6 Appendices

6.1 Appendix 1 – Scope
6.2 Appendix 2 – Structured clinical questions and review questions
6.3 Appendix 3 – Search strategy
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6.1 Appendix 1 – Scope

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

SCOPE

1 Guideline title

Critical illness: rehabilitation after a period of critical illness

1.1 Short title

Critical illness rehabilitation

2 Background

a) The Department of Health has asked the National Institute for Health and Clinical Excellence (‘NICE’ or ‘the Institute’) to develop a short clinical guideline on rehabilitation after a period of critical illness requiring a stay in an intensive care unit (ITU), for use in the NHS in England and Wales (see appendix B). This guideline will provide recommendations for good practice that are based on the best available evidence of clinical and cost effectiveness.

b) The Institute’s clinical guidelines support the implementation of National Service Frameworks (NSFs) in those aspects of care for which a Framework has been published. The statements in each NSF reflect the evidence that was used at the time the Framework was prepared. The clinical guidelines and technology appraisals published by the Institute after an NSF has been issued have the effect of updating the Framework.

c) NICE clinical guidelines support the role of healthcare professionals in providing care in partnership with patients, taking account of their individual needs and preferences, and ensuring that patients (and

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
their carers and families, if appropriate) can make informed decisions about their care and treatment.

3 Clinical need for the guideline

a) More than 100,000 people are admitted into critical care units in the UK each year. Many of these people experience significant and persistent problems with physical, non-physical (such as psychological or cognitive) and social functioning after discharge from critical care. This morbidity is frequently unrecognised and, when identified, may not be appropriately assessed or managed.

b) Physical morbidity, consisting of muscle loss and reduction of neuromuscular function, is universal following a period of critical illness. It is estimated that patients who require intensive care will lose 1% of their muscle mass per day of critical illness. Consequently, delayed motor recovery is common after discharge from critical care, particularly in patients who required prolonged mechanical ventilation (for 7 days or longer). Physical recovery is often slow, being measured in months rather than weeks. Some patients may also have difficulty in swallowing as a result of muscle weakness or surgery such as tracheostomy.

c) Non-physical morbidity such as psychological morbidity and cognitive dysfunction are also common after a period of critical illness: it has been reported that 1 in 10 critically ill patients develop severe psychological problems, with attendant problems in relatives/carers. These problems include anxiety, depression and post-traumatic stress disorder (PTSD). There are many reasons for psychological distress following critical illness. These include being unable to recall events accurately, having difficulty in communication, delusional memories, the choice of sedative used in treatment and previous psychological disease. Early recognition
and management of psychological problems may shorten the recovery period.

d) Up to three quarters of critically ill patients also have impairments in cognitive function – particularly memory, attention and problem solving – following critical illness. These impairments are frequently undiagnosed. Although in some cases the cause of the problem (for example, brain trauma) can be easily identified, for the majority of patients the reasons for the impairments are less well understood.

e) Rehabilitation strategies after discharge from critical care may help to improve patient outcomes. Such strategies may also reduce the length of hospital stay after discharge from critical care, minimise hospital readmission rates and decrease the use of primary care resources. Furthermore, these strategies could help patients return to their previous activities sooner. The time taken to return to previous activities depends on the reason for critical care admission and is typically between 9 and 12 months after hospital discharge.

f) Currently, rehabilitation strategies after a period of critical illness tend to focus on physical function (patient mobility) and are limited to inpatient settings. However, multidisciplinary rehabilitation strategies, such as intensive care follow-up clinics, are increasingly being established in a number of UK hospitals. These strategies differ in nature, but all aim to support patient recovery in the year following discharge from critical care.

g) There is evidence to suggest that structured, self-directed rehabilitation strategies following critical illness can aid physical recovery and help people cope with the physical and psychological effects associated with critical illness. The composition of these
structured, self-directed rehabilitation strategies varies widely. They may include manuals that provide general advice, techniques to overcome cognitive dysfunctions and various exercise programmes.

h) To deliver individualised rehabilitation it is necessary to have accurate information on the physical and non-physical problems faced by each patient. There are a number of tools that can provide this information, such as the Barthel Index, Hospital Anxiety and Depression scale and the Impact of Event scale.

i) There is currently no evidence-based guideline available in England and Wales that addresses the identification, timing and nature of effective interventions to manage the physical and non-physical morbidity associated with critical illness.

4 The guideline

a) The guideline development process is described in detail in three publications that are available from the NICE website (see ‘Further information’). ‘The guideline development process: an overview for stakeholders, the public and the NHS’ describes how organisations can become involved in the development of a guideline. ‘The guide to the short clinical guideline process’ and ‘The guidelines manual’ provide advice on the technical aspects of guideline development.

b) This document is the scope. It defines exactly what this guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health.

c) The areas that will be addressed by the guideline are described in the following sections.
4.1 Population

4.1.1 Groups that will be covered
d) Adults with rehabilitation needs as a result of a period of critical illness that required level 2 and level 3 Critical Care.

4.1.2 Groups that will not be covered
a) Adults receiving palliative care.
b) Clinical subgroups of patients whose specialist rehabilitation needs are already routinely assessed and delivered as part of their care pathway (for example, patients who received critical care as part of an elective pathway and who did not develop an unanticipated, ongoing critical illness, and in areas where published guidelines already exist such as head injury, myocardial infarction and stroke - see section 4.6.1).

4.2 Healthcare settings
a) Critical Care Areas.
b) General medical and surgical wards, and other inpatient and community settings where rehabilitation strategies may be delivered following a period of critical illness.

4.3 Clinical management
a) Identification and assessment of adult patients who are at risk of physical and non-physical morbidities, such as psychological, and cognitive dysfunction, resulting from, critical illness and treatment in critical care. This will include an evaluation of diagnostic screening and assessment tools that have been developed and/or validated in those who have had a period of critical illness. Where the evidence allows, recommendations will be made on those sub-groups of patients who have a greater potential to benefit (for example, NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
patients who have undergone significant periods of mechanical ventilation) or who may have specific needs (for example, older people).

b) Optimum timing for assessment and intervention to treat physical and non-physical dysfunction including psychological and cognitive dysfunction associated with critical illness.

c) Rehabilitation strategies to support adults identified as being at risk of physical and non-physical morbidities, including psychological, and cognitive dysfunction, after critical illness. The evidence that will be reviewed relates to rehabilitation strategies delivered to adult patients who have developed physical, psychological and cognitive dysfunction associated with their critical illness. It is also acknowledged that it is important for rehabilitation strategies to be flexible to the individual patient's needs. Where available, evidence on the role of the carer, and interventions aimed at the carer, will be reviewed.¹

d) The information and support needs of adults who have had a period of critical illness and treatment in critical care.

e) The specific information and support needs of people who care for adults who have been in critical care.

f) The Guideline Development Group will take reasonable steps to identify ineffective interventions and approaches to care. If robust and credible recommendations for re-positioning the intervention for optimal use, or changing the approach to care to make more efficient use of resources, can be made, they will be clearly stated. If the resources released are substantial, consideration will be

¹ The guideline will identify the effective components of rehabilitation strategies. It will not address the service configuration and delivery of the strategies.
given to listing such recommendations in the 'Key priorities for implementation' section of the guideline.

4.4 **Key outcome measures**

a) Mortality.

b) Morbidity (including physical functional status, psychological impairments and cognitive dysfunction).

c) Readmission to hospital (as a result of physical or non-physical morbidities)

d) Hospital length of stay.

e) Health-related quality of life

4.5 **Economic aspects**

In line with 'The guidelines manual', developers will take into account both clinical and cost effectiveness. The preferred unit of effectiveness is the quality-adjusted life year (QALY), and costs in the 'reference case' will be from an NHS and Personal Social Services (PSS) perspective. Further detail on the methods can be found in 'The guidelines manual'.

4.6 **Status**

4.6.1 **Scope**

This is the final draft of the scope.

Related NICE guidance

Anxiety: management of anxiety (panic disorder, with or without agoraphobia, and generalised anxiety disorder) in adults in primary, secondary and community care. NICE clinical guideline CG22 (2004)

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)

Dementia: Supporting people with dementia and their carers in health and social care. NICE clinical guideline CG42 (2006)


Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. NICE clinical guideline CG32 (2006)


Stroke: The diagnosis and acute management of stroke and transient ischaemic attacks. NICE clinical guideline (to be published in July 2008)

Delirium: diagnosis, prevention and management of delirium. NICE clinical guideline (to be published in April 2010).

4.6.2 Guideline

The development of the guideline recommendations will begin in July 2008.

5 Further information

Information on the guideline development process is provided in:

- ‘The guideline development process: an overview for stakeholders, the public and the NHS’
- ‘The guide to the short clinical guideline process’
- ‘The guidelines manual’.

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
These are available as PDF files from the NICE website (www.nice.org.uk/guidelinesmanual). Information on the progress of the guideline will also be available from the website.
Appendix A: Structured clinical questions

Questions on:

- The evaluation of screening and/or assessment tools for identifying adult patients receiving level 2 or 3 Critical Care at risk of physical and non-physical morbidities (including psychological and cognitive dysfunction) following a period of critical illness.

- The identification of the optimal timing for screening and/or assessment for physical and non-physical (psychological and cognitive) dysfunction associated with critical illness.

- The clinical effectiveness and cost-effectiveness of rehabilitation strategies for adult patients who have developed physical and non-physical morbidities (including psychological and cognitive dysfunction) following a period of critical illness requiring level 2 or 3 Critical Care.

- The identification of the optimal timing for rehabilitation strategies to address physical and non-physical morbidities (including psychological and cognitive dysfunction) associated with critical illness.

- The specific information and support needs of carers or families of adult patients who have developed rehabilitation needs following a period of critical illness requiring level 2 and level 3 Critical Care.
Appendix B: Referral from the Department of Health.

The Department of Health asked NICE:

'To prepare a clinical guideline on the rehabilitation of adults after a period of critical illness requiring a stay on ITU.'
6.2 Appendix 2 – Structured clinical questions

Structured Clinical Question 1:
The evaluation of screening and/or assessment tools for identifying adult patients receiving critical care at risk of physical and non-physical morbidity (including psychological and cognitive dysfunction) following a period of critical illness.

Review Question 1:
What are the clinical/test utilities of screening and assessment tools (developed and/or modified for critical care population) in identifying critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive dysfunction associated with their treatment experience and critical illness?

Structured Clinical Question 2:
The identification of the optimal timing for screening and/or assessment for physical and non-physical morbidity (including psychological and cognitive dysfunction) associated with critical illness.

Review Question 2:
When is the optimal time for screening and assessing critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive dysfunction associated with their treatment experience and critical illness?

Structured Clinical Question 3:
The clinical effectiveness and cost-effectiveness of rehabilitation strategies for adult patients who have developed physical and non-physical morbidity (including psychological and cognitive dysfunction) following a period of critical illness requiring critical care.

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
**Review Question 3:**
What are the clinical effectiveness and cost-effectiveness of different rehabilitation strategies/programmes for adult patients who have developed physical and non-physical morbidity including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?

**Structured Clinical Question 4:**
The identification of the optimal timing for rehabilitation strategies to address physical and non-physical morbidity (including psychological and cognitive dysfunction) associated with critical illness.

**Review Question 4:**
When is the optimal time for adult critical care rehabilitation? This includes:
- Does early rehabilitation during critical care reduce subsequent risk of adult patients developing physical and non-physical morbidities following a period of critical illness and associated with their treatment experience in critical care?
- When is the optimal time for initiating or delivering rehabilitation strategies/programmes to adult patients with physical and non-physical morbidities including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?

**Structured Clinical Question 5:**
The specific information and support needs of adult patients and their carers or families who have developed rehabilitation needs during and following a period of critical illness requiring critical care.

**Review Question 5:**
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
What information and support needs are viewed as important by adult patients and their carers or family who have developed rehabilitation needs during and following a period of critical illness requiring critical care?

6.3 Appendix 3 – Search strategy

Medline search strategies for Rehabilitation guideline

Search strategies

Scoping searches
Scoping searches were undertaken on the following websites and databases (listed in alphabetical order) in January 2008 to provide information for scope development and project planning. Browsing or simple search strategies were employed.

<table>
<thead>
<tr>
<th>Guidance/guidelines</th>
<th>Systematic reviews/economic evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• American Association of Critical Care Nurses</td>
<td>• Clinical Evidence</td>
</tr>
<tr>
<td>• Audit Commission</td>
<td>• Cochrane Database of Systematic Reviews (CDSR)</td>
</tr>
<tr>
<td>• Australian and New Zealand Intensive Care Society</td>
<td>• Database of Abstracts of Reviews of Effects (DARE)</td>
</tr>
<tr>
<td>• British Association for Emergency Medicine</td>
<td>• Health Economic Evaluations Database (HEED)</td>
</tr>
<tr>
<td>• British Association of Critical Care Nurses</td>
<td>• Health Technology Assessment (HTA) Database</td>
</tr>
<tr>
<td>• Canadian Association of Critical Care Nurses</td>
<td>• NHS Economic Evaluation Database (NHS EED)</td>
</tr>
<tr>
<td>• Canadian Critical Care Society</td>
<td>• NHS R&amp;D Service Delivery and Organisation (NHS SDO) Programme</td>
</tr>
<tr>
<td>• Canadian Medical Association Infobase</td>
<td>• National Institute for Health Research (NIHR) Health Technology Assessment Programme</td>
</tr>
<tr>
<td>• Department of Health</td>
<td>• TRIP Database</td>
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<tr>
<td>• European Federation of Critical Care Nurses Associations</td>
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</tr>
<tr>
<td>• European Society of Intensive Care Medicine</td>
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<tr>
<td>• Guidelines International Network (GIN)</td>
<td></td>
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<tr>
<td>• Intensive Care National Audit and Research Centre</td>
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<tr>
<td>• Intensive Care Society</td>
<td></td>
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<tr>
<td>• Intensive Care Society – Ireland</td>
<td></td>
</tr>
<tr>
<td>• National Audit Office</td>
<td></td>
</tr>
<tr>
<td>• National Guideline Clearing House (US)</td>
<td></td>
</tr>
<tr>
<td>• National Health and Medical Research Council (Australia)</td>
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</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
| National Institute for Health and Clinical Excellence (NICE) - published & in development |
| National Institute for Health and Clinical Excellence (NICE) - Topic Selection |
| National Institute for Innovation and Improvement |
| National Library for Health (NLH) Guidelines Finder |
| National Library for Health (NLH) Protocols and Care Pathways Database |
| National Library for Health (NLH) Specialist Libraries |
| New Zealand Guidelines Group |
| Northern Ireland Intensive Care Society |
| Prodigy |
| Resuscitation Council |
| Royal College of Anaesthetists |
| Royal College of General Practitioners |
| Royal College of Nursing |
| Royal College of Physicians |
| Royal College of Psychiatrists |
| Royal College of Radiologists |
| Royal College of Speech and Language Therapists |
| Royal College of Surgeons |
| Scottish Intensive Care Society |
| Scottish Intensive Care Society - EBM site |
| Scottish Intercollegiate Guidelines Network (SIGN) |
| Society of Critical Care Medicine |
| Welsh Intensive Care Society |

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Main searches

The following sources were searched for all the review questions in the guideline

- Cochrane Database of Systematic Reviews – CDSR (Wiley)
- Cochrane Central Register of Controlled Trials – CENTRAL (Wiley)
- Database of Abstracts of Reviews of Effects – DARE (Wiley and CRD website)
- Health Technology Assessment Database – HTA (Wiley and CRD website)
- AMED (Dialog)
- CINAHL (Dialog and EBSCO)
- EMBASE (Ovid)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid)
- PsycINFO (Ovid)
- Clinicaltrials.gov
- metaRegister of Controlled Trials – mRCT
- UK Clinical Research Network (UKCRN) Portfolio Database
Identification of evidence on screening and/or assessment tools to identify patients at risk of critical care morbidities

The searches were conducted on June 13th 2008. The aim of the searches was to identify evidence to answer the question: ‘What are the clinical/test utilities of screening and assessment tools (developed and/or modified for critical care population) in identifying critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive dysfunction associated with their treatment experience and critical illness?’ (see also section X.X.X in the main guideline).

