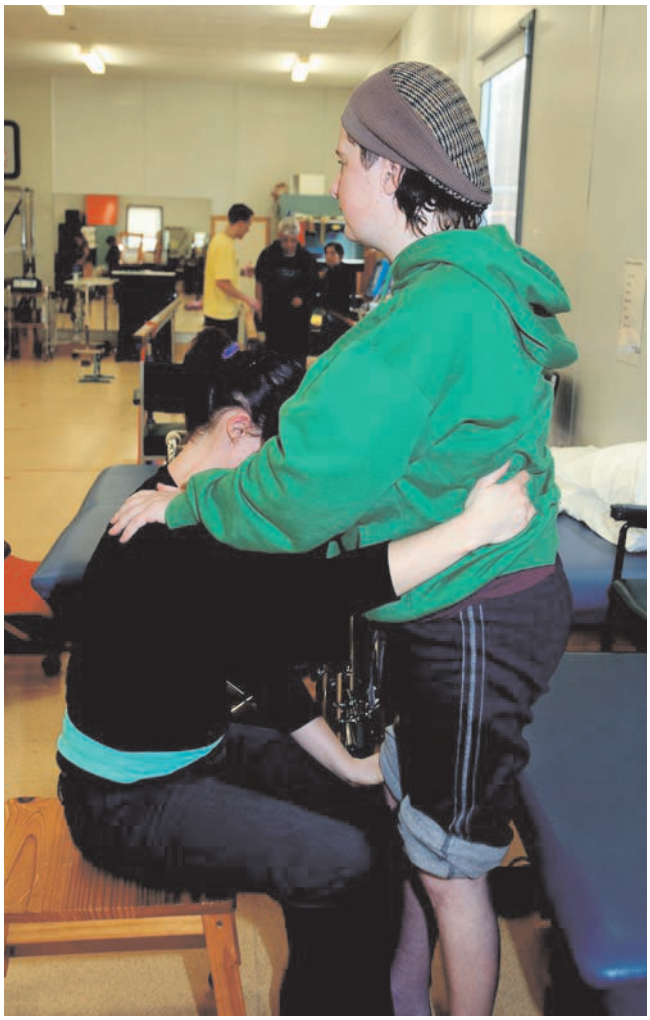
For some patients (eg, those who are non-weight-bearing for prolonged periods after lower-limb fractures or those awaiting home modifications), there is a lack of alternative care settings. This results in inappropriate admissions to rehabilitation or longer stays there.

Community-based rehabilitation

In NSW, the provision of public hospital outpatient and domiciliary allied health has not kept pace with the demands of an ageing population. While the Medicare system has expanded to cover community allied health (ordered by a general practitioner for eligible patients), rehabilitation providers cannot access these services even though they are in an ideal position to prescribe and coordinate such care.

Inpatient rehabilitation exit block for younger people

Little has been done to provide sufficient high-level care for younger people with severe, persistent, acquired disabilities (eg, acquired brain injury or spinal cord injury or damage) who no longer require rehabilitation and are not covered by compensation. There is a lack of options under state programs to accommodate these people, and the restrictions imposed by the federal government on younger people accessing residential aged care compound the problem. Therefore, these patients often wait in rehabilitation for many months until a suitable community solution can be brokered, or for placement — often, in spite of the government restrictions, in a residential aged care facility, after all other options have been exhausted. In NSW, the new Lifetime Care and Support Scheme (http://www.lifetimecare.nsw.gov.au) is seen as a positive step, but this is only available for people with catastrophic injury as a result of a motor vehicle accident.



Physiotherapist working with a young rehabilitation patient. ◆

The lack of funding for paid carers and the bureaucratic processes that restrict and delay the provision of home-based care result in patients being generally limited to 5–7 hours per week of personal care assistance at home. This results in stress to the family providing care and significant out-of-pocket expense. Once determined appropriate, the wait for packages that can provide a greater number of hours of care can take months. In Victoria, the Disability Support Register provides younger patients with access to a package of services to avoid admission to residential aged care via the "my future my choice" program (http://www.dhs.vic.gov.au/disability/improving_supports/my_future_my_choice). However, access to such services can take 4 to 8 months to implement.

