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Position Paper

on

Achieving the best possible outcomes for people with acquired brain injury who live in rural and remote communities

April 2012

This Paper represents the agreed views of the National Rural Health Alliance, but not necessarily the full or particular views of all of its Member Bodies.

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Note: work on this Position Paper was led by Denis Ginnivan, Policy Consultant to the Alliance.

Achieving the best possible outcomes for people with acquired brain injury who live in rural and remote communities

Introduction

Acquired brain injury (ABI) refers to any damage to the brain and its functions that occurs after birth. The injury may be caused by an accident or trauma; a sudden non-traumatic event such as a stroke or aneursym; or by gradual deterioration, for example, by misuse of alcohol or other drugs, or due to degenerative conditions such as Parkinson's Disease. (Brain Injury Australia, 2011)

Wherever they live, a person with a sudden ABI[1] is likely to be taken to a major metropolitan or large regional hospital for trauma care and inpatient rehabilitation over several months. As is the case for patients with other conditions, extended hospitalisation for ABI comes with particular challenges for rural people due to separation from the support of their families, friends and communities.

Once discharged from inpatient rehabilitation in the major hospital, patients who have suffered an ABI, whether they live in the city or the country, will continue to benefit from well-coordinated multi-disciplinary care to help them reach their full potential and take up their place in the community again over the months and years ahead.

The challenge described in this Position Paper is how to make this possible for people who live in a rural or remote community - for the current situation is that in the rural and remote areas of most Australian States and Territories there is little or no capacity to support the person with a recent brain injury to maximise the rehabilitation-related opportunities required to 'live well with a changed life'.

Purpose of the Paper

As with all of the Alliance's work, this Paper is designed to ensure that the people of rural and remote areas are not disadvantaged because of where they live - in this case where access to specialised post-hospital brain injury rehabilitation is concerned.

The Paper will:

- determine the relative importance (frequency and seriousness) of the issue;
- determine the extent to which it may be amenable to a policy response;
- help to ensure that governments, the public and interested agencies (such as research bodies) are well informed about acquired brain injury as it relates to people in rural and remote areas; and
- try to ensure that the interests and characteristics of people in rural and remote Australia are accommodated in policies going forward so that they get a fair deal in access to existing, modified and/or new services for ABI.

Some of the challenges to be overcome in relation to rehabilitation in rural areas after an ABI, such as workforce shortages, access to funding, and service model options, make this a valuable case study in providing similar more specialised services in rural areas for a range of conditions.

[1] called 'traumatic brain injury'

This Paper will also inform the development of an Alliance position on the proposed National Disability Insurance and National Injury Insurance Schemes.

Current policy opportunities

Medicare Locals will be key agencies in identifying regional and local health service gaps. Assuming they are well enough funded, they will, in conjunction with Local Hospital (or Health) Networks, also play a leading role in the establishment and operation of new services to fill those gaps.

Furthermore, the Government's welcome focus on rural and regional affairs makes this a good time to propose ways in which rural service deficits can be minimised. The absence in many regions of a clear clinical pathway for rural patients with brain injury is a significant part of this overall deficit.

It also seems possible that 2012-13 will be the year for significant progress with much- needed investment in disability care and support. The Government has indicated its intention to respond to the Productivity Commission's final report on Disability Care and Support through the establishment of a National Disability Insurance Scheme that provides insurance cover for all Australians in the event of significant disability. Funding of the scheme would be a core function of government, just like Medicare. The main function (and cost) of the NDIS would be the funding of long-term high quality care and support (but not income replacement) for people with a significant disability. The Council of Australian Governments (COAG) has also agreed to a no-fault National Injury Insurance Scheme to fund care and support for all cases of catastrophic injury, drawing on the schemes currently operating in some of Australia's States.

Acquired brain injury - the national picture

Approximately 438,000 Australians (1 in 45) have an acquired brain injury (ABI) (AIHW 2007). ABS data show that in 2003, 432,700 people had ABI plus some activity limitations or participation restrictions, with almost three quarters of these (311,800) being younger than 65 (of whom 157,500 had a severe or profound core activity limitation eg feeding, dressing, toileting, transport) (AIHW 2007). Of these 157,500 people younger than 65 with severe problems, two thirds were male, and almost half were aged between 45 and 64 years (AIHW 2007).