The MEDLINE search strategy is presented below. It was translated for use in all of the other databases. Where appropriate, search filters for systematic reviews, randomised controlled trials and observational studies were appended to the search strategies to retrieve high quality papers (see ‘Appendix X.X.X.X Systematic reviews, randomised controlled trials and observational studies search filters’).

Database: Ovid MEDLINE(R) <1950 to June Week 1 2008>

-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
  1  Diagnosis/
  2  exp Nursing Assessment/
  3  ((diag$ or screen$ or assess$) adj3 (index$ or indices or instrument$ or scale$ or tool$ or test$ or grad$ or survey$ or checklist$ or check-list$ or check list$ or inventor$ or exam$ or method$ or batter$ or score$ or scoring$ or rate$ or rating$ or question$ or interview$ or measure$)).tw.
  4  or/1-3
  5  exp "Sensitivity and Specificity"/
  6  sensitivity.tw.
specificity.tw.
((pre-test or pretest) adj probability).tw.
post-test probability.tw.
predictive value$.tw.
likelihood ratio$.tw.
roc curv$.tw.
"reproducibility of results"/
or/5-13
efficac$.tw.
evaluat$.tw.
effectiv$.tw.
utilit$.tw.
useful$.tw.
test$.tw.
value$.tw.
reliab$.tw.
valid$.tw.
or/15-23
14 or 24
4 and 25
exp Critical Care/
critical care.tw.
Critical Illness/
critical$. ill$.tw.
exp Intensive Care Units/
intensive care.tw.
(ICU$ or SICU$ or MICU$ or ITU$).tw.
or/27-33
((physical$ or physiolog$) adj3 (morbid$ or manifest$ or symptom$
or dis$ or abilit$ or dys$ or function$ or impair$ or weak$ or
strength$ or difficult$ or limit$ or problem$ or condition$ or debilit$ or
degenerat$ or deteriorat$ or state or states or status))).tw.
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Walking/
(walk or walks or walking).tw.
(ambulate$ or ambulation$ or ambulating$).tw.
exp Movement Disorders/ or exp Movement/
exp Mobility limitation/

((mov$ or mobil$ or motor$) adj3 (morbid$ or manifest$ or symptom$ or dis$ or abilit$ or dys$ or function$ or impair$ or weak$ or strength$ or difficult$ or limit$ or problem$ or condition$ or debilit$)).tw.
exp Musculoskeletal Physiology/
Neuromuscular Diseases/
exp neuromuscular manifestations/
exp Muscular Diseases/

((musc$ or neuromusc$ or neuro-musc$ or neuro musc$) adj3 (atroph$ or dystroph$ or hypoton$ or weak$ or strength$ or loss$ or dys$ or function$ or dis$ or abilit$ or degenerat$ or difficult$ or limit$ or problem$ or condition$ or debilit$ or impair$ or manifest$ or symptom$ or deteriorat$ or state or states or status)).tw.
(myopath$ or neuromyopath$ or neuro-myopath$ or neuro myopath$ or neuropath$ or polyneuropath$ or (peripher$ adj2 nerve$)).tw.
Fatigue/
(fatigu$ or letharg$ or tired$ or weak$).tw.
exp Somatosensory Disorders/
(somatosenor$ or hypesthes$ or hysthesa$ or paresthes$ or paresthaes$ or numb$).tw.
Locomot$.tw.

Communication/
exp verbal behavior/
(communicat$ or speech or speak$ or talk$ or converse$ or conversing or conversation$ or verbal$).tw.
Deglutition/
Deglutition Disorders/
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
58 deglut$.tw.
59 dysphagi$.tw.
60 swallow$.tw.
61 exp Nutrition Physiology/
62 exp "nutritional and metabolic diseases"/
63 nutrition$.tw.
64 malnutrition$.tw.
65 diet$.tw.
66 exp Weight Loss/
67 (weight adj3 (los$ or reduc$)).tw.
68 cachexi$.tw.
69 emaciat$.tw.
70 wasting.tw.
71 or/35-70
72 26 and 71
73 barthel$.tw.
74 katz$.tw.
75 Karnofsky Performance Status/
76 karnofsky$.tw.
77 (activit$ level$ adj3 (index$ or indices or instrument$ or scale$ or tool$ or test$ or grad$ or survey$ or checklist$ or check-list$ or check list$ or inventor$ or exam$ or method$ or batter$ or score$ or scoring$ or rate$ or rating$ or question$ or interview$ or measure$)).tw.
78 (function$ state$ adj3 (index$ or indices or instrument$ or scale$ or tool$ or test$ or grad$ or survey$ or checklist$ or check-list$ or check list$ or inventor$ or exam$ or method$ or batter$ or score$ or scoring$ or rate$ or rating$ or question$ or interview$ or measure$)).tw.
79 Exercise Test/
80 walk$ test$.tw.
81 new york heart association.tw.
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
nyha.tw.
borg.tw.
(oxford$ adj5 musc$ adj5 grad$).tw.
shuttle$.tw.
(function$ independen$ adj3 (index$ or indices or instrument$ or scale$ or tool$ or test$ or grad$ or survey$ or checklist$ or checklist$ or check list$ or inventor$ or exam$ or method$ or batter$ or score$ or scoring$ or rate$ or rating$ or question$ or interview$ or measure$)).tw.
(short form health survey$ or short form 36 or short-form 36 or shortform 36 or sf 36 or sf-36 or sf36).tw.
or/73-87
25 and 88
72 or 89
exp Mental Disorders/
exp Neurobehavioral Manifestations/
exp Behavioral Symptoms/
((mental$ or psyc$ or neuropsyc$ or neuro-psyc$ or neuro psyc$ or behav$ or neurobehav$ or neuro$ behav$ or neuro-behav$) adj3 (ill$ or dis$ or abilit$ or dys$ or function$ or morbid$ or condition$ or deteriorat$ or problem$ or symptom$ or manifest$ or debilit$ or degenerat$ or state or states or status)).tw.
Anxiety/
(anxi$ or depress$ or dysthym$ or posttrauma$ or post-trauma$ or post trauma$ or ptsd$ or stress$ or delud$ or delus$ or delir$).tw.
or/91-96
26 and 97
(profile$ adj2 mood$ state$).tw.
poms.tw.
(depress$ adj2 anx$ adj2 stress$ adj2 scale$).tw.
dass.tw.
depression scale$.tw.
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
beck$ depress$.tw.
bdii.tw.
beck$ anx$.tw.
bai.tw.
(hospital$ anxi$ adj2 depression scale$).tw.
hads.tw.
(impact$ adj2 event$ scale$).tw.
centre for epidemiological studies depress$.tw.
ces-d.tw.
ces d.tw.
spielberger$.tw.
state trait anxi$_.tw.
stai.tw.
trauma$ symptom$ adj2 (checklist$ or check-list$ or check list$)).tw.
tsc 33 or tsc-33 or tsc33).tw.
((posttrauma$ or post-trauma$ or post trauma$ or ptsd$) adj5
(scale$ or inventor$)).tw.
(14-q or 14 q or 14q).tw.
(10-q or 10 q or 10q).tw.
ptss.tw.
pds.tw.
davidson$.tw.
trauma$ scale$.tw.
(short form health survey$ or short form 36 or short-form 36 or
shortform 36 or sf 36 or sf-36 or sf36).tw.
or/99-127
25 and 128
98 or 129
Cognition Disorders/
exp Neurobehavioral Manifestations/

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
((neurobehavio$ or neuro-behavio$ or neuro$ behavio$) adj3
(manifest$ or symptom$ or dis$ or abilit$ or dys$ or function$ or
impair$ or problem$ or morbidity$ or debility$ or degeneration$ or
deterioration$ or state or states or status)).tw.

(confus$ or disorient$).tw.

Attention/

exp Sleep Disorders/

((cognit$ or social or neurocognition$ or neurocognition$ or neuro cognition$ or
brain or consciousness or memory or executive or attention$ or
inattention$ or concentration$ or sleep$) adj3 (manifest$ or symptom$ or
dis$ or ability$ or function$ or dys$ or impairment$ or loss$ or problem$ or
morbidity$ or debility$ or degeneration$ or deterioration$ or process$ or state
or states or status)).tw.

Problem Solving/

(problem-solving$ or problem-solving$).tw.

Hallucinations/

hallucination$.tw.

or/131-141

26 and 142

Trail Making Test/

trailmaking test$.tw.

trail-making test$.tw.

trail$ making test$.tw.

card$ sorting test$.tw.

wisc$in$.tw.

Wechsler Scales/

wechsler$.tw.

memory scale$.tw.

Pattern Recognition, Visual/

benton$.tw.

visual$ retention test$.tw.

wcst.tw.

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
157 mini mental state$ exam$.tw.
158 mini-mental state$ exam$.tw.
159 mmse.tw.
160 paced auditory serial addition test$.tw.
161 pasat$.tw.
162 (cognitive$ test$ adj2 delir$).tw.
163 confus$ assess$ method$.tw.
164 cam icu.tw.
165 cam-icu.tw.
166 intensive care delir$ screen$ checklist$.tw.
167 ICDSC.tw.
168 NEECHAM.tw.
169 delir$ detection score$.tw.
170 cambridge neuro$ test$.tw.
171 cantab.tw.
172 function$ activit$ question$.tw.
173 informant question$.tw.
174 iqcode.tw.
175 dementia rating.tw.
176 (mbdrs or mb-drs or mb drs).tw.
177 or/144-176
178 25 and 177
179 143 or 178
180 90 or 130 or 179
181 34 and 180
Identification of evidence on the optimal timing of screening and/or assessment tools to identify patients at risk of critical care morbidities

The searches were undertaken on June 13th 2008. The aim of the searches was to identify evidence to answer the question: ‘When is the best or optimal time for screening and assessing critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive dysfunction associated with their treatment experience and critical illness?’

The MEDLINE search strategy presented in the section - Identification of evidence on screening and/or assessment tools to identify patients at risk of critical care morbidities was altered to include search terms for ‘optimal timing’ instead of search terms for ‘screening and assessment tool test utilities’ (lines 5–25). Below are the ‘optimal timing’ search terms that were used. The search strategy was translated for use in the other databases.

Database: Ovid MEDLINE(R) <1950 to June Week 1 2008>

1. Time/
2. Time Factors/
3. (time$ or timing$).tw.
4. After-Hours Care/
5. hour$.tw.
6. (night$ or day$ or morning$ or afternoon$ or evening$ or week$).tw.
7. or/1-6
Identification of evidence on rehabilitation strategies for patients with critical care morbidities

These searches were conducted on July 7th 2008. The aim of the searches was to identify evidence to answer the questions: ‘What are the clinical effectiveness and cost effectiveness of different rehabilitation strategies/programmes for adult patients who have developed physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive deficits associated with their treatment experience in Critical Care and critical illness?’ and ‘When is the best or optimal time for initiating or delivering rehabilitation strategies/programmes to adult patients with physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive deficits associated with their treatment experience in Critical Care and critical illness?’.

The MEDLINE search strategy is presented below. It was translated for use in all of the other databases. Search filters for systematic reviews, randomised controlled trials and observational studies were appended to the search strategies to retrieve high quality papers (see Systematic reviews, randomised controlled trials and observational studies search filters).

Database: Ovid MEDLINE(R) <1950 to June Week 4 2008>

1 exp Critical Care/
2 critical care.tw.
3 Critical Illness/
4 critical$ ill$.tw.
5 exp Intensive Care Units/
6 intensive care.tw.
7 (ICU$ or SICU$ or MICU$ or ITU$).tw.
8 or/1-7
9 exp Rehabilitation/
10 Convalescence/
11 convales$.tw.

