

EARLY INTERVENTION VOCATIONAL REHABILITATION AND EMPLOYMENT OUTCOMES FOR PEOPLE FOLLOWING SPINAL CORD INJURY IN AUSTRALIA AND NEW ZEALAND – ESTABLISHMENT OF AN AGGREGATE DATASET.

AUTHORS

GILLEAN HILTON
PHD, MPH, BOT^{1, 3}

VANETTE MCLENNAN
PHD, BHSC(RC)(HONS)²

MOHAMMAD
MOSAYED
ULLAH
PHD, MOT, BSC(OT)⁴

JAMES MIDDLETON,
MBBS, PHD,
GRADDIPEXSPSCI,
FAFRM(RACP), FACRM^{5, 6}

JO NUNNERLEY
PHD, MHEALSC
BSC(HONS) PHYSIO^{7, 8}

RACHEL HARPER
BOCCTHY⁶

TANIA GOOSSEN
MHUSERV (REHAB), BA
(PSYCH)⁹

RUTH STEWART
BA, MOCCTHY¹

ANDREW HALL
BCOM(AG)¹⁰

¹Austin Health, ²Griffith University, ³Monash University, ⁴La Trobe University, ⁵University of Sydney, ⁶Royal Rehab, ⁷Burwood Academy of Independent Living, ⁸University of Otago, ⁹Spinal Life Australia, ¹⁰New Zealand Spinal Trust

INTRODUCTION

Access to population data and common platforms for data comparison and exchange is under increasing focus within international spinal cord injury (SCI) research.⁽¹⁾

Over the last 15 years dedicated and targeted vocational rehabilitation interventions have been delivered to people with SCI in Australia and New Zealand, as early as possible following injury. Demographic, injury and employment data have been collected to varying extents for participants of these emerging programs. Similarly, some level of data pertaining to vocational intervention has also been collected. A model (Figure 1) for early intervention vocational rehabilitation (EIVR) has been previously published.⁽²⁾

With emerging evidence for the effect of early intervention in vocational rehabilitation,^(2, 3) clearly defining what constitutes an ideal intervention/s is necessary⁽⁴⁾ and how to aggregate and generalise findings across broader populations.⁽¹⁾

The aim of this project was to collaboratively develop a deidentified, aggregate dataset of vocational rehabilitation and employment outcomes after SCI. This enables exploration of a larger, cross-jurisdictional sample, as well as the identification of recommendations for the potential of an international minimum dataset.

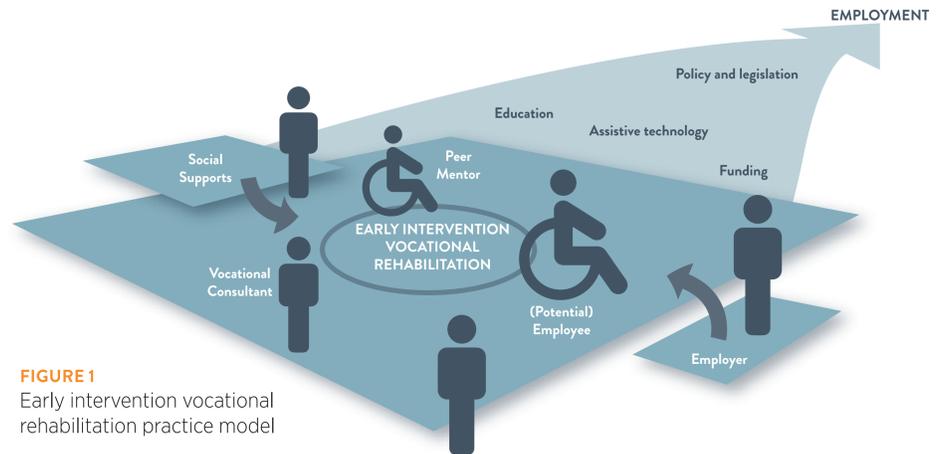


FIGURE 1
Early intervention vocational rehabilitation practice model

METHOD

Previously collected deidentified longitudinal cohort data from spinal injury units across Australia and New Zealand have been extracted, collated and analysed. Researchers worked cooperatively with clinicians, supported by the Spinal Cord Research Hub (SCoRH) platform, to compare and contrast datasets, with cross-referencing to international literature. A minimum dataset was identified for variables relating to pre-injury vocational history, demographics, vocational interventions and employment outcomes following injury.