Brain injury imposes considerable costs on individuals, their families and the community. In a 2009 report, Access Economics estimated that the total cost of neurological injury to the Australian community through direct care and lost productivity is more than $8.6 billion per year. Almost two thirds of that cost is borne by individuals and families, either directly or through insurances.

This Position Paper specifically focuses on those people who have experienced a sudden acquired brain injury, and as a result of this injury have required admission into hospital and subsequent rehabilitation. The Paper does not focus on those people for whom ABI is gradual – for example drug- or alcohol-induced ABI.

The major reasons for hospital admissions following sudden acquired brain injury, the rural components, and the broad age groups are outlined in the Tables below.

Table 1: Annual separations from hospital due to selected causes, by age group (2004-05)

	Number	% < 65	% ≥65
Stroke	36,000	30	70
Motor vehicle accident	51,000	90	10
Assault	20,000	15-20	80-85
Falls	127,000	50	50

Source: AIHW 2004. Data for MVA, falls and assault from Bradley C and Harrison J (2008).
Note: percentages in each age group are approximations based on the sources above.

Table 2: Hospital separations as a result of traumatic brain injury, by remoteness (2004-05)

	National	Rural/remote	% Rural/remote
Stroke	36,000	12,600	35
Motor vehicle accident	7,200	2,880	40
Assault	3,500	1,575	45
Falls	8,700	2,610	30
Other traumatic brain injury	2,700	1,080	40[1]

- Source: Stroke derived from Table 1, and MVA, falls, assault and other traumatic brain injury from AIHW 2007. Percentage of hospitalisations attributable to rural residents taken from Bradley C and Harrison J (2008) and AIHW 2004
- Note: the numbers relating to stroke assume that all those with stroke will have some acquired brain injury as a result. The percentage of TBI related hospitalisations due to MVA, falls and assault from rural areas is unknown, but we have assumed that it mirrors that for all hospitalisations due to these causes (ie the likelihood of a hospitalisation due to MVA involving traumatic brain injury is the same in major cities and rural areas).

Table 3: Number of rural people with acquired brain injury separating from hospital annually, by cause of ABI and age group (2004-05)

	< 65 years	≥65 years
Stroke	3,150	9,450
Motor vehicle accident	2,592	288
Assault	1,418	157
Falls	1,305	1,305

Source: Derived from Bradley C and Harrison J (2008)
Note: Assumes that the age of people hospitalised for ABI resulting from stroke, MVA, falls and assault mirrors that for hospitalisation resulting from these causes.

Summary:
Some 21,800 people were admitted to hospital with traumatic brain injury in 2004-05. Annually, approximately 40,000 people are admitted to hospital due to stroke (two thirds of whom are 75 years or older), of whom 36,000 separate from hospital alive (AIHW 2004). Assuming these people separating due to stroke will have some degree of acquired brain injury, this translates to a further 36,000 people annually with some form of acquired brain injury, and a total of about 58,000 new cases of ABI annually. Of this group of additions to the pool of people with ABI, approximately 40 per cent are aged less than 65 years and approximately 34 per cent

(19,500) are from rural or remote areas. Two in five traumatic brain injuries were caused by a fall, one in three by a motor vehicle accident, and one in six by an assault (AIHW 2008).

Acquired brain injury - the rural and remote picture

Seven million people - one third of the Australian population - live in rural and remote areas. In 2004-05 people in Inner regional areas were 1.25 times more likely to have an ABI, while those living in Outer regional and remote areas were 1.42 times more likely to have an ABI than those in Major cities. So while 32 per cent of the population lives outside Major cities, 38 per cent of people with an ABI live outside Major cities. Inner regional males were 1.26 times as likely to have an ABI, while Outer regional males were 1.62 times as likely to have an ABI compared with those in Major cities. There was no clear difference between the prevalence of ABI amongst females living in Major cities, regional or remote Australia.

Of the national total of 22,000 patients who were admitted to hospitals with a traumatic brain injury in 2004-05, we estimate[2] over a third (about 34 per cent) were rural or remote residents. Hospital admission rates for falls appear to be broadly similar in city and rural areas. In the absence of other information it is assumed that probability of TBI after a fall requiring hospitalisation is similar in each of these areas (based on scrutiny of data from the Australian Institute of Health and Welfare relating to 2008).