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
12 "Recovery of Function"/
13 Rehabilitation Nursing/
14 Rehabilitation Centers/ or Subacute Care/
15 (rehab$ or habilitat$ or recover$).tw.
16 Residential Facilities/
17 Assisted Living Facilities/
18 Halfway Houses/
19 exp Nursing Homes/
20 (extend$ adj2 care$ adj3 (facilit$ or service$ or unit$ or center$ or clinic$ or program$ or residen$ or home$ or hous$)).tw.
21 ((residen$ or intermediate$ or assist$ liv$) adj3 (facilit$ or care$ or service$ or unit$ or center$ or clinic$ or program$ or residen$ or home$ or hous$)).tw.
22 ((halfway or transition$) adj3 (home$ or hous$ or facilit$ or care$ or residen$ or service$ or unit$ or center$ or clinic$ or program$)).tw.
23 (nurs$ adj2 home$).tw.
24 ((acute$ or critical$ or intensive$ or discharg$) adj5 (followup or follow$ up or follow-up)).tw.
25 (postacute$ or postcritical$ or postintensive$ or postdischarg$ or subacute$).tw.
26 (post-acute$ or post-critical$ or post-intensive$ or post-discharg$ or sub-acute$).tw.
27 (post acute$ or post critical$ or post intensive$ or post discharg$ or "sub acute$") .tw.
28 ((post or after or discharg$ or follow$) adj3 (ICU$ or SICU$ or MICU$ or ITU$)).tw.
29 ((post or after or follow$ or discharg$) adj3 (acute$ or critical$ or intensive$ or discharg$)).tw.
30 preventive health services/
31 preventive medicine/ or preventive psychiatry/
32 Primary Prevention/
33 prevent$.tw.
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
34 prophyla$.tw.
35 ((reducti$ or reduci$ or reduce$ or lower$ or decreas$ or minimis$ or
    minimiz$ or diminish$ or lessen$ or lesser$ or abate$ or abati$ or
curtail$ or stop or stops or stopp$) adj3 (illness$ or morbid$ or declin$ or
manifest$ or symptom$ or disease$ or disorder$ or dysfunct$ or
function$ or impair$ or difficult$ or problem$ or condition$ or debilit$
or degenerat$ or complicat$ or risk$)).tw.
36 ((early or earli$ or immediat$ or initial$ or begin$ or first$ or first-line or
first line or first choice or primar$ or preceed$ or original$) adj3
(interven$ or treat$ or therap$ or care or medicine$ or technique$ or
strateg$ or activit$ or mobili$)).tw.
37 or/9-36
38 ((physical$ or physiolog$) adj3 (morbid$ or manifest$ or symptom$ or
dis$ or abilit$ or dys$ or function$ or impair$ or weak$ or strength$ or
difficult$ or limit$ or problem$ or condition$ or debilit$ or degenerat$
or deteriorat$ or state or states or status)).tw.
39 Walking/
40 (walk or walks or walking).tw.
41 (ambulate$ or ambulation$ or ambulating$).tw.
42 exp Movement Disorders/ or exp Movement/
43 mobility limitation/
44 ((mov$ or mobil$ or motor$) adj3 (morbid$ or manifest$ or symptom$
or dis$ or abilit$ or dys$ or function$ or impair$ or weak$ or strength$
or difficult$ or limit$ or problem$ or condition$ or debilit$)).tw.
45 exp Musculoskeletal Physiology/
46 Neuromuscular Diseases/
47 exp neuromuscular manifestations/
48 exp Muscular Diseases/
49 ((musc$ or neuromusc$ or neuro-musc$ or neuro musc$) adj3
(atroph$ or dystroph$ or hypoton$ or weak$ or strength$ or loss$
or dys$ or function$ or dis$ or abilit$ or degenerat$ or difficult$ or limit$)

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)

29 of 100
or problem$ or condition$ or debilit$ or impair$ or manifest$ or symptom$ or deteriorat$ or state or states or status$).tw.
50 (myopath$ or neuromyopath$ or neuro-myopath$ or neuro myopath$ or neuropath$ or polyneuropath$ or (peripher$ adj2 nerve$)).tw.
51 Fatigue/
52 (fatigu$ or letharg$ or tired$ or weak$).tw.
53 exp Somatosensory Disorders/
54 (somatosensor$ or hysthes$ or hypesthes$ or paresthes$ or paresthaes$ or numb$).tw.
55 locomot$.tw.
56 Communication/
57 exp verbal behavior/
58 (communicat$ or speech or speak$ or talk$ or converse$ or conversing or conversation$ or verbal$).tw.
59 Deglutition/
60 Deglutition Disorders/
61 deglut$.tw.
62 dysphagi$.tw.
63 swallow$.tw.
64 exp Nutrition Physiology/
65 exp "nutritional and metabolic diseases"
66 nutrition$.tw.
67 malnutrition$.tw.
68 diet$.tw.
69 exp Weight Loss/
70 (weight adj3 (los$ or reduc$)).tw.
71 cachexi$.tw.
72 emaciat$.tw.
73 wasting.tw.
74 or/38-73
75 37 and 74
76 8 and 75
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Physical Medicine/
exp Physical Therapy Modalities/
"Physical Therapy (Specialty)"
exp Exercise Movement Techniques/
(exerci$s adj3 (rehab$ or habilitat$ or recover$ or therap$ or treat$ or medicine$ or intervention$ or technique$ or strateg$)).tw.
((walk$ or mobil$ or mov$ or motor$ or physi$) adj3 (rehab$ or habilitat$ or recover$ or therap$ or treat$ or medicine$ or intervention$ or technique$ or strateg$)).tw.
(physio or physiotherap$).tw.
(self-directed adj3 (exerci$ or phys$ or activit$)).tw.
(self adj3 directed adj3 (exerci$ or phys$ or activit$)).tw.
(self-care adj3 (exerci$ or phys$ or activit$)).tw.
(self adj3 care adj3 (exerci$ or phys$ or activit$)).tw.
(patient-directed adj3 (exerci$ or phys$ or activit$)).tw.
(patient$ adj3 directed adj3 (exerci$ or phys$ or activit$)).tw.
(self-manag$ adj3 (exerci$ or phys$ or activit$)).tw.
(self adj3 manag$ adj3 (exerci$ or phys$ or activit$)).tw.
(self-administ$ adj3 (exerci$ or phys$ or activit$)).tw.
(self adj3 administr$ adj3 (exerci$ or phys$ or activit$)).tw.
(patient-directed adj3 (breath$ or inhal$ or exhal$)).tw.
(patient$ adj3 directed adj3 (breath$ or inhal$ or exhal$)).tw.
(self-care adj3 (breath$ or inhal$ or exhal$)).tw.
(self adj3 care adj3 (breath$ or inhal$ or exhal$)).tw.
(self-directed adj3 (breath$ or inhal$ or exhal$)).tw.
(self adj3 directed adj3 (breath$ or inhal$ or exhal$)).tw.
(self-manag$ adj3 (breath$ or inhal$ or exhal$)).tw.
(self adj3 manag$ adj3 (breath$ or inhal$ or exhal$)).tw.
(self-administ$ adj3 (breath$ or inhal$ or exhal$)).tw.
(self adj3 administr$ adj3 (breath$ or inhal$ or exhal$)).tw.
positioning.tw.
(passive$ adj5 (mov$ or motion$)).tw.
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
106 cpm therap$.tw.
107 (bed$ adj3 (mobil$ or mov$)).tw.
108 ((limb$ or arm$ or leg$) adj3 exerci$).tw.
109 Percussion/ 
110 percussion$.tw.
111 Vibration/ 
112 vibration$.tw.
113 kinesiotherap$.tw.
114 ((musc$ or spin$ or osteo$ or ortho$ or chiro$) adj3 (manipulation$ or 
   rehab$ or habilitat$ or recover$ or therap$ or treat$ or medicine$ or 
   intervention$ or technique$ or strateg$)).tw.
115 massag$.tw.
116 (manip$ adj3 (rehab$ or habilitat$ or recover$ or therap$ or treat$ or 
   medicine$ or intervention$ or technique$ or strateg$)).tw
117 (manual$ adj3 (rehab$ or habilitat$ or recover$ or therap$ or treat$ or 
   medicine$ or intervention$ or technique$ or strateg$)).tw.
118 (musc$ adj3 stretch$).tw.
119 (function$ adj3 training$).tw.
120 exp "rehabilitation of speech and language disorders"/
121 ((speech or languag$) adj3 (rehab$ or recover$ or therap$)).tw.
122 or/77-121
123 8 and 122
124 76 or 123
125 exp Mental Disorders/
126 exp Neurobehavioral Manifestations/
127 exp Behavioral Symptoms/
128 ((mental$ or psyc$ or neuropsych$ or neuro-psyc$ or neuro psyc$ or 
   behav$ or neurobehav$ or neuro$ behav$ or neuro-behav$) adj3 (ill$ 
   or dis$ or abilit$ or dys$ or function$ or morbid$ or condition$ or 
   deteriorat$ or problem$ or symptom$ or manifest$ or debilit$ or 
   degenerat$ or state or states or status)).tw.
129 Anxiety/
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
130 (anxi$ or depress$ or dysthym$ or posttrauma$ or post-trauma$ or post trauma$ or ptsd$ or stress$ or delud$ or delus$ or delir$).tw.
131 or/125-130
132 37 and 131
133 8 and 132
134 Self-Help Groups/
135 (self-help or self help or support$ group$ or patient$ group$).tw.
136 134 or 135
137 Depression/
138 exp Depressive Disorder/
139 depress$.tw.
140 or/137-139
141 136 and 140
142 8 and 141
143 133 or 142
144 Cognition Disorders/
145 exp Neurobehavioral Manifestations/
146 ((neurobehavio$ or neuro-behavio$ or neuro$ behavio$) adj3
    (manifest$ or symptom$ or dis$ or abilit$ or dys$ or function$ or impair$ or problem$ or morbidit$ or debilit$ or degenerat$ or deteriorat$ or state or states or status)).tw.
147 (confus$ or disorient$).tw.
148 Attention/
149 exp Sleep Disorders/
150 ((cognit$ or social or neurocogn$ or neuro-cogn$ or neuro cogn$ or brain or consciousness or memor$ or executive or attenti$ or inattenti$ or concentrat$ or sleep$) adj3 (manifest$ or symptom$ or dis$ or abilit$ or function$ or dys$ or impair$ or loss$ or problem$ or morbidit$ or debilit$ or degenerat$ or deteriorat$ or process$ or state or states or status)).tw.
151 Problem Solving/
152 (problem-solv$ or problem$ solv$).tw.
153 Hallucinations/
154 hallucinat$.tw.
155 or/144-154
156 37 and 155
157 8 and 156
158 diar$.tw.
159 8 and 158
160 157 or 159
161 124 or 143 or 160
Systematic reviews, randomised controlled trials and observational studies search filters

Search filters for systematic reviews, randomised controlled trials and observational studies were appended to the search strategies above to retrieve high-quality evidence.

The MEDLINE search filters are presented below. They were translated for use in all the other databases.

**Systematic reviews**

1. Meta-Analysis/
3. Meta-Analysis as Topic/
4. Review/
5. Review.pt.
6. exp Review Literature as Topic/
7. (metaanaly$ or metanaly$ or (meta adj2 analy$)).tw.
8. (review$ or overview$).ti.
9. (systematic$ adj4 (review$ or overview$)).tw.
10. ((quantitative$ or qualitative$) adj4 (review$ or overview$)).tw.
11. ((studies or trial$) adj1 (review$ or overview$)).tw.
12. (integrat$ adj2 (research or review$ or literature)).tw.
13. (pool$ adj1 (analy$ or data)).tw.
14. (handsearch$ or (hand adj2 search$)).tw.
16. or/1-15

**Randomised controlled trials**

1. Randomized Controlled Trial/
2. Randomized Controlled Trial.pt.
3. Controlled Clinical Trial/
4. Controlled Clinical Trial.pt.
5. Clinical Trial/

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Observational studies

1 Epidemiologic Studies/
2 exp Case-Control Studies/
3 exp Cohort Studies/
4 Cross-Sectional Studies/
5 Comparative Study.pt.
6 case control$.tw.
7 case series.tw.
8 (cohort adj (study or studies)).tw.
9 cohort analy$.tw.
10 (follow up adj (study or studies)).tw.
11 (observational adj (study or studies)).tw.
12 longitudinal.tw.
13 prospective.tw.
14 retrospective.tw.
15 cross sectional.tw.
16 or/1-15
Identification of evidence on the information and support needs of patients with critical care morbidity rehabilitation needs and identification of evidence on the information and support needs their carers or families

The searches were conducted on September 4th 2008. The aim of the searches was to identify evidence to answer the question: 'What information and support needs are viewed as important by adult patients and their carers or family who have developed rehabilitation needs during and following a period of critical illness requiring Critical Care?' The MEDLINE search strategy is presented below. It was translated for use in all of the other databases.

**Database: Ovid MEDLINE(R) <1950 to August Week 4 2008>**

1. exp Rehabilitation/
2. Convalescence/
3. convales$.tw.
4. "Recovery of Function"/
5. Rehabilitation Nursing/
6. Rehabilitation Centers/ or Subacute Care/
7. (rehab$ or habilitat$ or recover$).tw.
8. Residential Facilities/
9. Assisted Living Facilities/
10. Halfway Houses/
11. exp Nursing Homes/
12. (extend$ adj2 care$ adj3 (facilit$ or service$ or unit$ or center$ or clinic$ or program$ or residen$ or home$ or hous$)).tw.
13. ((residen$ or intermediate$ or assist$ liv$) adj3 (facilit$ or care$ or service$ or unit$ or center$ or clinic$ or program$ or residen$ or home$ or hous$)).tw.
14. ((halfway or transition$) adj3 (home$ or hous$ or facilit$ or care$ or residen$ or service$ or unit$ or center$ or clinic$ or program$)).tw.
15. (nurs$ adj2 home$).tw.

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
((acute$ or critical$ or intensive$ or discharg$) adj5 (followup or follow$ up or follow-up)).tw.
(postacute$ or postcritical$ or postintensive$ or postdischarg$ or subacute$).tw.
(post-acute$ or post-critical$ or post-intensive$ or post-discharg$ or sub-acute$).tw.
(post acute$ or post critical$ or post intensive$ or post discharg$ or "sub acute$" ).tw.
((post or after or discharg$ or follow$) adj3 (ICU$ or SICU$ or MICU$ or ITU$)).tw.
((post or after or follow$ or discharg$) adj3 (acute$ or critical$ or intensive$ or discharg$)).tw.
or/1-21
Patients/px
Family/px
Spouses/px
Caregivers/px
exp Consumer Satisfaction/
((patient$ or famil$ or relative$ or carer$ or caregiver$ or care-giver$ or spous$ or husband$ or wife$ or wife$ or partner$) adj5 (experience$ or belief$ or stress$ or emotion$ or anx$ or fear$ or concern$ or uncertain$ or unsure or thought$ or feeling$ or felt$ or view$ or opinion$ or perception$ or perspective$ or attitud$ or satisfact$ or know$ or understand$ or aware$)).ti.
or/23-28
Patients/
Family/
Spouses/
Caregivers/
or/30-33
Pamphlets/
Needs Assessment/
Information Centers/
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
((patient$ or famil$ or relative$ or carer$ or caregiver$ or care-giver$ or spous$ or husband$ or wife$ or wive$ or partner$) adj5 (educat$ or informat$ or communicat$ or pamphlet$ or handout$ or hand-out$ or hand out$ or booklet$ or leaflet$ or support$ or need$ or advice$ or advis$)).ti.