Deidentified retrospective source data (collected under ethics protocol or as part of standard patient data collection) were aggregated into the dataset. Equivalent cross-jurisdictional eligibility included sustaining a new SCI (AIS A-D), and receiving Early Intervention Vocational Rehabilitation (EIVR) in one of the participating facilities, as per Table 1: Christchurch, New Zealand from 2006; Auckland, New Zealand from 2008; Victoria, Australia from 2010; New South Wales, Australia from 2011; Queensland, Australia from 2016.

TABLE 1: Australian and New Zealand Early Intervention Vocational Rehabilitation Services for People with Spinal Cord Injury

UNIT	FTE*	NUMBER OF BEDS	GEOGRAPHICAL CATCHMENT	EIVR SERVICE COMMENCED	DATA AVAILABLE
Christchurch, NZ	0.75	Christchurch (ICU acute beds); Burwood (26 rehab beds)	South of Waikato region and those patients on vent.	2003	2003 - 2019
Auckland, NZ	1.8	Middlemore (4 acute beds); Otara (20 rehab beds)	All areas North of and including the Waikato region.	2006	2006 - 2019
Sydney NSW, AU	2.6	Royal Rehab (20 rehab beds); Royal North Shore Hospital (18 acute beds); Prince of Wales Hospital (10 acute/20 rehab beds)	NSW	2011	2011 - 2013
Melbourne VIC, AU	1.0	Austin (10 acute beds); Royal Talbot Rehabilitation Centre (20 rehab beds); Caulfield Hospital (10 rehab beds)	VIC + Southern NSW + Tasmania	2010	2010 - 2013
Brisbane QLD, AU	1.4	Princess Alexandra Hospital (6 acute/34 rehab beds)	QLD + Northern NSW + Eastern NT	2016-2019	2017 - 2019

*Full Time Equivalent

RESULTS

Fifty-two variables were included in the final code book. Where less than two sites had data available against a variable, it was not included in the analysis. Sample participant characteristics are displayed in Figures 2-3. Table 2 presents a recommended minimum dataset for employment, injury and demographic data. A minimum dataset for vocational interventions is under development.

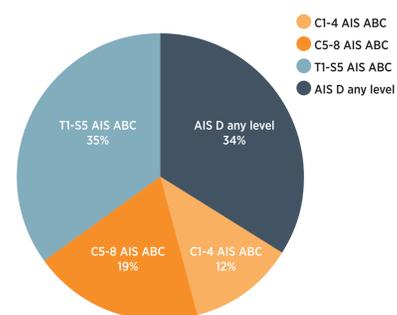


FIGURE 2
Neurological level of injury

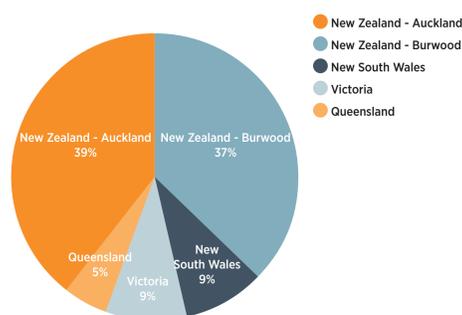


FIGURE 3
Source of data

DISCUSSION

An Australian and New Zealand dataset has now been developed and provides a comparative picture of the participants with SCI who receive EIVR in the different settings. The information collected regarding both longitudinal employment outcomes and characteristics of the return to work (if achieved) varied greatly across sites. These inconsistencies across sites meant it was difficult to ascertain if a participant had returned to the labour force or not, the time to (re)commencement of work, number of hours worked, type of employment, or whether employment tenure was sustained across the dataset. The revised fields identified in the methods section of separating out the mode, employment contract and hours of work, and history of employment since SCI sustained, should address this issue in future datasets. This is documented in Table 2.

We were unable to analyse data on employment outcome, vocational interventions and service usage as this data was not collected consistently or reliably across sites. However, this limitation has initiated work to identify valid categorisation of vocational intervention for future data collection. This will ultimately inform future research and practice.

Similarly, limitations around the integrity of vocational outcome data has stimulated discussion and decisions regarding optimal data collection and resulted in recommendations for the future minimum dataset.