The rate of hospital admissions as a result of motor vehicle accident was higher in regional areas (1.3-1.5 times) and higher again in remote areas (2.1-2.5 times) compared with Major cities. In the absence of other information we assume that the probability of TBI as a result of a motor vehicle accident (MVA) requiring hospitalisation is similar in each of these areas, which suggests that almost 40 per cent of TBIs due to MVAs occurs amongst people living outside major cities.

Compared with Major cities, the rate of hospital admission due to assault is similar in Inner regional areas, twice as high in Outer regional areas, and 4 and 9 times higher in Remote and Very remote areas respectively. Assuming that the rate of TBI also follows these patterns (ie same assumptions as in previous two paragraphs), 45 per cent of new cases of TBI due to assault occur outside major cities.

The much higher rate of TBI related to assault in remote areas is likely to reflect both the high prevalence of Aboriginal and Torres Strait Islander people in these areas (45 per cent in Very remote areas) amongst whom assault rates tend to be high. Hospital admission rates for brain injury due to assault are very much higher for Aboriginal and Torres Strait Islander people (up to 21 times higher in 4 selected jurisdictions in the six year period to 2005). Assault is responsible for about 44 per cent of injury hospitalisations among Aboriginal and Torres Strait Islander women, compared with 2.3 per cent for non-Indigenous women (Jamieson et al 2008).

These metropolitan-rural differences highlight the critical nature of the key issue in this topic area: that there is a high degree of variability in rural areas, by jurisdiction and by degree of remoteness, in the availability of specialised clinical therapy and support following discharge from hospital for people with brain injury.

[2] Definitive data are unavailable. While we have quite tight estimates of the number of people admitted to hospital with traumatic brain injury after MVA, a fall or assault each year, we do not know how these are distributed by remoteness or age. To apportion these TBI admissions, we have assumed that the rate of hospital admission with TBI amongst people admitted to hospital as a result of MVA, falls and assault is similar in Major cities and in rural areas, and that it is also similar for people under and over 65 years of age.

Towards a national approach to rural and remote brain injury rehabilitation

Inpatient treatment and rehabilitation

In the situation of a severe traumatic brain injury, the person is likely to be transferred to a large metropolitan hospital for trauma care, and subsequent inpatient brain injury rehabilitation. Depending on the severity of injury, the patient may be in the major hospital for 2-3 months. The resulting isolation from his/her community has major implications for the patient and the family.

For a person who lives in rural or remote Australia, the next stage of rehabilitation is typically provided in a regional base hospital inpatient setting, closer to home and family. The focus of the inpatient strategy is on helping the patient to gain physical strength through standing, walking and moving; to gain in speech and language; to gain in confidence about returning to the home and community; and having a purpose, role, and activity within it. Along with these therapy strategies, there is a parallel monitoring of the patient's medical status, and engaging with the family and community organisations in preparation for discharge from inpatient rehabilitation.

Post-hospital rural and remote brain injury rehabilitation

It is after the point of discharge from metropolitan or regional hospitals, when the person returns to their home and community, that availability and access to ongoing brain injury related clinical services for the person with the injury (and their family) will vary widely. This is shaped by a range of factors, including the jurisdictional model of brain injury rehabilitation (they are quite different), the insurance/funding model adopted by the State, the remoteness of the place of the person's usual residence, and ethnicity. These factors will also shape the 'rehabilitation culture' of the service provider, and hence the type of clinical service with which the person with brain injury and their family engage.

The steps of a 'typical' journey for a patient following traumatic brain injury are outlined in Table 4.

TABLE 4: 'Typical' journey for a patient following traumatic brain injury

Step 1: Trauma event or sudden medical event in rural/remote location

Step 2: Retrieval to hospital (metro/larger regional hospital, depending on severity of injury)
- trauma /emergency management
- surgery
- medical care

Step 3: Referral to inpatient rehabilitation
- medical care, physiotherapy, speech therapy, functional activity

Step 4: Discharge to community/non-hospital living setting
(destination is subject to level of care needs required)
- home and community
- supported accommodation
- high level care eg nursing home

Step 5: Long term general support services
- home care; community support services

This Paper is concerned mainly with how existing steps 4 and 5 may be improved for people in rural and remote areas, so they have access to key clinical services which will maximise their return to high-level functioning.