((patient$ or famil$ or relative$ or carer$ or caregiver$ or care-giver$ or spous$ or husband$ or wife$ or wive$ or partner$) adj5 (counsel$ or selfhelp$ or self-help$ or self help$ or selfcar$ or self-car$ or self car$)).ti.

Patient Education as Topic/
patient education handout/
consumer health information/
critical care family needs inventor$.tw.
icu diar$.tw.
(intensive care adj3 diar$).tw.
patient$ diar$.tw.
or/50-56
29 or 46 or 49 or 57
22 and 58
exp Critical Care/
critical care.tw.
Critical Illness/
critical$ ill$.tw.
exp Intensive Care Units/
NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
intensive care.tw.
(ICU$ or SICU$ or MICU$ or ITU$).tw.
or/60-66
59 and 67
Economic evaluations and quality of life data sources
The following sources were searched to identify economic evaluations:
- NHS Economic Evaluation Database – NHS EED (Wiley and CRD website)
- Health Economic Evaluations Database – HEED (Wiley)
- EMBASE (Ovid)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid).

Identification of evidence on the cost effectiveness of screening and/or assessment tools to identify patients at risk of critical care morbidities
The searches were undertaken on June 6th 2008. The MEDLINE search strategy presented in the section - Identification of evidence on screening and/or assessment tools to identify patients at risk of critical care morbidities was altered through the removal of the terms for ‘screening and assessment tool test utilities’ (lines 5–25) and translated for use in the other databases. Filters to retrieve economic evaluations and quality of life papers were appended to the MEDLINE, MEDLINE IN PROCESS and EMBASE searches to identify relevant evidence (see Economic evaluations and quality of life search filters).
Identification of evidence of the cost effectiveness of rehabilitation strategies for patients with critical care morbidities

The searches were undertaken on July 7th 2008. The MEDLINE search strategy presented in the section - Identification of evidence on rehabilitation strategies for patients with critical care morbidities was used and translated for use in the other databases. Filters to retrieve economic evaluations and quality of life papers were appended to the MEDLINE, MEDLINE IN PROCESS and EMBASE searches to identify relevant evidence (see Economic evaluations and quality of life search filters).
Economic evaluations and quality of life search filters

The MEDLINE economic evaluations and quality of life search filters are presented below. They were translated for use in the MEDLINE In-Process and EMBASE databases.

**Economic evaluations**

1. Economics/
2. exp "Costs and Cost Analysis"/
3. Economics, Dental/
4. exp Economics, Hospital/
5. exp Economics, Medical/
6. Economics, Nursing/
7. Economics, Pharmaceutical/
8. Budgets/
9. exp Models, Economic/
10. Markov Chains/
11. Monte Carlo Method/
12. Decision Trees/
13. econom$.tw.
14. cba.tw.
15. cea.tw.
16. cua.tw.
17. markov$.tw.
18. (monte adj carlo).tw.
19. (decision adj2 (tree$ or analys$)).tw.
20. (cost or costs or costing$ or costly or costed).tw.
21. (price$ or pricing$).tw.
22. budget$.tw.
23. expenditure$.tw.
24. (value adj2 (money or monetary)).tw.
25. (pharmacoeconomic$ or (pharmaco adj economic$)).tw.
26. or/1-25

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Quality of life

1. "Quality of Life"/
2. quality of life.tw.
3. "Value of Life"/
4. Quality-Adjusted Life Years/
5. quality adjusted life.tw.
6. (qaly$ or qald$ or qale$ or qtime$).tw.
7. disability adjusted life.tw.
8. daly$.tw.
9. Health Status Indicators/
10. (sf36 or sf 36 or short form 36 or shortform 36 or sf thirty six or sf thirtysix or sf thirty six or shortform thirtysix or shortform thirty six or short form thirtysix or short form thirty six).tw.
11. (sf6 or sf 6 or short form 6 or shortform 6 or sf six or sf six or shortform six or short form six).tw.
12. (sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sf twelve or shortform twelve or short form twelve).tw.
13. (sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sf sixteen or shortform sixteen or short form sixteen).tw.
14. (sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sf twenty or shortform twenty or short form twenty).tw.
15. (euroqol or euro qol or eq5d or eq 5d).tw.
16. (qol or hql or hqol or hrqol).tw.
17. (hye or hyes).tw.
18. health$ year$ equivalent$.tw.
19. utilit$.tw.
20. (hui or hui1 or hui2 or hui3).tw.
21. disutili$.tw.
22. rosser.tw.
23. quality of wellbeing.tw.
24. quality of well-being.tw.
25. qwb.tw.
6.4 Appendix 4 – Review protocols and evidence tables
### Critical Illness Rehabilitation

#### Review Protocols

#### List of Structured Clinical Questions and Review Questions for GDG 1

<table>
<thead>
<tr>
<th>Structured Clinical Questions</th>
<th>Review Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The evaluation of screening and/or assessment tools for identifying adult patients receiving critical care at risk of physical and non-physical morbidity (including psychological and cognitive dysfunction) following a period of critical illness.</td>
<td><strong>Review Question 1:</strong> What are the clinical/test utility of screening and assessment tools (developed and/or modified for critical care population) in identifying critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive impairment associated with their treatment experience and critical illness?</td>
</tr>
<tr>
<td>• The identification of the optimal timing for screening and/or assessment for physical and non-physical morbidity (including psychological and cognitive dysfunction) associated with critical illness.</td>
<td><strong>Review Question 2:</strong> When is the best or optimal time for screening and assessing critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive impairment associated with their treatment experience and critical illness?</td>
</tr>
</tbody>
</table>

**Review Protocol 1**

<table>
<thead>
<tr>
<th>Details</th>
<th>Additional comments</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review question ID</td>
<td>1</td>
<td>...</td>
</tr>
<tr>
<td>Review question</td>
<td>What are the clinical/test utility of screening and assessment tools (developed and/or modified for critical care population) in identifying critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive impairment associated with their treatment experience and critical illness?</td>
<td>...</td>
</tr>
</tbody>
</table>

**Objectives**

To review the clinical/test utility of different screening and assessment tools (developed and/or modified for critical care population) in identifying critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive impairment associated with their treatment experience and critical illness.

The review does not cover service.

As per protocol, with...
assessment tools designed and/or validated for identifying physical functional impairment and non-physical dysfunctions including psychological problems and cognitive impairment following a period of critical illness.

<table>
<thead>
<tr>
<th>Language</th>
<th>English</th>
<th>Study design</th>
<th>Cross-sectional studies, case–control studies, RCTs, Cohort studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Published papers (full papers only)</td>
<td></td>
<td>As per protocol</td>
</tr>
<tr>
<td>Population</td>
<td>Inclusion: Adults with rehabilitation needs as a result of a period of critical illness that required level 2 and level 3 Critical Care.</td>
<td>Exclusion: Adults receiving palliative care. Clinical subgroups of patients whose specialist rehabilitation needs are already routinely assessed and delivered as part of their care pathway (for example, patients who received critical care as part of an elective pathway and who did not develop an unanticipated, ongoing critical illness, and in areas where published guidelines already exist such as head injury, myocardial infarction and stroke).</td>
<td></td>
</tr>
<tr>
<td>Outcomes</td>
<td>Morbidity (physical functional status including swallowing and communication problems, psychological and cognitive dysfunction) Clinical/Test utility including: sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, diagnostic odds ratio and area under the ROC analyses. test validity such as face validity, content validity, construct validity, criterion validity; test reliability such as internal reliability/consistency, test-retest reliability, inter-rater reliability.</td>
<td>Since the review question is more generally about clinical/test utility, not just solely focused on ‘diagnostic accuracy’ (i.e. sensitivity, specificity, PPV, NPV, LHR, DOR and area under the ROC), studies that reported test validity (eg. face validity, content validity, construct validity, criterion validity) and test reliability (eg. internal reliability/consistency, test-retest reliability, inter-rater reliability) are also included.</td>
<td></td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
<table>
<thead>
<tr>
<th>Other criteria for inclusion/exclusion of studies</th>
<th><strong>Inclusion:</strong> Only screening or assessment tools developed/derived or modified and validated within the general critical care population to identify general rehabilitation needs are included for review. <strong>Exclusion:</strong> Screening or assessment tools only designed or validated for specific critical care populations such as cardiac, stroke or neurological patients to identify patients who need specific rehabilitation such as cardiac rehabilitation, neurological rehabilitation and other organ-specific rehabilitations are excluded.</th>
<th>Reasons for strict inclusion and exclusion criteria are concern over spectrum bias* and clinical applicability. *Spectrum bias – heterogeneity of test performance (i.e. sensitivity and/or specificity) of a test varying with different populations tested. Example: the sample population chosen is not representative of the population at risk</th>
<th>As per protocol, with exclusion of service delivery issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search strategies</td>
<td>Please see Appendix 3</td>
<td>…</td>
<td>As per protocol, with exclusion of service delivery issues</td>
</tr>
<tr>
<td>Review strategies</td>
<td>• NICE Diagnostic studies checklist (QUADAS tool) will be used to appraise included studies. • Evidence table and narrative summary will be used to summarise the evidence. • Where possible, a meta-analytic approach will be used to give an overall summary effect.</td>
<td>…</td>
<td>A meta-analysis was not undertaken because of heterogeneity across the included studies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details</th>
<th>Additional comments</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review question ID</td>
<td>2</td>
<td>…</td>
</tr>
<tr>
<td>Review question</td>
<td>When is the best or optimal time for screening and assessing critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive dysfunction associated with their treatment experience and critical illness?</td>
<td>…</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
<table>
<thead>
<tr>
<th>Objectives</th>
<th>To review the optimal timing for identifying or assessing general critical care patients with rehabilitation needs.</th>
<th>The review does not cover service delivery issues.</th>
<th>As per protocol, with exclusion of service delivery issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>English</td>
<td>…</td>
<td>As per protocol</td>
</tr>
<tr>
<td>Study design</td>
<td>Cross-sectional studies, case–control studies, RCTs, cohort studies</td>
<td>…</td>
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<tr>
<td>Status</td>
<td>Published papers (full papers only)</td>
<td>…</td>
<td>As per protocol</td>
</tr>
<tr>
<td>Population</td>
<td><strong>Inclusion:</strong> Adults with rehabilitation needs as a result of a period of critical illness that required level 2 and level 3 Critical Care.</td>
<td>…</td>
<td>As per protocol, with exclusion of service delivery issues</td>
</tr>
<tr>
<td></td>
<td><strong>Exclusion:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Adults receiving palliative care.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Clinical subgroups of patients whose specialist rehabilitation needs are already routinely assessed and delivered as part of their care pathway (for example, patients who received critical care as part of an elective pathway and who did not develop an unanticipated, ongoing critical illness, and in areas where published guidelines already exist such as head injury, myocardial infarction and stroke).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcomes</td>
<td>• Morbidity (physical functional status including swallowing and communication problems, psychological and cognitive dysfunction).</td>
<td>…</td>
<td>As per protocol, with exclusion of service delivery issues</td>
</tr>
<tr>
<td></td>
<td>• Clinical/Test utility at different time-points including:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, diagnostic odds ratio and area under the ROC analyses at different time-points.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ test validity such as face validity, content validity, construct validity, criterion validity at different time points.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ test reliability such as internal reliability/consistency, Test-retest reliability, Inter-rater reliability at different</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Other criteria for inclusion/exclusion of studies

| **Inclusion:** | Only screening or assessment tools developed/derived or modified and validated within the general critical care population, and administered at different time points to identify general rehabilitation needs are included for the review. |
| **Exclusion:** | Optimal timing of screening or assessment tools only designed or validated for specific critical care populations such as cardiac, stroke or neurological patients to identify patients who need specific rehabilitation such as cardiac rehabilitation, neurological rehabilitation and other organ-specific rehabilitations are excluded. |

Reasons for strict inclusion criterion were concerns over spectrum bias and clinical applicability.

As per protocol, with exclusion of service delivery issues.

Search strategies

| Please see Appendix 3 |

Review strategies

- NICE Diagnostic studies checklist (QUADAS tool) will be used to appraise included studies.
- Evidence table and narrative summary will be used to summarise the evidence.
- Where possible, a meta-analytic approach will be used to give an overall summary effect.

A meta-analysis was not undertaken because of heterogeneity across the included studies.

List of Structured Clinical Questions and Review Questions for GDG2

<table>
<thead>
<tr>
<th>Structured Clinical Questions</th>
<th>Review Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The clinical effectiveness and cost effectiveness of rehabilitation strategies for adult patients who have developed physical and non-physical morbidities</td>
<td><strong>Review Question 3:</strong> What are the clinical effectiveness and cost effectiveness of different</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
The identification of the optimal timing for rehabilitation strategies to address physical and non-physical morbidities (including psychological and cognitive dysfunction) associated with critical illness.

**Review Question 4:**
When is the optimal time for adult critical care rehabilitation? This includes:
- Does early rehabilitation during critical care reduce subsequent risk of adult patients developing physical and non-physical morbidities following a period of critical illness and associated with their treatment experience in critical care?
- When is the optimal time for initiating or delivering rehabilitation strategies/programmes to adult patients with physical and non-physical morbidities including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?