Provision of aids, equipment and home modifications

In both NSW and Victoria, the system for supplying aids, equipment or home modifications to patients not covered by compensation is inadequate. There are long waiting periods and variation in supply between jurisdictions.

While the acute care sector demands and often gets the immediate supply of costly equipment, supply of orthoses (to allow mobility, for example) or of preventive footwear (for at-risk

diabetic feet) can take up to a year. This is in contrast to the artificial limb schemes, which are administered under different funding programs and, in both states, are equitable and responsive and operate within a capped budget.

There are also delays in funding the home modifications required for a safe home environment. Patients can wait in hospital for months, even though the cost of modifications is much less than the prolonged hospitalisation. For example, in Victoria, a single one-off contribution of $4400 per patient is available. However, the cost of home access or bathroom modifications can reach $15 000–$20 000 each, while the estimated weekly cost of caring for a patient in hospital is about $3500.

Interface with aged care services

Improvements in aged care service provision have focused on care and support rather than on the minimisation and reversal of disability. The federal government's recently established Transition Care Program offers 8–12 weeks of support with limited therapy to improve the functioning of patients at risk of residential aged care facility admission.[16] However, this program is available only to patients aged over 65 years. It is also more akin to restorative care, with the expectation of slow gains over time with good supportive care and minimal therapy, than to intensive specialist rehabilitation. A recent article in the Journal highlighted concerns about the cost-effectiveness of this program compared with alternatives, including rehabilitation.[17]

Proposals to improve the organisation and delivery of rehabilitation services

There are a number of strategies that can improve service delivery, potentially improving patient flow and outcomes in both acute care and rehabilitation. Implementing these improvements will require cooperation between state and federal governments and greater flexibility by health departments and hospitals as to how rehabilitation services are organised.

Furthermore, a national rehabilitation strategy should be established, as recently proposed by the Australasian Faculty of Rehabilitation Medicine (http://afrm.racp.edu.au/index.cfm?objectid=0F7AE593-9D8B-CDD1-A2096977C34069AA). This would, among other things, improve national rehabilitation policy, planning, service provision, research and workforce development.

In addition to the changes suggested here, there are likely to be other ways in which the acute–subacute–community interface can be improved. The clinical redesign principles described in a recent supplement to the Journal provide a useful framework for progressing this process.[18] It is also important to have cooperation and collaboration between rehabilitation and aged care services, to avoid duplication of similar services and to limit delays caused by parallel assessment processes, while at the same time preserving the important differences that each of these fields of expertise offers.

Minimise preventable disability and complications

Rehabilitation can play a major role in minimising preventable disability and complications in hospitalised patients. There is a need for programs to increase activity levels to prevent unnecessary functional decline in patients in both acute and subacute care,[19,20] along with early referral to rehabilitation services for patients with significant disability who are likely to require multidisciplinary care. Commencing a multidisciplinary rehabilitation program at an early stage, even while still in acute care, can improve outcomes[21-23] and patient flow by reducing length of stay in rehabilitation or avoiding a rehabilitation admission entirely if adequate ambulatory care programs are available.

Use should be made of systems for the early identification[15] and referral of patients appropriate for rehabilitation.[24]

Relocate rehabilitation facilities

Health planners should consider the efficiency, patient safety and workforce benefits of relocating stand-alone inpatient rehabilitation facilities back to acute care hospital campuses.

Redesign rehabilitation

There is growing evidence suggesting that increasing the intensity of rehabilitation therapy may lead to improved efficiency and patient outcomes in some types of impairment. The best evidence exists for stroke,[25] but it is quite likely that patients with other impairments would also benefit from an increased intensity of therapy.[19,26]

Improve ambulatory rehabilitation care

Significant increases in community rehabilitation are required to minimise preventable disability as the population ages. State and federal governments need to work together to develop ways to make sufficient community allied health interventions available to rehabilitation services, given that the latter are ideally placed to select appropriate patients and monitor outcomes.

Improve systems for supply of aids, equipment and home modifications

Funding for aids, equipment and home modifications for people with disabilities of all ages needs to be streamlined and made more accessible and equitable. There are economic and quality-of-life benefits to be gained from rapid supply of these items. It is not unreasonable for patients to be supplied with orthoses and appliances in a timely fashion, in the order of 4–6 weeks.