Revised Step 4: Discharge to transitional post-hospital brain injury rehabilitation

This phase could commence from one to three months following the injury and could extend (not necessarily continuously) for up to three years. It could include the delivery of the following services:

- assessment and review by medical rehabilitation specialist and neuropsychologist;
- clinical treatment of cognitive problems such as memory, planning, concentration, planning and problem solving, flexibility in thinking;
- clinical treatment of psycho-social problems such as depression, emotional instability, impulsive and inappropriate behaviour;
- continuing physiotherapy;
- if returning home, support to family;
- if not returning home, determining appropriate care and accommodation;
- support for vocational re-entry, non vocational activity, and leisure activity; and
- provision of case management to coordinate the array of services and organisations involved.

Towards best practice principles for rural and remote brain injury rehabilitation

Some specialist brain injury rehabilitation entities provide services to both urban and rural areas. Harradine et al (2004) found that similar rehabilitation outcomes can be achieved for rural and urban NSW residents following a severe brain injury, regardless of the distance from the metropolitan centre, despite the distances involved for rural patients and clinical staff and irrespective of the differences in the type of rehabilitation setting. This was attributed to a coordinated approach between metropolitan and rural specialist services, with a continuing clinical focus on the brain injury rehabilitation opportunities which exist following discharge from the metropolitan hospital.

Most rehabilitation is made available in metropolitan areas, with none in remote settings. Being sent to the city for rehabilitation can be a devastating experience for people from more remote areas, requiring them to be away from family and cultural support (Gething 1996).

Moving to an effective brain injury rehabilitation service capacity in rural and remote areas will involve adherence to a number of key principles. These are outlined below, along with specific strategies by which they can be achieved.

Regardless of where they live, all Australians with ABI should have access to the rehabilitation services they require

- service models must therefore be developed to ensure that there is capacity in non-metropolitan areas to respond to the needs of rural and remote people who have had a brain injury.

The continuing clinical challenges faced by rural/remote people who are discharged from hospital following sudden brain injury need to be recognised and relevant services provided

- regionally based (hub and spoke) brain injury rehabilitation services should be integrated and resourced as part of a State-wide approach;
- the specialist brain injury rehabilitation culture needs to be attuned to the clinical needs of rural and remote clients and families;
- there must be regional services, with residential capacity, providing centre-based services for clients who live distantly, and outreach services to clients living in rural and remote areas;
- access to assessment and review by a brain injury medical rehabilitation specialist must be available;
- there must also be access to assessment and treatment by a clinical neuropsychologist, neuro-physiotherapist, neuro-occupational therapist, and neuro-speech pathologist;
- there need to be ABI community workers located in smaller communities supporting clients and their families and community to implement rehabilitation strategies; and
- rural and remote services will also be provided by fly-in or drive-in staff undertaking specialist clinical assessment and review clinics.

The care model for people who have brain injury must recognise the need for seamless transition from acute and sub-acute rehabilitation services to transitional and community-based services

- training and support on brain injury must be available to families and generalist health workers;
- care coordination and support should be available to the person and family for managing life at home;

- case management should be provided to interface with external services such as insurers, places of employment, schools and community services;
- use should be made of telehealth training and support, including e-learning; and
- there will need to be access to counselling to assist the person adjust to the consequences of their injury, and to manage relationships with others.

Available service models must recognise the specific clinical needs of children, adults, and older adults with brain injury, and the specific cultural circumstances of patients such as Aboriginal and Torres Strait Islander people

- brain injury rehabilitation workers need to be located with Aboriginal health services, and brain injury rehabilitation clinicians to work collaboratively with them;
- ABI resources and training materials need to be developed for use with Aboriginal and Torres Strait Islander patients; and
- the brain injury rehabilitation needs of Aboriginal people and Torres Strait Islanders require further investigation (Mitsch 2010).

Best practice post-hospital brain injury rehab - as close to home as possible

Brain injury can happen to anyone, anytime. When a person has a serious brain injury, his/her life is changed, usually permanently. Many of the implications of the changes become apparent well after discharge from hospital care. Brain injury is likely to have major impacts on one's identity. These potentially include (but are not limited to) physical changes such as reduced mobility; speech loss to the point of incapacity to communicate; cognitive changes such as poor memory, poor concentration, planning and mood control; and challenging behavioural changes that can damage close relationships.