### Review Protocol 2

<table>
<thead>
<tr>
<th>Review question ID</th>
<th>Details</th>
<th>Additional comments</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td><strong>Review question</strong></td>
<td><strong>What are the clinical effectiveness and cost effectiveness of different rehabilitation strategies/programmes for adult patients who have developed physical and non-physical morbidities including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?</strong></td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td>To review the clinical effectiveness of current available rehabilitation strategies/programmes in addressing physical, psychological and cognitive problems of adult patients requiring critical care.</td>
<td>...</td>
<td>As per protocol, with exclusion of service delivery issues</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td><strong>English</strong></td>
<td>...</td>
<td>As per protocol</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
<table>
<thead>
<tr>
<th>Study design</th>
<th>RCTs</th>
<th>If no RCTs were available, observational studies such as good-quality cohort studies with an appropriate control will be considered.</th>
<th>As per protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Published papers (full papers only)</td>
<td>...</td>
<td>As per protocol</td>
</tr>
</tbody>
</table>
| Population  | Inclusion: Adults with rehabilitation needs as a result of a period of critical illness that required critical care. Exclusion:  
- Adults receiving palliative care.  
- Clinical subgroups of patients whose specialist rehabilitation needs are already routinely assessed and delivered as part of their care pathway (for example, patients who received critical care as part of an elective pathway and who did not develop an unanticipated, ongoing critical illness, and in areas where published guidelines already exist such as head injury, myocardial infarction and stroke). | As per protocol, with exclusion of service delivery issues |
| Outcomes    |  
- Mortality  
- Morbidity (including physical functional status, psychological impairments and cognitive dysfunction)  
- Readmission to hospital (as a result of physical or non-physical morbidities)  
- Hospital length of stay  
- Health-related quality of life | ... | As per protocol, with exclusion of service delivery issues |
| Other criteria for inclusion/exclusion of studies | Inclusion: Only studies on rehabilitation strategies/programmes/packages developed for general critical care adult patients were included. Exclusion:  
- Rehabilitation strategies/programmes/packages for specific critical care patient subgroups such as cardiac, stroke, neurological, burn | Reasons for strict inclusion criterion were concerns over generalisability (external validity) and clinical applicability. | As per protocol, with exclusion of service delivery issues |
- Studies on clinical effectiveness of treatment/intervention for psychological and/or cognitive dysfunction that did not cover general critical care populations.
- Studies that evaluated and compared detailed individual techniques (e.g. antidepressants vs counselling for depression in critical care patients) will be excluded.
- Studies that focused on the effectiveness of physical or non-physical therapies as part of the critical care management (rather than rehabilitation as longer-term outcome).

**Search strategies**
Please see Appendix 3

As per protocol, with exclusion of service delivery issues

**Review strategies**
**NICE intervention studies checklist** will be used to appraise included studies individually and will be summarised by evidence table.

*Modified version of GRADE profiler* will be used to summarise and appraise individual outcomes for generating evidence statements.

Where possible, a meta-analytic approach will be used to give an overall summary effect in conjunction with the modified GRADE profiler.

A meta-analysis was not undertaken because only one study was included.

<table>
<thead>
<tr>
<th>Details</th>
<th>Additional comments</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review question ID</td>
<td>4</td>
<td>...</td>
</tr>
</tbody>
</table>
| Review question | When is the optimal time for adult critical care rehabilitation? This includes:
- Does early rehabilitation during critical care reduce subsequent risk of adult patients developing physical and non-physical morbidities following a period of critical illness and associated with their treatment experience in critical care?
- When is the optimal time for initiating or delivering rehabilitation strategies/programmes to adult patients with physical and non- | ... | |

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Objectives
To review the optimal timing for initiating and/or delivering rehabilitation strategies/programmes that would be most effective for critical care adult patients at risk of developing physical/non-physical morbidities or adult patients with rehabilitation needs.

Language
English

Study design
RCTs
If no RCTs were available, observational studies such as good-quality cohort studies with an appropriate control will be considered.

Status
Published papers (full papers only)

Population
**Inclusion:**
Adults with rehabilitation needs as a result of a period of critical illness that required level 2 and level 3 Critical Care.

**Exclusion:**
- Adults receiving palliative care.
- Clinical subgroups of patients whose specialist rehabilitation needs are already routinely assessed and delivered as part of their care pathway (for example, patients who received critical care as part of an elective pathway and who did not develop an unanticipated, ongoing critical illness, and in areas where published guidelines already exist such as head injury, myocardial infarction and stroke).

Outcomes
- Mortality
- Morbidity (including physical functional status, psychological impairments and cognitive dysfunction)
- Readmission to hospital (as a result of physical or non-physical morbidities)

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
### Other criteria for inclusion/exclusion of studies

<table>
<thead>
<tr>
<th>Inclusion:</th>
<th>Exclusion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Only studies on early rehabilitation (vs late rehabilitation or usual care) during general critical care for reducing subsequent risk of adult patients developing physical and non-physical morbidities will be included.</td>
<td>- Optimal timing for specialist rehabilitation strategies for specific critical care patient subgroups such as cardiac, stroke, neurological, burn patients or any organ-specific rehabilitation programmes.</td>
</tr>
<tr>
<td>- Only studies on optimal timing for initiating/delivering rehabilitation strategies/programmes/packages developed for general critical care adult patients who have developed physical/non-physical morbidities were included.</td>
<td>- Studies on optimal timing of treatment/intervention for psychological and/or cognitive dysfunction that did not cover general critical care populations.</td>
</tr>
<tr>
<td></td>
<td>- Studies that evaluated and compared detailed individual techniques (e.g. antidepressants vs counselling for depression in critical care patients) will be excluded.</td>
</tr>
<tr>
<td></td>
<td>- Studies that focused on the effectiveness of physical or non-physical therapies as part of the critical care management (rather than rehabilitation as longer-term outcome).</td>
</tr>
</tbody>
</table>

Reasons for strict inclusion criterion were concerns over generalisability (external validity) and clinical applicability.

As per protocol, with exclusion of service delivery issues.

### Search strategies

- Please see Appendix 3

... As per protocol, with exclusion of service delivery issues

### Review strategies

- NICE intervention studies checklist will be used to appraise included studies individually and will be summarised by evidence table.

... A meta-analysis was not undertaken because no study was identified.

Modified version of GRADE profiler will be used to summarise and
appraise individual outcomes for generating evidence statements.
Where possible, a meta-analytic approach will be used to give an overall summary effect in conjunction with the modified GRADE profiler.

List of Structured Clinical Question and Review Question for GDG3

<table>
<thead>
<tr>
<th>Structured Clinical Questions</th>
<th>Review Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The specific information and support needs of adult patients and their carers or families who have developed rehabilitation needs during and following a period of critical illness requiring critical care.</td>
<td><strong>Review Question 5:</strong> What information and support needs are viewed as important by adult patients and their carers or family who have developed rehabilitation needs during and following a period of critical illness requiring critical care?</td>
</tr>
</tbody>
</table>

**Review Protocol 3**

<table>
<thead>
<tr>
<th>Details</th>
<th>Additional comments</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review question ID</strong></td>
<td>5</td>
<td>…</td>
</tr>
<tr>
<td><strong>Review question</strong></td>
<td><em>What information and support needs are viewed as important by adult patients and their carers or family who have developed rehabilitation needs during and following a period of critical illness requiring critical care?</em></td>
<td>…</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td><em>To review patients and their carers/family members’ experiences and views on what they think are important elements of care to support them through the patient’s care pathway and patient’s recovery.</em></td>
<td>…</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td>English</td>
<td>…</td>
</tr>
<tr>
<td><strong>Study design</strong></td>
<td>No restrictions, including qualitative studies &amp; survey questionnaire</td>
<td>…</td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td>Published papers (full papers only)</td>
<td>…</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)

56 of 100
| Population | **Inclusion:** Adults with rehabilitation needs as a result of a period of critical illness that required critical care.  
**Exclusion:**  
- Adults receiving palliative care.  
- Clinical subgroups of patients whose specialist rehabilitation needs are already routinely assessed and delivered as part of their care pathway (for example, patients who received critical care as part of an elective pathway and who did not develop an unanticipated, ongoing critical illness, and in areas where published guidelines already exist such as head injury, myocardial infarction and stroke). | … | As per protocol, with exclusion of service delivery issues |
| Outcomes | N/A | … | As per protocol, with exclusion of service delivery issues |
| Other criteria for inclusion/exclusion of studies | **Inclusion:** Only studies including survey questionnaire and qualitative studies that explored themes or views based on patients'/carers'/families' experiences on what they perceived as important elements of information and support needs were included.  
**Exclusion:**  
- Studies conducted on patients and their carers/family members who have received specific rehabilitation strategies/programmes/packages such as cardiac, stroke, neurological patients.  
- Studies that only summarised number of cases or experiences but did not provide patients'/carers' views.  
- Studies with non-UK population. | Reasons for strict inclusion criterion were concerns over generalisability (external validity) and clinical applicability.  
**Non-UK studies excluded:** Cultural differences, language used, environment, social structure and other societal factors from other countries may create systematic differences in what patients/carers perceived as important elements compared with UK patients. | As per protocol, with exclusion of service delivery issues |
| Search strategies | Please see Appendix 3 | … | As per protocol, with exclusion of service delivery issues |
| Review strategies | **NICE checklists, such as NICE qualitative studies checklist for qualitative study, will be used to appraise included studies.** | … | N/A |

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Critical Illness Rehabilitation

**Review Question 1:**
What are the clinical/test utility of screening/assessment tools (developed and/or modified for critical care population) in identifying critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive impairment associated with their treatment experience and critical illness?

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
**Review Question 2:**
When is the best or optimal time for screening/assessing critical care adult patients at risk of physical functional impairment and non-physical dysfunctions such as psychological problems and cognitive impairment associated with their treatment experience and critical illness?

**Volume of Evidence**

No. of studies identified = 4938

Selection based on abstract = 116

Excluded studies = 4822 (based on title and abstract)

Excluded = 109
- not relevant x 75
- inappropriate population x 13
- delirium x 21

Total no. of included studies = 7

**Evidence Table – Physical (Physical Functional Status)**

<table>
<thead>
<tr>
<th>Study type</th>
<th>No. of patients</th>
<th>Prevalence/incidence</th>
<th>Patient characteristics</th>
<th>Type of test</th>
<th>Reference standard</th>
<th>Sensitivity &amp; specificity, PPV &amp; NPV</th>
<th>Validity &amp; Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID:</td>
<td>Total no. of patients = 23</td>
<td>All patients</td>
<td>Patients attending the</td>
<td>The Rivermead Mobility Index</td>
<td>N/A</td>
<td>Inter-rater reliability</td>
<td></td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
<table>
<thead>
<tr>
<th>Author:</th>
<th>Collen et al (1991)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study type:</td>
<td>cohort</td>
</tr>
<tr>
<td>Level of evidence:</td>
<td>(·)</td>
</tr>
<tr>
<td>Based on 23 patients:</td>
<td>Male = 65%  Female = 35%  Mean age = 43.5 yrs (range 17–73)  Suffered stroke = 9  Suffered head injury = 13  Neurosurgery = 1</td>
</tr>
<tr>
<td>Study period:</td>
<td>Not reported.</td>
</tr>
<tr>
<td>Setting:</td>
<td>An outpatient clinic at The Rivermead Rehabilitation Centre, Oxford, UK.</td>
</tr>
<tr>
<td>had reduced mobility.</td>
<td>outpatient unit with reduced mobility who agreed to take part.</td>
</tr>
<tr>
<td>Exclusion:</td>
<td>Not reported.</td>
</tr>
<tr>
<td>(RMI): Further developed from the Rivermead Motor Assessment. The RMI is a measure of disability related to bodily mobility. It demonstrates the patient’s ability to move her or his own body. It does not measure the effective use of a wheelchair or the mobility when aided by someone else. There are 15 items with yes (1) or no (0) answer, scores range from 0 to 15. The index test was administered twice by 2 raters separately (neurologist then physiotherapist) when patients visited the outpatient unit (one visit). No follow-ups.</td>
<td></td>
</tr>
<tr>
<td>(Spearman’s $\rho$): Correlations (concurrent validity): RMI vs Barthel Index</td>
<td>$\rho = 0.94$ (p &lt; 0.001)  $r = 0.91$ (p &lt; 0.01)</td>
</tr>
</tbody>
</table>

**Additional comments:**
- Very small sample size.
- No information on time point and periods of follow-up, study population were already in rehabilitation programme and did not provide information on critical care/ICU stay.
- No clear exclusion criteria.
- No reference standard.
- Only patients with head injury or stroke – issue on generalisability.

---

**Evidence Table – Non-Physical (PTSD)**

**Title:** Use of a screening questionnaire for PTSD on a sample of UK ICU patients.

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
<table>
<thead>
<tr>
<th>Study type</th>
<th>No. of patients</th>
<th>Prevalence/incidence</th>
<th>Patient characteristics</th>
<th>Type of test</th>
<th>Reference standard</th>
<th>Sensitivity &amp; specificity, PPV &amp; NPV</th>
<th>Validity &amp; Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 35</td>
<td>Total no. of patients = 44</td>
<td>Confirmed diagnosis by PDS = 7/44 (16%)</td>
<td>Patients aged 18 or older</td>
<td>UK-PTSS-14</td>
<td>Post-traumatic Stress Diagnostic Scale (PDS)</td>
<td>Internal reliability: 4–14 days 2 mths 3 mths</td>
<td>α = 0.89 α = 0.86 α = 0.84</td>
</tr>
<tr>
<td>Author: Twigg et al (2008)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Test-retest reliability: 4–14 days vs 2 mths 2 mths vs 3 mths 4–14 days vs 3 mths</td>
<td>ICC = 0.77 ICC = 0.90 ICC = 0.70</td>
</tr>
<tr>
<td>Study type: Case series cohort</td>
<td>Whiston (n = 39)</td>
<td>Male = 86% Age (median) = 56 (18–74) ICU stay (days/median range) = 10.5 (2–32) APACHE II (median) = 16 (3–35) Days of artificial ventilation (median range) = 8 (1–20)</td>
<td>Exclusion: Patients younger than 18, grasp of English insufficient to complete the questionnaire, ICU stay &lt; 48hrs, history of dementia or learning disabilities, admission due to self-inflicted injury/overdose or unable to give consent in time for time-point 1 data collection.</td>
<td></td>
<td></td>
<td>Concurrent validity: 3 mths (UK-PTSS-14 vs PDS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hope (n = 5)</td>
<td>Male = 67% Age (median) = 56 (25–63) ICU stay (days/median range) = 7 (2–11) APACHE II (median) = 14 (10–18) Days of artificial ventilation (median range) = 8 (3–19)</td>
<td></td>
<td></td>
<td></td>
<td>Predictive validity: 4–14 days 2 mths</td>
<td></td>
</tr>
<tr>
<td>Level of evidence: (+++)</td>
<td></td>
<td>*no statistical difference between 2 sites.</td>
<td></td>
<td></td>
<td></td>
<td>ROC analysis 4–14 days sensitivity = 71% (95% CI: 29.3–95.5) specificity = 84% (95% CI: 68.0–93.8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study period: Dec 2000 – Feb 2002</td>
<td></td>
<td></td>
<td></td>
<td>2 mths sensitivity = 86% (95% CI: 42.2–97.6) specificity = 97% (95% CI: 85.8–99.5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Setting: 2 ICUs in 2 UK district hospitals.</td>
<td></td>
<td></td>
<td></td>
<td>3 mths sensitivity = 100% (95% CI: 58.9–100.0) specificity = 84% (95% CI: 68.0–93.8)</td>
<td></td>
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<tr>
<td></td>
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<td>AUC of 3 time points: Time-point 2 (2 mths) had the highest AUC index = 0.95 (95% CI: 0.84–0.99)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*cut-off point = 45</td>
<td></td>
</tr>
<tr>
<td>Additional comments:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>----------------------</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited sample size.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Generalisability: patients with dementia and learning disabilities were excluded.</td>
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<td></td>
</tr>
<tr>
<td>Only up to 3 months follow-up (only validated to screen acute PTSD but not validated to predict chronic or delayed onset PTSD).</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
### Title: Sensitivity and specificity of a screening test to document traumatic experiences & to diagnose PTSD in ARDS patients after intensive care treatment.

