

Do outreach brain injury services improve outcome in adults with a brain injury compared with the provision of information?

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Clinical Question

Do outreach brain injury services improve outcome in adults with a brain injury compared with the provision of information only?

Clinical Scenario

Rural brain injury units, as part of the NSW statewide Brain Injury Rehabilitation Program, provide outreach services to individuals with a traumatic brain injury. What evidence is there that this model of service delivery improves outcome, compared with a model of service delivery that provides information only?

Summary of Key Findings

- ◆ 4 studies were found that met the inclusion/exclusion criteria
- ◆ 1 RCT was retrieved and appraised

Clinical Bottom Line

The provision of outreach community base rehabilitation services to clients with a brain injury may improve practical functioning in terms of psychological wellbeing and activities of daily living. No significant improvements were made in the areas of socialisation and employment (NB- majority of participants were not employed prior to participation in the study). It is acknowledged that there are a significant number of variables outside the control of the client and / or therapist regarding both employment and socialisation (e.g. accessibility of the environment, availability of opportunities), impacting on these results.

Limitation of CAT

This summary of evidence has been individually prepared and has not undergone a process of peer review.

Methodology

Search Strategy

Using the levels of evidence as defined by the NHMRC (2000), the search strategy aimed to locate the following study designs:

Level I	Systematic Reviews and Meta-analyses;
Level II	Randomised Controlled Trials;
Level III	Controlled trials, cohort or case-control analytic studies;
Level IV	Case series: Post – test only, Pre - test/Post – test;
Level V	Expert opinion including literature/narrative reviews, consensus statements, descriptive studies and individual case studies.

A search was also conducted for clinical practice guidelines based on these levels of evidence.

Search Terms

Patient/client: traumatic brain injur*, acquired brain injur*

Intervention: outreach, outreach services, community based

Outcome: functional, independent living skills, activities of daily living

Comparison: information, education, follow up

Sites/Resources Searched

- National Health and Medical Research Council
- New Zealand Guidelines Group
- National Guidelines Clearinghouse
- UK Guidelines: National Electronic Library for Health, Clinical Guidelines Database
- Scottish Intercollegiate Guidelines Network (SIGN)
- CINAHL
- DARE
- EMBASE
- MEDLINE
- PubMed
- Cochrane

Inclusion/Exclusion Criteria

Inclusion:

- Studies that involve outreach brain injury services
- Studies that involve community based brain injury services
- Studies that involved providing information/education as a service delivery model
- Studies in English

Exclusion:

- Studies involving inpatients with a brain injury

Results

Results of Search

4 relevant studies were located and categorised as follows:

Table 1. Study designs of articles retrieved by search

Methodology of Studies Retrieved	Number Located	Source of Evidence
Clinical Practice Guidelines (Evidence Based)	0	N/A
Systematic Reviews or Meta – analyses	0	N/A
Randomised Controlled Trials	1	PubMed; EMBASE
Controlled trials, cohort or case-control analytic studies	1	EMBASE - 1
Case series: Post – test only, Pre - test/Post – test	0	N/A
Expert opinion including literature/narrative reviews, consensus statements, descriptive studies and individual case studies	2	Embase –1 CINAHL - 1

Specific Results

The randomised controlled trial was the only study critically appraised for this summary, as it represent higher levels of evidence. The study and appraisal findings are summarised in Tables 2.

Table 2. Description and Appraisal of RCT by Powell et al (2002)

Objective of Study

Evaluation of multi-disciplinary community based outreach rehabilitation for adults 16 – 65 years old after severe traumatic brain injury (TBI).

Intervention Investigated

- Outreach treatment group (n=54) received individualised programs within their own homes or other community settings for 2-6 hours per week.
- Intervention programs to the outreach group were based on “contractually organised goal setting” for a period specified over 6-12 weeks.
- Information group (n=56) were visited once at home and provided with information detailing alternative resources.

Primary Outcome Measures

- Barthel Index
- Brain injury community rehabilitation outcome-39 (BICRO-39)
- Functional independence measure and functional assessment measure (FIM+FAM)
- The hospital anxiety and depression scale (HADS- in a subgroup of 46)

Results

- *Barthel* : 60% of all participants scored at maximum at intake.
: Improvement in total score was greater for outreach participants than for information group (p<0.05)
- *BICRO-39* : 70% scored within 0.5 points of floor (total independence) for personal care and 75% within 0.5% of ceiling (no activity) for employment at intake. There were greater improvements in total score for the outreach group compared to the information group (statistically significant result p<0.05).

: For the BIRCO 39 subscales the outreach group showed significantly greater gains in self organisation (p<0.025) and psychological well-being and (p<0.05). There was a trend towards greater improvement in mobility and self-care by the outreach group, but the results were not statistical significance. There were no differences for socialising and employment.
- *FIM+FAM* : Greater than half of all participants scored at maximum at intake for personal care, mobility and communication.

: Strong trend (although not statistically significant) for outreach to perform better on the personal care and cognitive subsets (p=0.06 and p=0.09 respectively) compared with information group.
- *HADS* : No differences between the 2 groups.

Authors Conclusions:

- Structured multidisciplinary rehabilitation delivered in community settings can improve social functioning after severe brain injury
- Improvements were observed in practical functioning (mobility and self organisation), independence in ‘normal’ activities and in aspects of psychological functioning. These were identified as possible key targets for outreach rehabilitation. Improvements were still detected at follow-up (i.e. between 18 and 40 months after treatment allocation).

Reviewer Appraisal Comments

Validity (Methodology, rigour, selection, biases)

- Randomisation occurred on individual basis – described in sufficient detail
- Single blind study - treating therapist’s were not blinded
- Follow up assessor was blinded
- Clients inadvertently gave out information eluding which group they had been assigned to, leading to flawed blinding and potential bias
- Unable to control for co-interventions
- Inclusion and exclusion criteria for selection to the study listed
- Ethical approval for the trial documented
- Contact with an author (J. Powell) elicited further clarification of outreach services provided: these were ‘hands – on’ type services, not including case management
- Drop out rates documented and accounted for
- Groups were well matched

Results (Favourable or unfavourable, specific outcomes of interest, size of treatment effect, stat. and clinical significance)

- Outreach services require to be described in more detail (regarding the actual interventions provided) in order for this implemented into clinical practice. This would also enable determination of cost effectiveness of treatment.
- Number of clients working prior to injury requires to be documented
- Insufficient sample size to extrapolate to current case load
- The authors attempted to measure clinical significance of the results (of the BIRCO 39) by calculating a maximum gain index for each participant and arbitrarily assigning an improvement score to compare with the actual scores obtained. The maximal gain index was calculated for each participant to demonstrate which subscale they showed greatest improvement on. This was done, as there was no current data available at the time of the study, on the magnitude of the gains that could be anticipated for each participant.

Articles critically appraised for this summary of evidence

Level II Evidence

Powell J. Heslin J. Greenwood R. (2002) Community based rehabilitation after severe traumatic brain injury: A randomised controlled trial. *Journal of Neurology, Neurosurgery & Psychiatry*, 72(2), 193-202

Related articles not included in the appraisal

Davies C. Hawley C. Stilwell J. Stilwell P. (2000) Views of service changes in UK brain injury rehabilitation, *British Journal of Therapy & Rehabilitation*, 7(12):521-4,

Powell J. (1999) Assessment of rehabilitation outcomes in community/outreach settings, *Neuropsychological Rehabilitation*, 9(3-4), 457-471