These clinical changes can significantly impact on the person's capacity to keep a job, to drive a vehicle, to return to school or further training, to maintain loving relationships, to make and keep friends, and to have a meaningful role in the community. They could mean the loss of a person's pre-injury identity and the need to come to a new sense of identity. This process of adaptation and movement to a new 'self' may occur over many years. It is a difficult journey which can be enhanced through specific support and resources which work well for the person with brain injury and their family. There are additional cultural issues faced by Aboriginal and Torres Strait Islander people which relate to gender, kinship and shame (Mitsch, 2011).

There is no doubting the potential capacity of rural and remote health professionals to support people with brain injury; the issue is how there can be equitable access to the required services for the people of rural and remote Australia.

Funding for the disability 'system'

The current disability system needs to be seen in the context of three major streams: those born with or having a developmental disability commencing before the age of 18; those who have a progressively increasing disability; and those who have a sudden injury or trauma that results in a disability. It is understood that the first and second group would be covered by the proposed National Disability Insurance Scheme; and the third group would be covered by the proposed National Injury Insurance Scheme. (For more on these schemes, see below.)

People born with a disability (eg cerebral palsy) or who have a developmental disability (eg as a result of encephalitis) from an early age require a range of services which are the responsibility of the various State disability service agencies. Over the past two decades funding to those

services has come primarily from the Commonwealth/State Disability Funding Agreement. Delivery of the required services has been by State departments and a wide range of non-government service providers. Many of the non-government service providers also have tax status as a charity. Services provided for this group include institutional or community based accommodation, special schooling, personal care, case management, supported employment, and support for recreation and leisure activities.

People who have a progressively increasing disability through adulthood, eg multiple sclerosis, are supported through a wide range of disability specific and generic community support organisations. Funding comes from both Federal and State sources as well as through fundraising. People in this group may periodically be admitted to hospital for inpatient rehabilitation.

In rural and remote areas, people who have had a stroke are typically managed in a regional base hospital. There they receive the range of emergency care, surgical and medical treatment, and when it is possible, inpatient rehabilitation. For people who have had a severe stroke, who are older and who do not have options for community care, nursing home or hostel placement may be alternatives.

Those who have a less severe outcome are discharged to home from the hospital. In addition to receiving outpatient rehabilitation (if available) referral can be made to generic support services such as home care and community nursing.

Productivity Commission Inquiry 2011 Report – Disability Care and Support

In 2011 the Productivity Commission released its report on National Disability Care and Support. The report considers the costs, cost effectiveness, benefits and feasibility of replacing the current arrangements with a properly funded and managed long term disability scheme. The Commission has proposed that there be two sub schemes developed: a National Disability Insurance Scheme (NDIS) to fund the current State government disability service systems; and a National Injury Insurance Scheme (NIIS). The proposed injury insurance model, similar to no-fault motor insurance models which exist in some States, appears to be supported by COAG, and has in-principle bi-partisan support.

The Productivity Commission report refers to the need to find creative ways for service provision in rural and remote Australia. The NIIS and the NDIS will have great relevance to the development of brain injury rehabilitation services in rural and remote Australia. Currently, the no-fault motor vehicle insurers in NSW and Victoria (Lifetime Care and Support, and Transport Accidents Commission respectively) fund hospital, rehabilitation and long term support for their clients who have had a traumatic brain injury. Under NIIS, their brief would be expanded to include all traumatic brain injury.

It is not yet determined how the two schemes will relate to each other, though the NIIS would be implemented as a federated model involving the participation of the current State-based motor vehicle insurance organisations. Under the NDIS these organisations would be expanded to have responsibility for all catastrophic injury, irrespective of circumstances in which the injury occurred. Currently there are four jurisdictions which do not have a no-fault motor vehicle insurance scheme in place: WA, SA, Queensland and the ACT. The Federal Government is proposing that all States adopt a no-fault insurance model of operation, so that a federated approach can be established.

The Productivity Commission report briefly identified some rural issues, including concerns about the quality, access to and range of services available in rural areas. Challenges to service provider viability, due to the small size of the market, and the limited availability of specialist services, were also noted. A number of potential strategies for overcoming these hurdles were discussed, including greater use of telehealth, fly-in visits to regional centres, and periodic visits to remote locations. However it was noted that people may need to relocate to access services effectively. Issues of servicing Indigenous communities were highlighted, though not solely from a rural and remote perspective (Productivity Commission Report, p538).