<table>
<thead>
<tr>
<th>Study type</th>
<th>No. of patients</th>
<th>Prevalence/ incidence</th>
<th>Patient characteristics</th>
<th>Type of test</th>
<th>Reference standard</th>
<th>Sensitivity &amp; specificity, PPV &amp; NPV Validity &amp; Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 1086</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First original cohort</td>
<td>(1995) = 80</td>
<td></td>
<td>All patients aged &gt; 16 yrs treated for ARDS by the hospital Department of Anesthesiology and the trauma centre.</td>
<td>Part A: Assessment of traumatic memories from ICU (4 questions with binary scale: yes/no).</td>
<td>Structured clinical interview with 2 trained psychiatrists to diagnose PTSD according to DSM-IV criteria.</td>
<td>Validation of the PTSS-10 against the reference standard at 2 years' follow-up:</td>
</tr>
<tr>
<td>Total no. of follow-up cohort of patients</td>
<td>(1997) = 52</td>
<td></td>
<td></td>
<td>Part B: modified German version of the PTSS-10: record presence &amp; intensity of 10 PTSD symptoms using a scale 1 (never) to 7 (always). In this study, item 9 'avoidance of activities' was adapted to 'fears of approaching place of accident'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on 52 patients:</td>
<td></td>
<td></td>
<td>Of the original cohort of 80 patients in 1995 = 27.5% (22 patients) based on questionnaire on traumatic memories.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female = 50%</td>
<td></td>
<td>Median duration of ICU stay = 30 days</td>
<td>Of the follow-up cohort confirmed by clinical interview based on DSM-IV (1997) = 13 (25%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male = 50%</td>
<td></td>
<td>Median duration of mechanical ventilation = 26.5 days</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median age = 36.5 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median duration of ICU stay = 30 days</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting: 20-bed multidisciplinary ICU of a university teaching hospital, Munich, Germany.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Note: Test administered 2 years post ICU discharge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Because of the 2 year interval period, the researchers verified that the episode of critical illness and the associated period of ICU treatment was the major traumatic event for these patients and they had not experienced other traumas that caused the symptoms (predicting chronic or delayed PTSD). Small sample, only apply to ARDS ICU patients.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NICE clinical guideline 83 – Critical illness rehabilitation (appendices)**
# Evidence Table – Non-Physical (Depression and Anxiety)

<table>
<thead>
<tr>
<th>Study type</th>
<th>No. of patients</th>
<th>Prevalence/incidence</th>
<th>Patient characteristics</th>
<th>Type of test</th>
<th>Reference standard</th>
<th>Sensitivity &amp; specificity, PPV &amp; NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Validity &amp; Reliability</td>
</tr>
<tr>
<td>Author:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(psychologist as reference standard)</td>
</tr>
<tr>
<td>Vedana et al (2001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STAI-X1</td>
</tr>
<tr>
<td>Study type:</td>
<td>Cross-sectional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sensitivity = 52%, Specificity = 99%</td>
</tr>
<tr>
<td>Level of evidence: (+)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STAI-X1</td>
</tr>
<tr>
<td>Total no. of patients =</td>
<td>Based on 102 patients:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PPV = 93%, NPV = 86%</td>
</tr>
<tr>
<td>102</td>
<td>Male = 66.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HADS-A</td>
</tr>
<tr>
<td></td>
<td>Female = 33.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sensitivity = 72%, Specificity = 84%</td>
</tr>
<tr>
<td></td>
<td>Mean age (range) = 61.4 (19–76)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PPV = 60%, NPV = 90%</td>
</tr>
<tr>
<td>Cardiac rehabilitation = 61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HADS-D</td>
</tr>
<tr>
<td></td>
<td>Respiratory rehabilitation = 25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sensitivity = 75%, Specificity = 88%</td>
</tr>
<tr>
<td></td>
<td>Neuro-orthopaedic rehabilitation = 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PPV = 60%, NPV = 93%</td>
</tr>
<tr>
<td>Study period: Not stated.</td>
<td>Setting: An Intensive Rehabilitation Centre in Italy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Analysis of ROC</td>
</tr>
<tr>
<td>Exclusion: Not stated.</td>
<td></td>
<td></td>
<td>Hospital Anxiety &amp; Depression Scales (HADS)</td>
<td>Clinical interview by clinical psychologist using an anxiety-depression assessment form based on previous experiences and the DSM-IV (DSM code 300.4)</td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (psychologist as reference standard)</td>
<td>Sensitivity = 76%, Specificity = 84%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not provided.</td>
<td>*14 items – score rated 0–3</td>
<td>(psychologist as reference standard)</td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>PPV = 61%, NPV = 91%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*subscale: depression 7 items</td>
<td>AUC = 0.88 (95% CI: 0.80–0.95)</td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>Male cut-off point = 48</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*subscale: anxiety 7 items</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>Sensitivity = 75%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(scores ranging from 0–21)</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>Specificity = 91%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cut-off point = 9</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>AUC = 0.85 (95% CI: 0.71–0.99)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Schedule A–D: State-Trait Anxiety Inventory (STAI-X1)</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>Male cut-off point = 43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*20 items – score rated 1–4</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>Sensitivity = 78%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(scores ranging from 20–80)</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td>Specificity = 96%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male cut-off point = 49</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Female cut-off point = 55</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Depression Questionnaire (DQ)</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*24 items – rated Yes or No</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(scores ranging from 0 to 24)</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male cut-off point = 8</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Female cut-off point = 12</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cut-off point equal to the 90th percentile.</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>All self-report questionnaires.</td>
<td></td>
<td>STAI-X1 with 80th percentile cut-off point instead of 90th (HADS-A as reference standard)</td>
<td></td>
</tr>
</tbody>
</table>

Note: All tests administered first, followed by the clinical interview by clinical psychologist using an anxiety-depression assessment form based on previous experiences and the DSM-IV (DSM code 300.4).
**Title:** Psychological assessment of ICU survivors: a comparison between the Hospital Anxiety & Depression scale and the Depression, Anxiety & Stress scale

<table>
<thead>
<tr>
<th>Study type</th>
<th>No. of patients</th>
<th>Prevalence/incidence</th>
<th>Patient characteristics</th>
<th>Type of test</th>
<th>Reference standard</th>
<th>Sensitivity &amp; specificity, PPV &amp; NPV</th>
<th>Validity &amp; Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 155</td>
<td>Total no. of patients 51 (51 at 3 months, 45 at 9 months)</td>
<td></td>
<td></td>
<td>DASS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author: Sukantar at al (2007)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Study type: Follow-up cohort</td>
<td>Based on 51 patients: Female = 56.9% Male = 43.1% Mean age = 57.4±13.6 years (SD) Mean duration of ICU stay = 16.9±17.0 days (range 3–78 days)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Level of evidence: (+)</td>
<td>Study period: Not provided. Setting: UK ICU.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Definite cases by HADS (score: ≥11) 3-month: Depression = 12 (24%) Anxiety = 8 (18%) 9-month: Depression = 14 (31%) Anxiety = 10 (22%)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Adult patients who survived a severe illness that required more than 3 days of intensive care (including mechanical ventilation). Exclusion: Not stated.</td>
<td></td>
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<tr>
<td></td>
<td>DASS 42 questions (14 for each 3 subscales: depression, anxiety, stress) Scored from 0 to 3 Range of 0–42 for each parameter *cut-off points: DASS Depression Moderate (14–20), Severe (21–27) Extremely severe (28–42) DASS Anxiety Moderate (10–14), Severe (15–19) Extremely severe (20–42) DASS Stress Not reported HADS 14 items – score rated 0–3 Subscale HADS-D: depression 7 items Subscale HADS-A: anxiety 7 items (scores ranging from 0 to 21) *Cut-off points: 7 or less = non-case 8–10 = doubtful case 11 or more = definite case Follow-up:</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>HADS Internal reliability: DASS – Anxiety – Depression – Stress HADS – Anxiety – Depression Criterion validity: (Spearman’s ρ, all significant at p&lt;0.0001) 3 months: DASS Depression/HADS-D ρ = 0.734 DASS Anxiety/HADS-A ρ = 0.666 DASS Depression/HADS-A ρ = 0.908 DASS Anxiety/HADS-D ρ = 0.921 DASS Stress/HADS-D ρ = 0.693 DASS Stress/HADS-A ρ = 0.711 9 months: DASS Depression/HADS-D ρ = 0.781 DASS Anxiety/HADS-A ρ = 0.767 DASS Depression/HADS-A ρ = 0.851 DASS Anxiety/HADS-D ρ = 0.948 DASS Stress/HADS-D ρ = 0.719 DASS Stress/HADS-A ρ = 0.740</td>
<td></td>
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</tr>
</tbody>
</table>

**Additional comments:**
No information on time point and periods of follow-up; study population were already in rehabilitation programme; did not provide information on critical care/ICU stay.
No clear exclusion criteria.
Italian rehabilitation setting – issue on generalisability.

**Interview by the psychologist (same day).**
AUC = 0.95 (95% CI: 0.90–1.00)

---

**NICE clinical guideline 83 – Critical illness rehabilitation (appendices)**

[65 of 100]
At 3 & 9 months after ICU discharge, where both scales were administered.

<table>
<thead>
<tr>
<th>Bland–Altman plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>DASS Depression/HADS-D</td>
</tr>
<tr>
<td>DASS Anxiety/HADS-A</td>
</tr>
</tbody>
</table>

Additional comments:
Study did not demonstrate that the DASS has significant advantages over the HADS in ICU population.

Concurrent validity: the correlation was stronger between anxiety on one scale and depression on the other.

DASS has 3 times more questions than the HADS, and the appropriateness of reference standard used is questionable.

**Title: Validity of the Faces Anxiety Scale for the assessment of state anxiety in intensive care patients not receiving mechanical ventilation.**

<table>
<thead>
<tr>
<th>Study type</th>
<th>No. of patients</th>
<th>Prevalence/ incidence</th>
<th>Patient characteristics</th>
<th>Type of test</th>
<th>Reference standard</th>
<th>Sensitivity &amp; specificity, PPV &amp; NPV</th>
<th>Validity &amp; Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 1568</td>
<td>Total no. of patients = 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author: McKinley &amp; Madronio (2008)</td>
<td>Based on 100 patients: Female = 35%, Male = 65%, Mean age = 59.8 years (range 17–95)</td>
<td>Mean duration of ICU stay = 4.63 days (range 0.7–44.5)</td>
<td>Study period: Not reported.</td>
<td>Setting: 29-bed multidisciplinary ICUs (general, cardiothoracic, neurological) of a 600-bed metropolitan tertiary referral hospital in Sydney, Australia.</td>
<td>72% of patients had SAI scores at or below the level originally reported as the norm of 42.38 for medical-surgical inpatients.</td>
<td>Patients were eligible to take part in the study if they were aged 18 years or older, conscious and orientated in time and place, able to read and understand English, able to respond verbally to questions about their feelings and emotions and had sufficient corrected vision to see the FAS.</td>
<td>The Faces Anxiety Scale (FAS) is a single-item scale with 5 possible responses, ranging from a neutral face to a face showing extreme fear, and is scored form 1 to 5. The scale was on an 11 × 24 cm card and patients were asked to point to the face that how the they felt at that time. Spielberger State Anxiety Inventory (SAI): 20-item, 10 anxiety-present, 10 anxiety-absent, with 4-choice Likert scale from 'not at all' to 'very much'</td>
</tr>
</tbody>
</table>
Main aim of the study was to decide intervention to reduce anxiety during ICU stay, not to identify rehabilitation needs (no follow-up).

83 patients received sedative and/or opioid therapy in the 24 hours prior to reporting their anxiety, which may have influenced the anxiety ratings. The appropriateness of reference standard used is questionable.

Evidence Table – Non-Physical (Cognitive Dysfunction)

<table>
<thead>
<tr>
<th>Study type</th>
<th>No. of patients</th>
<th>Prevalence</th>
<th>Patient characteristics</th>
<th>Type of test</th>
<th>Reference standard</th>
<th>Sensitivity &amp; specificity</th>
<th>PPV &amp; NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 927</td>
<td>Total no. of rating sessions: Rancho scale = 75 by different raters NICE scale = 117 by different raters Total number of patients involved unknown. Patients’ characteristics not reported. Study period: Not reported. Setting: 18-bed cardiothoracic surgery ICU at the hospital of the University of Pennsylvania, a 720-bed facility, USA.</td>
<td>Not reported.</td>
<td>Inclusion and exclusion criteria not reported.</td>
<td>Neuro-cognitive assessment tools to document the level of consciousness and the level of cognitive function of patients (carried out by critical care nurses through observation). Rancho scale: A non-verbal 8-level scale ranging from 1 (unresponsive) to 8 (orientated). Neurologic Intensive Care Evaluation (NICE) – derived from the Rancho scale: A non-verbal 9-level scale ranging from 0 (absent brainstem reflexes) to 8 (orientated).</td>
<td>N/A</td>
<td>Rancho scale: Inter-rater reliability: ( \rho = 0.91 ) Neurologic Intensive Care Evaluation (NICE): Inter-rater reliability: ( \rho = 0.94 )</td>
<td></td>
</tr>
</tbody>
</table>
Patients were still in ICU. No follow-up.

