Economic evaluations of acquired brain injury (ABI) rehabilitation interventions: a systematic review

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Review question

What is the evidence of the cost-effectiveness of rehabilitation interventions for Acquired brain injury?

Searches

We will search the following databases;PubMed, CINAHL (EBSCO), MEDLINE (Ovid), Embase, Web of cience, EconLit, NHS Economic Evaluation Database (NHSEED).Papers from earliest Jan 2000 to March 2020 and full papers available in English will be included. This time frame has been selected to include the growing interest in neurorehabilitation in the last two decades and generate adequate data for analysis.

Variations of the following search terms will be used ‘‘Neurorehabilitation’ AND ‘Acquired Brain Injury’ AND ‘ ('cost effectiveness analysis' OR 'cost utility analysis' OR 'cost benefit analysis' OR 'cost consequence analysis' OR 'economic evaluation')

Types of study to be included

Included:

1. Any type of economic evaluation study i.e. cost-effectiveness analysis, cost utility analysis, cost consequence analysis, cost minimisation analysis and cost benefit analysis.

2. Economic evaluation published in a peer-reviewed scientific journal

Excluded:

1. Cost of illness studies

2. Cost analysis studies

3. Studies without a comparator

4. Letters, editorials, unpublished grey literature, guidelines, conference proceedings, case reports, methodology

Condition or domain being studied

Acquired brain injury (ABI) is an injury to the brain that is not hereditary, congenital, degenerative or induced by birth trauma; it occurs after birth (Park and Ingles, 2001). ABI includes both brain injuries with a traumatic cause and a non-traumatic cause, like stroke (Mollayeva et al., 2017).Less than 30 years ago more than 50% of all individuals diagnosed with ABI died (Vandiver et al., 2013). Fortunately, survival rates have

increased in recent years largely due to advances in rehabilitation intervention programs. Whilst a number of interventions offered for ABI, the cost-effectiveness of such interventions remains unclear. More information is therefore required to understand which types of rehabilitation intervention programs provide best value for the money for people with ABI (Stolwyk et al., 2019). In this review, we will examine the cost-effectiveness of ABI rehabilitation interventions

Participants/population

Inclusion criteria:

1. Adults (18+ years of age) with an acquired brain injury from any source;

2. Any type of economic evaluation study i.e. cost-effectiveness analysis, cost utility analysis, cost consequence analysis, cost minimization analysis and cost benefit analysis.

Exclusion Criteria:

1. Studies including persons under the age of 18 due to the brain not being fully mature before this age, therefore being unable to rule out natural development versus recovery;

2. Studies where participants are in receipt of therapies that were not neurorehabilitation-focused.

3. Articles that do not study human subjects

4. Editorials and letters, or Discussion/ expert opinion papers

5. Study/ trial protocol with a planned economic evaluation in parallel.

6. Cost of illness studies

Intervention(s), exposure(s)

Interventions for Acquired brain injury rehabilitation

Included:

- Any intervention with a focus on rehabilitation except drug trails

- Any study setting (e.g- Hospital based, community based or home based etc) which compared two or more treatments with the attention of improving ABI symptoms will be included.

Comparator(s)/control

Comparators can be anything including standard care, usual care or no care/intervention at all. Comparators can also be different types of interventions also with a focus of rehabilitation.

Context

Any ABI economic evaluation in any setting

Main outcome(s)

Studies reporting the mean costs and mean outcomes will be included in this review. Costs could be measured in any currency, while patient outcomes could be summarised using any health outcome measure (e.g. quality-adjusted life-years, QALYs or Disability-Adjusted Life Years (DALYs).). Studies solely investigating patient outcomes, or only treatment costs will be excluded.

For cost-effectiveness and cost utility analysis, the outcomes will be Incremental Cost-effectiveness Ratio (ICER), Net Monetary Benefit (NMB) or Net Health Benefit (NHB) as well as its components (costs and outcomes). For cost benefit analysis, the outcomes measures will be cost.

* Measures of effect

Not applicable

Additional outcome(s)
None

* Measures of effect

None

Data extraction (selection and coding)
The aforementioned keywords will be used to conduct the search on the previously listed search engines. Study records will then be imported to EndNote reference management software, organised and duplicates removed.

The de-duplicated file will be imported to Covidence software to streamline the screening process, allowing multiple review team members to work simultaneously. Titles of studies will be screened independently by two review authors to identify studies that potentially meet the inclusion and exclusion criteria outlined above.

The filtered articles will then be screened by their abstracts. The full text of these potentially eligible studies will be retrieved and will be independently assessed for eligibility by two review team members. Any disagreement between reviewers regarding study eligibility will be resolved through discussion and consensus, while a third reviewer will be sought for final decision if consensus is not met. A standardised form will be used to extract relevant data from the included studies.

Extracted information will include, for example, study setting; study population and participant demographics and baseline characteristics; details of the intervention and control conditions; study methodology; recruitment and study completion rates; cost items, health outcomes, instrument used to measure the health outcomes.

Moreover, information regarding cost-effectiveness acceptability curve and cost-effectiveness plane will be retrieved from the selected articles.

Risk of bias (quality) assessment
Quality assessment will be performed by two reviewers and cross-checked between the reviewers. Any disagreements between reviewers will be resolved through a discussion or with a third reviewer. We will use the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) for economic evaluations and the Philips' checklist for economic models to assess the quality of included studies.

We will follow the Cochrane Collaboration tool for assessing risk of bias for randomised trials as outlined in Chapter 8 of the Cochrane Handbook for Systematic Reviews of Interventions (Higgins 2011).

Strategy for data synthesis
Tables for primary studies will present summary data on participants, intervention used, type and methods used for economic evaluation, and settings. The findings from individual studies will be summarised narratively. Cost figures will be extracted and converted into Euros for presentation using the 2020 World bank price index for each country and the purchasing power parity conversion factor for 2020 (https://data.worldbank.org/indicator/ny.gdp.mktp.pp.cd).

Analysis of subgroups or subsets
Subgroup analysis will not be performed.

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Type and method of review
Cost effectiveness, Intervention, Prevention, Systematic review

Anticipated or actual start date
02 June 2020

Anticipated completion date
30 November 2020

Funding sources/sponsors
No funding to declare

Conflicts of interest
none
None known

Language
English

Country
Ireland, Northern Ireland

Stage of review
Review Ongoing

Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Brain Injuries; Cost-Benefit Analysis; Humans; Medicine

Date of registration in PROSPERO
25 June 2020

Date of first submission
20 May 2020

Stage of review at time of this submission

Stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	No

Revision note
One new team member added.

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

25 June 2020
28 September 2020
26 February 2021