Progressing the Productivity Commission's proposals

National Advisory Groups have been established by the Government for both prospective schemes.

The NRHA has publicly welcomed the prospective development of a national approach to disability funding, and it seeks to ensure that Australians living in rural and remote Australia are not disadvantaged by living where they do. Given the current distribution of rehabilitation resources, the people of rural and remote Australia stand to benefit significantly from a national disability insurance system. One of its principles would be to deliver appropriate support to maximise a return to independent living for all people, determined only by their clinical need rather than by their location or financial means.

A nationally accessible no-fault insurance model gives certainty to the person with the injury and their family that a timely and planned approach will be supported, effectively immediately after the injury, rather than waiting for an often protracted civil case outcome, through which time there is no certainty the case will be successful, and the person with the injury can clinically regress. The insurance model will legislatively commit the additional financial resources required for provision of rehabilitation and supporting people living in rural and remote areas. It will also introduce a committed funding partner (for State Health Departments delivering brain injury rehabilitation, and commercial rehabilitation providers) which will increase the likelihood of developing a strategic approach to provision of brain injury rehabilitation services in rural and remote areas. Such an approach will be of particular benefit to service delivery in rural and remote areas, where the 'market' for services is thinner. Such market forces are of course the reason why, historically, State Health Departments have developed services in larger metropolitan centres.

To move from the current situation to one in which there is a national no-fault insurance scheme for both injury and disability will require considerable support and work. There does not appear to be any major objection to the Productivity Commission report, nor to its proposals for the proposed National Disability Insurance and National Injury Insurance Schemes. The insurance model was introduced in NSW in 2006, where it was thought there would be strong opposition from the legal profession who represented people in civil compensation claims under the previous fault-based insurance model. Such opposition did not eventuate to any large degree, possibly because of the fact that after an interim period of participation in that scheme, and where the person is subsequently deemed ineligible to continue, there is still provision for civil compensation claims.

There appears to be a historic opportunity for major reform of the nation's approach to injury rehabilitation. The government is strongly supportive of such reform, and there are strong community expectations that it needs to respond to the Productivity Commission report. There is a need to continue to build the public profile of the issue, and to ensure that rural and remote

Australia does not miss the opportunity to achieve equity in access to high quality specialised brain injury rehabilitation.

Recommendations

Adequate Disability Funding
The National Disability Insurance Scheme and the National Injury Insurance Scheme funding models should be developed with due consideration of rural and remote interests, and rural and remote practitioners must have input to the development of the schemes.

Equivalence in service access for people in rural and remote communities
People living in rural and remote Australia have the right to equivalent access to clinical opportunities for effective clinical recovery from sudden brain injury; and State health services, particularly in rural areas, must develop equitable and best practice approaches to rural brain injury rehabilitation and support services in the community.

Medicare Locals will be in a position to monitor this issue, and to champion strategies for ensuring that their area receives equitable services.

Appropriate models of care
Minimum standards should be developed for people with sudden brain injury living in rural and remote communities. These should include:

- referral for 'post hospital' specialist brain injury rehabilitation;
- referral to age appropriate and positive accommodation care settings; and
- clinical best practice service standards.

Aboriginal and Torres Strait Islander people must have access to appropriate and effective models of care.

The model of care provided must reflect the differing clinical needs of children, adults, and older adults; and should capture the opportunities for slow stream rehabilitation for people who are very severely injured.

Effective workforce strategies
The use of eHealth and telehealth for the delivery of clinical services, especially in rural areas, must be supported. Funding should be available for visiting (fly-in) clinicians, including allied health and other non-medical staff. Rural and remote practitioners should be supported by the establishment of a national brain injury health professional network, similar to that which exists for mental health.

Postgraduate education should be available for rural remote brain injury rehabilitation professionals.

Research and policy development
Support should be provided for the development of a rural and remote brain injury rehabilitation research and policy development centre.

There should be a strong awareness of and focus on the economic benefits of dealing with the issue through a disability insurance framework.