Additional comments:
- Lack of information on study population and no information on inclusion and exclusion criteria.
- Only covered cardiothoracic surgical ICU.
- No measures on validity.
- No reference standard.

# Measures of Physical Functional Status (for reference)

**Instruments currently used widely in rehabilitation and physiotherapy**

<table>
<thead>
<tr>
<th>Tools</th>
<th>Description</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Independence Measure (FIM) (UK version) and/or Functional Assessment Measure (FAM) (UK FIM+FAM)</td>
<td>The FIM scale assesses physical and cognitive disability. This scale focuses on the burden of care, that is, the level of disability indicating the burden of caring for patients. The UK version was developed in 1999.</td>
<td>It was designed to assess areas of dysfunction in activities which commonly occur in individuals with any progressive, reversible or fixed neurologic, musculoskeletal and other disorders. It is widely used in rehabilitation community. However, one limitation relating to use of the FIM is that it is not diagnosis specific.</td>
<td>Items are scored on the level of assistance required for an individual to perform activities of daily living. The scale includes 18 items, of which 13 items are physical domains based on the Barthel index and 5 items are cognition items. Each item is scored from 1 to 7 based on level of independence, where 1 represents total dependence and 7 indicates complete independence. The scale can be administered by a physician, nurse, therapist or layperson. Possible scores range from 18 to 126, with higher scores indicating greater independence. Alternatively, the 13 physical items could be scored separately from 5 cognitive items.</td>
</tr>
</tbody>
</table>

- **FIM physical items:**
  - Eating
  - Grooming
  - Bathing/showering
  - Dressing upper body
  - Dressing lower body
  - Toileting
  - Bladder management

- **FIM cognitive items:**
  - Expression
  - Comprehension
  - Social interaction
  - Problem solving
  - Memory

*NICE clinical guideline 83 – Critical illness rehabilitation (appendices)*
FAM consists of 12 items. These items do not stand alone, but are intended to be added to the 18 items of the FIM. The total 30-item scale combination is referred to as the FIM+FAM. The time required to administer the FIM+FAM is approximately 35 minutes.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Description</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barthe index</td>
<td>Developed in 1965 to compare physical functional status before and after an intervention, and to indicate potential nursing requirements for long-term hospitalised patients.</td>
<td>Based on long-term hospitalised patients, especially those with musculoskeletal or neuromuscular disorders; has been subsequently widely used within trauma and general critical care. It was designed for in-hospital patients only.</td>
<td>The index is completed by a therapist or other observer and is a rating scale that takes approximately 30 seconds to complete. It comprises nine dimensions: feeding, mobility from bed to chair, personal toilet, getting on/off the toilet, bathing, walking on level surface, going up/down stairs, dressing, continence. The scoring system ranges from zero (totally dependent) to 100 (fully independent).</td>
</tr>
<tr>
<td>The Rivermead Mobility Index</td>
<td>It was developed at the Rivermead Rehabilitation Centre in Oxford England in 1991 specifically for patients who had suffered a</td>
<td>Widely used in other areas involving physiotherapy such as neurosurgery, multiple sclerosis, physical disability, etc.</td>
<td>The Rivermead Mobility Index is a measure of disability related to bodily mobility. It demonstrates the patient's ability to move her or his own body. It does not measure the effective use of a wheelchair or the mobility when aided by someone else. There are 15 items with yes (1) or no (0) answer; scores range from 0 to 15.</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
The Modified Rivermead Mobility Index

head injury or stroke.

The items are:
- Turning over in bed
- Lying to sitting
- Sitting balance
- Sitting to standing
- Standing unsupported
- Transfer
- Walking inside with an aid if needed
- Stairs
- Walking outside (even ground)
- Walking inside with no aid
- Picking off floor
- Walking outside (uneven ground)
- Bathing
- Up and down 4 steps
- Running

In its new modified form, the scoring was adapted from a two-point to a six-point scale. The number of test items was reduced from 15 to eight in order to measure mobility-related items that physiotherapists considered essential for demonstrating treatment effects in patients following a stroke.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Description</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
</table>
| Katz’s activity of daily living index | Developed in 1963 to describe the functional status of elderly patients for clinical purposes. | Based on the observation of a large number of elderly patients with fractured hips; has been subsequently used for patients with rheumatoid arthritis, stroke and within general critical care. | The index was developed for completion by an observer. The index ranks individuals according to their performance of six functions:  
  - bathing  
  - dressing  
  - toileting  
  - transferring  
  - continence  
  - feeding  
  expressed as a grade from A (independent) to G (dependent) in each of the six functions. |
| Karnofsky index                | Originally developed as a measure of overall health status in lung cancer patients. | Has been subsequently used for patients with cardiac surgery, liver transplant, acute lung injury and within general critical care. | The scores were assigned by a clinician rather than the patient. The Karnofsky Index emphasises physical performance and dependency, with scores range from 0 (dead) to 100 (normal). |
## Walk test

There are 1-, 6- and 12-minute walk tests, during which the patient is asked to cover as much ground as possible in the allotted time. The test is used principally with patients suffering COPD. Widely used in physiotherapy.

Following the walk, patients are asked to assess their level of dyspnoea on a visual analogue scale which ranges from ‘extremely short of breath’ (0) to ‘no shortness of breath’ (10). For example: The 6-minute walk test measures the maximal distance passed walking within 6-minute period. The lowest limiting value to be reached by a healthy person is published as 400 m.

### Review Question 3:

What are the clinical effectiveness and cost effectiveness of different rehabilitation strategies/programmes for adult patients who have developed physical and non-physical morbidities including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?

### Review Question 4:

When is the optimal time for adult critical care rehabilitation? This includes:

- Does early rehabilitation during critical care reduce subsequent risk of adult patients developing physical and non-physical morbidities following a period of critical illness and associated with their treatment experience in critical care?
- When is the optimal time for initiating or delivering rehabilitation strategies/programmes to adult patients with physical and non-physical morbidities including psychological problems and cognitive deficits following a period of critical illness and associated with their treatment experience in critical care?

### Volume of Evidence

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
No. of studies identified = 13457

Excluded studies = 13346 (based on title and abstract)

Selection based on abstract = 111

Excluded = 110 (not relevant – 51; inappropriate population – 4; ICU management – 32; low quality study design – 23)

Total no. of included studies = 1

Evidence Table

Title: Rehabilitation after critical illness: a randomised, controlled trial.

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Patient Population/ Characteristics</th>
<th>Selection/Inclusion criteria</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Follow-up</th>
<th>Outcome</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 1899</td>
<td>Total no. of patients: Baseline = 126 (I = 69, C = 57) At 8 wks = 114 (I = 63, C = 51) At 6 mths = 102 (I = 58, C = 44) Lost to follow-up at 6 mths = 19% Baseline characteristics: Mean age I = 57 (SD: 17); C = 59 (SD:16) Male/female</td>
<td>Inclusion: Adult patients in ICU and ventilated Exclusion: • stayed in ICU &lt; 48 hrs • Suffering burn injury • Unable to follow the manual or &quot;6-wk self-help rehabilitation manual included&quot;: • 93 pages of text,</td>
<td>A 6-wk self-help rehabilitation manual Plus ‘usual care’. 'Usual care' Defined as: routine ICU follow-up; included 3 telephone follow-ups at home; ICU follow-up clinic</td>
<td>8 wks &amp; 6 mths post ICU discharge</td>
<td>Physical function (SF-36) at 3 time points interaction Depression (HADS-D) – cut-off &gt; 11 (at 8 wks)</td>
<td>( F = 3.7, \text{ df } = 4, \text{ p } = 0.006 ) ( I = 8 \text{ (12%)}, C = 13 \text{ (25%)}, \text{ Fisher’s exact } = 3.1, \text{ p } = 0.066 ) ( I = 10%, C = 12% \text{ (not signif.)} )</td>
<td></td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)

I = 54%/46%; C = 58%/42%
Mean SF-36 score
I = 55 (SD:17); C = 55 (SD: 16)
Mean APACHE II score
I = 17 (SD: 5); C = 16 (SD: 5)
Mean HADS-A score
I = 8 (SD: 5); C = 8 (SD: 4)
Mean HADS-D score
I = 6 (SD: 4); C = 6 (SD: 6)
Mean STAI score
I = 42 (SD: 12); C = 42 (SD: 9)

*no significant differences between I group & C group.

Recruited 1 wk post ICU discharge (in general wards)

Setting:
3 UK hospitals – Whiston, Manchester Royal Infirmary, Royal Berkshire. All 3 hospitals already had established follow-up clinics.

had language difficulties
• Neurosurgical patients
• Had pre-existing psychotic illness
• Those discharged for terminal care and unlikely to survive the 6 mths’ follow-up
diagrams & supporting illustrations
• advice on psychological, psychosocial, physical problems.
• a self-directed exercise programme
• 3 weekly telephone calls to reinforce the use of the manual
• patients kept a diary
• with a close relative or friend of their choosing present.

appointments at 8 wks and 6 mths.

*Subgroup analysis (those had received antidepressant – at 8 wks)

Anxiety (HADS-A) – cut-off > 11 (at 6 mths)

Subgroup analysis (those not on benzodiazepines)

PTSD-related symptoms (IES)
(at 8 wks)

Subgroup analysis (those not on benzodiazepines)

Norbeck Social Support questionnaire

GRADE profiles

Quality Assessment

No. of patients

No. of studies Design Limitations Inconsistency Indirectness Imprecision Other considerations

Summary of findings

No. of patients Intervention Control Relative (95%CI) Absolute

Physical function (at 3 time-points: baseline, 8 weeks, 6 months after ICU discharge)

1 RCT No No No Yes’ None 58 44 ANOVA (at 3 time points interaction) F = 3.7, p = 0.006 Moderate

Physical function (at 8 weeks after ICU discharge)

1 RCT No No No Yes’ None 63 51 Univariate ANOVA (at 8 weeks) F = 12.19, p < 0.0001 Moderate

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
### Physical function
(at 6 months after ICU discharge)

<table>
<thead>
<tr>
<th></th>
<th>RCT</th>
<th>No</th>
<th>No</th>
<th>Yes’</th>
<th>None</th>
<th>58</th>
<th>44</th>
<th>Univariate ANOVA (at 6 months)</th>
<th>Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>F = 14.4, p &lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

### Depression
(at 8 weeks after ICU discharge)

|   | RCT | No | No | Yes’ | None | 8/63 (12%) | 13/51 (25%) | 0.4981 (0.2239, 1.1082) | 13%      | Moderate |
|---|-----|----|----|------|------|------------|-------------|---------------------|----------|

### Depression
(at 6 months after ICU discharge)

|   | RCT | No | No | Yes’ | None | 6/58 (10%) | 5/44 (12%) | 0.9103 (0.2696, 2.7908) | 2%       | Moderate |
|---|-----|----|----|------|------|------------|------------|---------------------|----------|

### Anxiety
(at 6 months after ICU discharge)

|   | RCT | No | No | Yes’ | None | 19/58 (32%) | 15/44 (34%) | 0.9609 (0.5532, 1.6689) | 2%       | Moderate |
|---|-----|----|----|------|------|-------------|------------|---------------------|----------|

### PTSD-related symptoms
(at 8 weeks after ICU discharge)

<table>
<thead>
<tr>
<th></th>
<th>RCT</th>
<th>No</th>
<th>No</th>
<th>Yes’</th>
<th>None</th>
<th>63</th>
<th>51</th>
<th>1-way ANOVA (at 8 weeks)</th>
<th>Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F = 5.24, p = 0.026</td>
<td></td>
</tr>
</tbody>
</table>

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2 Control: Usual care defined as: routine ICU follow-up included 3 telephone follow-ups at home; ICU follow-up clinic appointments at 8 wks and 6 mths.
3 Physical function was measured by SF-36 physical function score.
4 Depression was measured by HADS-D, with cut-off > 11 as cases.
5 Anxiety was measured by HADS-A, with cut-off > 11 as cases.
6 PTSD-related symptoms were measured by IES.
7 Lacks power, total number of event fewer than 300.

---

**Title: Effects of physical training on functional status in patients with prolonged mechanical ventilation.**

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Patient Population/Characteristics</th>
<th>Selection/Inclusion criteria</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Follow-up</th>
<th>Outcome</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ID:</strong> Total no. of patients: Baseline total = 39 (I = 17, C = 15)</td>
<td>Inclusion: Patients who required mechanical ventilation for more than 14 days, to be</td>
<td>Early rehabilitation, defined as supervised training sessions conducted by physical therapist 5</td>
<td>‘Usual care’ Defined as: standard therapy for the underlying disease</td>
<td>3 weeks &amp; 6 weeks after recruitment</td>
<td>Median (IQR) Baseline BL</td>
<td>I = 5.0 (0.0–10.0), C = 0.0 (0.0–5.0) p &gt; 0.05</td>
<td></td>
</tr>
</tbody>
</table>

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NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
### Study type:
- **RCT**

### Authors:

### Study type:
- **RCT**

### Baseline characteristics (based on 32 patients):
- **Median age**
  - I = 75 (IQR: 63.0–80.3)
  - C = 79 (IQR: 72.5–82.8)
- **Male/Female**
  - I = 71%/29%
  - C = 80%/20%

*no significant differences between I group & C group*

### Study period:

### Setting:
The respiratory care centre (a post intensive care unit) in a general hospital in Taiwan.

### Exclusion:
- Patients with comorbid medical conditions (e.g., neurological diseases) or who were under any sedative paralytic agents that would interfere with strength measurements and limb exercises.