Support younger people with severe disability

A range of suitable and accessible care options for younger[27] adults requiring high-level care is needed. Options include smaller group residential homes, adequate funding for home-based carers, and programs similar to the existing Transition Care Program, but with a greater intensity of allied health intervention, if required.

Develop a broader range of inpatient rehabilitation and other subacute care services

Inpatient rehabilitation and other subacute care would probably be more efficient and effective if they were stratified into "acute, intensive" rehabilitation and "less intensive, more supportive" care, based on patient need. This is in contrast to the usual situation in Australia (outside the specialised spinal and brain injury units) of a "one size fits all" approach to rehabilitation. Such models exist overseas, with individual patient factors determining the intensity of rehabilitation or subacute service provision required.[4]

While the new Transition Care Program[16] provides longer-term restorative-type care for older patients, there are strict admission criteria and approval processes. There are currently limited options

for other elderly or young patients with the same care needs, including those awaiting home modifications or who are non-weight-bearing after sustaining fractures.

Conclusion

To make the best use of the current wave of hospital and community health system reforms, a focus on the rehabilitation sector is essential. Recent government initiatives, while addressing some of the issues raised, have concentrated on the aged care domain and not on rehabilitation.[28,29] Addressing the issues outlined in this article will require a whole-of-government approach, as well as involvement of regional health authorities and local personnel. We feel that the effectiveness of the health care system would be considerably enhanced by these changes, which would help to increase access to inpatient beds (in both the acute and subacute sectors), improve patient outcomes and reduce costs.

Competing interests

None identified.

Author details

Peter W New, MB BS, MClinEpi, FAFRM(RACP), Head, Acute Rehabilitation,[1] Head, Spinal Rehabilitation Unit,[2] and Honorary Lecturer[3]

Christopher J Poulos, MB BS, MSc, FAFRM(RACP), Network Clinical Director (Medicine, ED, Cardiac Services, Neurosciences and Rehabilitation),[4] and Clinical Associate Professor[5]

1 Continuing Care Program, Southern Health, Melbourne, VIC.

2 Rehabilitation Services, Caulfield General Medical Centre, Bayside Health, Melbourne, VIC.

3 Department of Medicine and Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC.

4 Southern Hospital Network, South Eastern Sydney and Illawarra Area Health Service, Wollongong, NSW.

5 University of Wollongong, Wollongong, NSW.

Correspondence: Peter.New@Southernhealth.org.au

References

1 Cameron PA. Hospital overcrowding: a threat to patient safety [editorial]? *Med J Aust* 2006; 184: 203-204.

2 Braitberg G. Emergency department overcrowding: dying to get in [editorial]? *Med J Aust* 2007; 187: 624-625.

3 Quality and Care Continuity Branch, Acute Health Division. Sub-Acute/Acute Interface Project: final report. Melbourne: Victorian Department of Human Services, 2001.

4 Poulos CJ, Eagar K. Determining appropriateness for rehabilitation or other subacute care: is there a role for utilisation review? *Aust New Zealand Health Policy* 2007; 4: 3.

5 Australian Bureau of Statistics. Disability, ageing and carers, Australia: summary of findings, 2003. Canberra: ABS, 2004. (ABS Cat. No. 4430.0.)

6 Australian Bureau of Statistics. Household and family projections, Australia, 2001 to 2026. Canberra: ABS, 2004. (ABS Cat. No. 3236.0.)

7 Stucki G, Cieza A, Melvin J. The International Classification of Functioning, Disability and Health (ICF): a unifying model for the conceptual description of the rehabilitation strategy. *J Rehabil Med* 2007; 39: 279-285.

8 Australasian Faculty of Rehabilitation Medicine. Rehabilitation service categories [position statement]. 2006. http://afrm.racp.edu.au/download.cfm?DownloadFile=3840BAFF-9DEB-CD4F-4BA4AFB9155AE86F (accessed May 2008).

9 Simmonds F, Stevermuer T. The AROC annual report: the state of rehabilitation in Australia 2006. *Aust Health Rev* 2008; 32: 85-110.