References

Access Economics Pty Ltd (2009). *The economic costs of spinal cord injury and traumatic brain injury in Australia.* The Victorian Neuro-trauma Initiative

Australian Institute of Health and Welfare 2004. *Heart, stroke and vascular diseases—Australian facts 2004.* AIHW Cat. No. CVD 27. Canberra: AIHW and National Heart Foundation of Australia (Cardiovascular Disease Series No. 22).

Australian Institute of Health and Welfare (2008) *Hospital separations due to traumatic brain injury 2004-05.* AIHW Injury Research and Statistics Series no 45

Australian Institute of Health and Welfare (2007) Disability in Australia: acquired brain injury Bulletin 55 Cat no. Aus 96 Canberra.

Australian Institute of Health and Welfare 2007. *Rural, regional and remote health: a study on mortality (2nd edition).* Rural health series no. 8. Cat. no. PHE 95. Canberra: AIHW.http://www.aihw.gov.au/publication-detail/?id=6442468054

Bradley C and Harrison J (2008). *Hospital separations due to injury and poisoning, Australia 2004–05.*Injury Research and Statistics Series Number 47. (Cat. no. INJCAT 117) Adelaide: AIHW. http://www.aihw.gov.au/publication-detail/?id=6442468186&tab=2

Harradine P, Winstanley J, Tate R, Cameron I, Baguley I, and Harris R, '*Severe Traumatic Brain Injury in New South Wales: comparable outcomes for rural and urban residents'* Medical Journal of Australia 181 (3) 130-134

Jamieson L, Harrison J, and Berry J (2008): *Hospitalisation for head injury due to assault among indigenous and non indigenous Australians, July 1999 – June 2005.* Medical Journal of Australia Vol 188 no 10; p 576-579.

Mitsch, V (2010): *Acquired Brain Injury Rehabilitation Service Delivery Project: Developing a Model of Care for Rural and Remote New South Wales.* New South Wales Agency for Clinical Innovation.

NSW Department of Health Population Health Division (2008): *The Health of the People of NSW* – Summary Report of the Chief Health Officer. Sydney

Australian Government Productivity Commission Inquiry Report, *Disability Care and Support Executive Summary* No 54, 31 July 2011

Attachment

Member Bodies of the National Rural Health Alliance

ACHSM	Australasian College of Health Service Management
ACRRM	Australian College of Rural and Remote Medicine
AGPN	Australian General Practice Network
AHHA	Australian Healthcare & Hospitals Association
AHPARR	Allied Health Professions Australia Rural and Remote
AIDA	Australian Indigenous Doctors' Association
ANF	Australian Nursing Federation (rural members)
APA (RMN)	Australian Physiotherapy Association Rural Member Network
APS	Australian Paediatric Society
APS (RRIG)	Australian Psychological Society (Rural and Remote Interest Group)
ARHEN	Australian Rural Health Education Network Limited
CAA (RRG)	Council of Ambulance Authorities (Rural and Remote Group)
CHA	Catholic Health Australia (rural members)
CRANAplus	CRANAplus – the professional body for all remote health
CWAA	Country Women's Association of Australia
FS	Frontier Services of the Uniting Church in Australia
HCRRA	Health Consumers of Rural and Remote Australia
ICPA	Isolated Children's Parents' Association
NACCHO	National Aboriginal Community Controlled Health Organisation
NRHSN	National Rural Health Students' Network
PA (RRSIG)	Paramedics Australasia (Rural and Remote Special Interest Group
PSA (RSIG)	Rural Special Interest Group of the Pharmaceutical Society of Australia
RACGP (NRF)	National Rural Faculty of the Royal Australian College of General Practitioners
RDAA	Rural Doctors Association of Australia
RDN of ADA	Rural Dentists' Network of the Australian Dental Association
RHW	Rural Health Workforce
RFDS	Royal Flying Doctor Service
RHEF	Rural Health Education Foundation
RIHG of CAA	Rural Indigenous and Health-interest Group of the Chiropractors' Association of Australia
RNMF of RCNA	Rural Nursing and Midwifery Faculty of the Royal College of Nursing Australia
ROG of OAA	Rural Optometry Group of the Australian Optometrists Association
RPA	Rural Pharmacists Australia—Rural Interest Group of the Pharmacy Guild of Australia and the Society of Hospital Pharmacists of Australia
SARRAH	Services for Australian Rural and Remote Allied Health