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TABLE 2: Minimum dataset spinal cord injury and employment

VARIABLE	CODING INSTRUCTION - AMALGAMATE TO WHERE MOST DATA AVAILABLE
INJURY AND DEMOGRAPHIC DATA	
Date of admission	dd/mm/yyyy
Onset spinal cord injury or dysfunction	dd/mm/yyyy
Gender	1 = male; 2 = female; 3 = other
ASIA Impairment Scale	A, B, C, D, E
Neurological level of injury	raw score
Impairment group for Spinal Cord Journal	1 = CI-4 AIS ABC; 2 = C5-8 AIS ABC; 3 = TI-S5 AIS ABC; 4 = AIS D any level; 5 = vent dep any level
Functional Independence Measure_Adm_SubAc	total motor and cognitive FIM score on admission to subacute
Functional Independence Measure_Dcg_SubAc	total motor and cognitive FIM score on discharge from subacute
Etiology	1 = traumatic land transport; 2 = traumatic fall; 3 = traumatic sports/recreation; 4 = traumatic violence/self harm; 5 = traumatic work related; 6 = non traumatic
Living arrangement	free text
Date of birth	dd/mm/yyyy
Age at injury	age in years calculated from injury date and date of birth
Age group for Spinal Cord Journal	1 = 0-15; 2 = 16-30; 3 = 31-45; 4 = 46-60; 5 = 61-75; 6 = 76+
Funding	1 = compensable/insured work related; 2 = compensable/insured non work related; 3 = non compensable/uninsured (all require jurisdictional definition)
Marital status	1 = in a relationship (married, de facto, living with partner); 2 = not in a relationship
Aboriginal or Torres Strait Islander	1 = Aboriginal; 2 = Torres Strait Islander; 3 = not applicable (remove variable in non-Australian context)
Postcode	raw score
Region	1 = regional/remote; 2 = metro
Ethnicity	1 = NZ/Euro; 2 = Māori; 3 = Pacifica; 4 = NZ/Asian; 5 = other (adjust or remove as relevant in different jurisdiction)
HOSPITAL PATHWAY	
Admission to subacute rehab	dd/mm/yyyy date of admission to subacute rehab
Discharge from spinal injury unit	dd/mm/yyyy date of discharge from spinal inpatient unit (acute or subacute) to community setting
Length of stay total	# days calculate from admission dates
Length of stay subacute rehab	# days calculate from admission dates
VOCATIONAL REHABILITATION (VR) DATA	
Date of VR commencement	dd/mm/yyyy
Time between date of injury and VR commencement	# days calculate from date of VR commencement and date of injury
Number of episodes/contacts	raw score
Last episode/cessation of EIVR/inactive	dd/mm/yyyy
Duration of EIVR engagement	raw score days
PRE INJURY EMPLOYMENT DATA	
In the labour force	1 = yes; 2 = no
Primary employment role (job in which most hours worked)	free text
Mode of employment	1 = employee; 2 = self-employed
Type of employment as employee	1 = permanent; 2 = time limited contract; 3 = casual
Hours of work (average) per week	raw score hours
Highest education level attained pre-injury	1 = postgraduate degree level; 2 = graduate diploma and graduate certificate level; 3 = bachelor degree level; 4 = advanced diploma and diploma level; 5 = certificate level; 6 = secondary education; 7 = primary education; 8 = pre-primary education; 9 = other education
Industry - pre injury employment	1 = manager; 2 = professional; 3 = community service worker; 4 = sales worker; 5 = clerical/administration; 6 = technician/trades worker; 7 = machinist/driver; 8 = labourer
Primary source of income at time of injury	1 = wages/salary/independent income (including sick leave); 2 = welfare / Income support payment; 3 = personal injury insurance
Primary source of income at discharge	repeat above categories
POST INJURY EMPLOYMENT DATA - AT DISCHARGE	
In the labour force	1 = yes; 2 = no
Primary employment role (job in which most hours worked)	free text
Mode of employment	1 = employee; 2 = self-employed
Type of employment as employee	1 = permanent; 2 = time limited contract; 3 = casual
Hours of work (average) per week	raw score hours
POST INJURY EMPLOYMENT DATA - AT 12 MONTHS POST DISCHARGE	
In the labour force	1 = yes; 2 = no
Primary employment role (job in which most hours worked)	free text
Mode of employment	1 = employee; 2 = self-employed
Type of employment as employee	1 = permanent; 2 = time limited contract; 3 = casual
Hours of work (average) per week	raw score hours
Experience of employment since injury	1 = yes; 2 = no
Mode of transport post injury	1 = able to drive independently; 2 = someone else (family, friends, supports) usually drive; 3 = use public transport; 4 = taxi
Pursuing legal claim	1 = yes; 2 = no
Mobility aids used	free text
Return to work scenario	1 = same job same employer; 2 = same job different employer; 3 = different job same employer; 4 = different job different employer