10 Simmonds F, Stevermuer T. The AROC annual report: the state of rehabilitation in Australia 2005. *Aust Health Rev* 2007; 31 Suppl 1: S31-S53.

11 Paterson J. National healthcare reform: the last picture show. Melbourne: Victorian Government Department of Human Services, 1996.

12 Willcox S, Lin V, Watson R, Oldenburg B. Revitalising health reform — time to act. Melbourne: Australian Institute of Health Policy Studies, 2007.

13 Stacey MC. Preventing pressure ulcers [editorial]. *Med J Aust* 2004; 180: 316.

14 Middleton MH, Nazarenko G, Nivison-Smith I, Smerdely P. Prevalence of malnutrition and 12-month incidence of mortality in two Sydney teaching hospitals. *Intern Med J* 2001; 31: 455-461.

15 Poulos CJ, Eagar K, Poulos RG. Managing the interface between acute care and rehabilitation — can utilisation review assist? *Aust Health Rev* 2007; 31 Suppl 1: S129-S140.

16 Australian Government Department of Health and Ageing. Transition Care Program guidelines – 2005. Canberra: Department of Health and Ageing, 2005. http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-transition-guidelines.htm (accessed May 2008).

17 Gray LC, Travers CM, Bartlett HP, et al. Transition care: will it deliver? *Med J Aust* 2008; 188: 251-253.

18 Phillips PA, Hughes CF. Clinical process redesign — can the leopard change its spots? *Med J Aust* 2008; 188 (6 Suppl): S7-S8.

19 Chen CC, Heinemann AW, Granger CV, Linn RT. Functional gains and therapy intensity during subacute rehabilitation: a study of 20 facilities. *Arch Phys Med Rehabil* 2002; 83: 1514-1523.

20 Jones CT, Lowe AJ, MacGregor L, et al. A randomised controlled trial of an exercise intervention to reduce functional decline and health service utilisation in the hospitalised elderly. *Australas J Ageing* 2006; 25: 126-133.

21 Maulden SA, Gassaway J, Horn SD, et al. Timing of initiation of rehabilitation after stroke. *Arch Phys Med Rehabil* 2005; 86 (12 Suppl 2): S34-S40.

22 Munin MC, Rudy TE, Glynn NW, et al. Early inpatient rehabilitation after elective hip and knee arthroplasty. *JAMA* 1998; 279: 847-852.

23 Scivoletto G, Morganti B, Molinari M. Early versus delayed inpatient spinal cord injury rehabilitation: an Italian study. *Arch Phys Med Rehabil* 2005; 86: 512-516.

24 Poulos CJ, Gazibarich BM, Eagar K. Supporting work practices, improving patient flow and monitoring performance using a clinical information management system. *Aust Health Rev* 2007; 31 Suppl 1: S79-S85.

25 Kwakkel G, van Peppen R, Wagenaar RC, et al. Effects of augmented exercise therapy time after stroke: a meta-analysis. *Stroke* 2004; 35: 2529-2539.

26 Slade A, Tennant A, Chamberlain MA. A randomised controlled trial to determine the effect of intensity of therapy upon length of stay in a neurological rehabilitation setting. *J Rehabil Med* 2002; 34: 260-266.

27 Senate Community Affairs References Committee. Chapter 4. Young people in residential aged care facilities. In: Quality and equity in aged care. Canberra: Commonwealth of Australia, 2005: 79-129. http://www.aph.gov.au/Senate/committee/clac_ctte/completed_inquiries/2004-07/aged_care04/report/c04.htm (accessed Aug 2008).

28 Clinical Epidemiology and Health Services Evaluation Unit, Melbourne Health. Best practice approaches to minimise functional decline in the older person across the acute, sub-acute and residential aged care settings. Melbourne: Victorian Government Department of Human Services, 2004. http://www.health.vic.gov.au/acute-agedcare/functional-decline-manual.pdf (accessed May 2008).

29 Continuing Care Section, Programs Branch, Metropolitan Health and Aged Care Services Division. Improving care for older people: a policy for health services. Melbourne: Victorian Government Department of Human Services, 2003. http://www.health.vic.gov.au/older/improving-care.pdf (accessed May 2008).

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