### Objective:
- Medically stable, mentally alert, to have acceptable haemodynamic stability (defined as a lack of hypotension or a need for only low-dose pressors).

### Intervention:
- Early exercise defined as active or passive cycling exercises for the upper and lower extremities (ROM exercises) and functional activity retraining.

### Comparison:
- 'Usual care'.

### Follow-up:
- Patients were followed until initiation of the 6-week programme.

### Outcome:
- **FIM**
  - I = 34.0 (30.3–38.3), C = 33.0 (24.3–37.0)
  - p > 0.05
- **BI**
  - I = 20.0 (15.0–31.3), C = 0.0 (0.0–8.8)
  - p < 0.05
- **FIM**
  - I = 45.0 (40.0–53.5), C = 28.0 (22.0–35.8)
  - p < 0.05
- **FIM**
  - I = 49.0 (45.0–66.3), C = 26.0 (19.5–35.5)
  - p < 0.05

**Effect sizes (Cohen's d):**
- BI (3-week) d = 1.03 (95% CI: 0.27–1.74)
- BI (6-week) d = 2.02 (95% CI: 1.12–2.81)
- FIM (6-week) d = 1.93 (95% CI not reported)

### Additional comments:
- Only applied to patients who were receiving long periods of mechanical ventilation and who were medically stable.
- Very small study sample.
- A study in Taiwan, question on generalisability.

### Title: Effectiveness of early exercise in critically ill patients.

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Patient Population/Characteristics</th>
<th>Selection/Inclusion criteria</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Follow-up</th>
<th>Outcome</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 5206 Level:</td>
<td>Total no. of patients: I = 31, C = 28</td>
<td>Inclusion: Stable patients, ventilatory support for at least 5 days and who</td>
<td>Early exercise defined as active or passive cycling sessions for 20 mins</td>
<td>'Usual care' Routine medical treatment and</td>
<td>Not clear. Data presented at 2</td>
<td>ICU LOS (median, IQR)</td>
<td>I = 22 (15–29), C = 21 (15.5–32) p = 0.67</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
<table>
<thead>
<tr>
<th>Study type: RCT</th>
<th>Baseline characteristics: Not provided. Only stated: no differences in gender, age height, weight were observed.</th>
<th>had an expected stay of at least another week on the ICU.</th>
<th>per day using a bedside ergometer. Plus ‘usual care’.</th>
<th>daily sessions of chest physiotherapy and functional rehabilitation.</th>
<th>time points: ICU discharge and hospital discharge.</th>
<th>Hospital LOS (median, IQR)</th>
<th>6-min walking test (median, IQR) (at hospital discharge, unit of distance not stated)</th>
<th>SF-36 physical function score (median, IQR) (at hospital discharge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study type: RCT</td>
<td>Baseline characteristics: Not provided. Only stated: no differences in gender, age height, weight were observed.</td>
<td>had an expected stay of at least another week on the ICU.</td>
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<td>SF-36 physical function score (median, IQR) (at hospital discharge)</td>
</tr>
<tr>
<td>Additional comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of information on study population and setting. Method of randomisation not clear. Concealment of allocation not clear. Blinding processes not clear. Length of follow-up not clear.</td>
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</tbody>
</table>

**Title:** Early activity is feasible and safe in respiratory failure patients

| Level of Patient Population/ Selection/Inclusion Intervention Comparison Follow-up Outcome |
|---|---|---|---|---|

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
<table>
<thead>
<tr>
<th>Evidence</th>
<th>Characteristics</th>
<th>criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study type:</td>
<td>Cohort</td>
<td></td>
</tr>
<tr>
<td>Authors: Bailey et al (2007)</td>
<td>Total no. of patients: A total of 1,449 activity events in 103 patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Baseline characteristics: Not provided.</td>
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<tr>
<td></td>
<td>Setting: Eight-bed respiratory ICU at LDS Hospital (US)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inclusion: Respiratory failure patients who required mechanical ventilation for &gt;4 days</td>
<td>Patients were assessed for early activity as part of routine respiratory ICU care. Activity events and adverse events recorded prospectively. Three activity events defined as: sit on bed, sit in chair, and ambulate. Six activity-related adverse events defined as: fall to knees, feeding tube removal, systolic blood pressure &gt;200 mmHg, systolic blood pressure &lt;90 mmHg, oxygen desaturation &lt;80%, and extubation.</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Level of Evidence</td>
<td>Patient Population/Characteristics</td>
<td>Selection/Inclusion criteria</td>
</tr>
<tr>
<td>------------------</td>
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<td>-----------------------------</td>
</tr>
<tr>
<td>ID:</td>
<td>Total no. of patients: I = 165, C = 165</td>
<td>Inclusion: Medical ICU patients with acute respiratory failure requiring mechanical ventilation on admission.</td>
</tr>
<tr>
<td>Study type:</td>
<td>Cohort</td>
<td></td>
</tr>
<tr>
<td>Authors:</td>
<td>Morris et al (2008)</td>
<td></td>
</tr>
<tr>
<td>Setting:</td>
<td>A university medical ICU (US)</td>
<td></td>
</tr>
</tbody>
</table>

Additional comments: N/A
**Review Question 5:**
What information and support needs are viewed as important by adult patients and their carers or family who have developed rehabilitation needs during or following a period of critical illness requiring critical care?

**Volume of Evidence**

- No. of studies identified = 1833
  - Excluded studies = 1776 (based on title and abstract)
- Selection based on abstract = 57
  - Excluded = 54 (not relevant – 16 studies; inappropriate population – 38 studies)
- Total no. of included studies = 4 (3 from searches + 1 from DIPEx)
## Evidence table

**Title:** Database of Individual Patient Experiences (DIPEx) (intensive care module).

<table>
<thead>
<tr>
<th>Study Type</th>
<th>Research parameters</th>
<th>Population &amp; sample selection</th>
<th>Outcomes</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: N/A</td>
<td>Grading (+++)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Database of Individual Patient Experiences (DIPEx) | Critical care patient experiences (intensive care module) | Total no. of patients & family/carers = 78 (patients = 40; families/carers = 38) | Admitted to and during critical care  
**Theme 1:** Making sense of what happened – information at different stages of illness and recovery:  
(From both patients and families/carers):  
- Basic information on the illness, the treatments and what had happened  
- Information on weakness and muscle loss  
- Information on likely hospital length of stay and recovery  
- Involvement of family/carers in sharing the information  
Summary:  
- Fear, isolation and a loss of control were common feelings among people in intensive care who were ill or injured.  
- For many, making a good recovery also included making sense of what had happened during their stay in intensive care.  
- Many of those who were sedated remembered little leading up to sedation and, when they came round, their memories were often hazy or confused. Once they were more aware, some people wanted to ask questions and find out as much as possible.  
- People also wanted information at different stages of illness and recovery and on different topics.  
- Most people wanted to find out basic information about what had happened to them, what was wrong with them, how long they'd been in hospital and when they would recover (with the involvement of family or carers).  
- Many people said that although they were told about their illness when they were in intensive care, they hadn't been able to remember what was said to them at the time. They stressed the importance of having information repeated to them again and again.  
- Many people had wondered why they were so weak and had been told, often |  
| Methodology: Each of the DIPEx modules is collected and analysed by an experienced and trained researcher who specialises in qualitative study.  
- Purposive sampling method was adopted for the study.  
- The interviews take place throughout the UK, mainly in respondents' homes. Interview tapes were fully transcribed and returned to the respondent for review.  
- A list of categories was drawn up for analysis, but as the analysis progressed additional categories were added.  
- During analysis, two members of the DIPEx team looked at the NUDIST N6 reports and together they make sure |  

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
that important points had been included in the topic summaries.

- by physiotherapists, about the muscle loss they'd had after being critically ill and immobile in ICU.
- Some said they trusted the expertise of doctors and nurses and asked few questions about their illness and treatments. Others had wanted as much information as possible in order to regain a sense of control.
- Most families/carers were shocked, frightened and upset when they first saw the patient with bruises, swelling and connected to various machines. Information on a patient's illness and treatments would reduce the anxiety of families/carers.

(From patients):
- To have all the above information repeated again and again

Summary:
- Many people said that although they were told about their illness when they were in intensive care, they hadn't been able to remember what was said to them at the time. They stressed the importance of having information repeated to them again and again.

(From families/carers):
- Information on equipment attached to the patient.
- Detailed information on the possibility that patient might improve as well as deteriorate during different stages of the treatment.
- The initiation of ICU diaries.

Summary:
- To explain the possibility that patient might deteriorate as well as getting better because of unforeseen problems.
- Give detailed information on patient condition to equip family/carers' feelings of the extreme highs and lows when patients continually improve and deteriorate.
- ICU doctors have to strike a balance between giving information to relatives without raising their hopes at a time when the patient's survival is uncertain and could go either way. Often, doctors err on the side of caution rather than optimism.
- Information about the equipment the ill person would be attached to.
- Given more information about hallucinations earlier as this would have
alleviated their anxiety.
- To continually provide information on the patient's condition or improvement during different stages of the treatment.
- Many relatives said writing down dates and brief notes about the illness or treatments had helped them keep a record of this important information, which they'd never have remembered at a later stage.
- Writing notes also helped her to deal with her own feelings.

**Discharge from critical care & ward-based care**

**Theme 1: Information & discussion on what happened in ICU and related ICU syndrome:**

(From both patients and families/carers):
- Information and reassurance regarding dreams and hallucinations
- The use of ICU diaries
- Lack of communication between nurses working different shifts in the ward

**Summary:**
- Many said that, although they couldn't do anything about the days, weeks or months they'd lost, knowing as much as they could helped explain where the time had gone and restored some sense of control.
- Making sense of dreams and hallucinations also mattered to some, particularly finding out what had been real or hallucination caused by the illness or treatments they'd received in intensive care. For most people making sense of what happened was a gradual, fragmented process rather than one occasion or stretch of time when they 'pieced it all together'.
- Relatives and healthcare professionals during and after their hospital stay, as well as ICU diaries, all contributed to what one man called fixing 'the jigsaw' of his life.
- Many relatives and close friends said the diary they'd kept had been useful for many different reasons: it had helped them answer questions and fill in gaps when the patient had wanted to make sense of what had happened; it had helped them and the patient see just how much the ill person had improved since the illness or accident and this had been encouraging; it had been useful when visiting doctors after the patient had been discharged from hospital, helping them to answer questions about the date of admission, the
Theme 2: Information on patient’s care pathway

(From both patients and families/carers):

Summary:
- Not all patients or their family/carers were aware of or understand the patient’s care pathway and the process from one care setting to another.
- Others noted that their relatives would have liked more information about what to expect on the ward.

Theme 3: Setting goals for physical recovery

(From patients):

Summary:
- Goal-setting was the key rehabilitation in helping patients to regain strength, mobility and confidence with informed expectation.
- Many people stressed the importance of setting themselves realistic goals while they were recovering because it gave them a sense of achievement when they succeeded.

Hospital discharge

Theme 1: Information and discussion on discharge plan prior to discharge:

(From both patients and families/carers):
- Information on who decided the discharge and on what basis
- Information on the trajectory projection of the recovery
- Basic information on diet, exercise and drug treatment if applicable
- To be given the ICU diaries at hospital discharge, if not given at ICU discharge

Summary:
- Many people said they had been uncertain about how strong they'd need to be before being allowed home and when that would be.
- Several said they had asked doctors, nurses and physiotherapists when they'd be allowed home, and didn't know who would decide and on what basis.
- Most people said they were completely unprepared for how long it took to recover. Some of them wished they'd been told more about this when they were discharged.
- Some people had been given information about recovery before they were discharged from hospital, particularly on diet, exercise and drug management.

(From families/carers):
- Information on patient’s rehabilitation needs and services before hospital discharge
- All the above information to be shared with family/carers
- Information for family/carers on what to expect when a person returns home after being critically ill in ICU

Summary:
- Some relatives said they would have liked more information on what to expect when a person returns home after being critically ill in ICU.
- Most people who had been given diaries of their ICU stay, either when leaving the hospital or at a follow-up appointment, said they learnt a lot more about their stay after reading these, including information about the illness, treatments, changes and improvements, family reactions and visitors.
- Information on patient’s rehabilitation needs and services before hospital discharge.

Recovering at home
Theme 1:
Information on physical recovery and impact on daily living
(From both patients and families/carers):

Summary:
- Most people said they were completely unprepared for the time it took to regain strength and mobility when they left intensive care and general ward.
- Many patients have little or no memory of their critical care experiences, which can affect their false expectations of recovery time.
- Many people still suffered unexpected weakness, tiredness and immobility after discharge back home. This had a big impact on their normal daily activities such as washing, walking, cooking and cleaning, and many found climbing up and down the stairs impossible.
- Some said the visit had given them a better understanding of their illness because the doctor had gone through their notes and talked them through everything that had happened in intensive care.
- Many were surprised at the length of time it had taken the ill person to recover and get back to normal, including resuming work. Some had taken a year, others 2 years.
- Most said the ill person had been completely unprepared for the time it took to regain strength and mobility when they left ICU.

Theme 2: Information on and discussion of emotional aspects of recovery:

(From both patients and families/carers):
- Discussion on any non-physical morbidity
- Information on referrals or support groups available
- Acknowledgement that everyone is unique and can experience any range of emotions at different times

Summary:
- Everyone is unique and can experience any range of emotions at different times.
- A few found discussing nightmares with medical staff, either before they were discharged or at a follow-up appointment, reassuring because they learnt how common it was for people who’d been in intensive care to have nightmares.
- Some people said they would have liked to talk to someone outside the
Title: A qualitative study of the experiences of patients following transfer from intensive care.

<table>
<thead>
<tr>
<th>Study Type</th>
<th>Research parameters</th>
<th>Population &amp; sample selection</th>
<th>Outcomes</th>
<th>Additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID: 1342</td>
<td>Setting: A tertiary referral hospital in Northern Ireland – The Royal Hospitals Trust, Belfast. Methodology: A Husserlian phenomenological approach was adopted (descriptions about situations from persons who experience them in the manner in which they are)</td>
<td>Total no. of patients = 10 Male = 7 Female = 3 Mean ICU LOS = 5.2 days Age range = 18–77 Inclusion/exclusion: Patients who had been in intensive care for longer than 3 days, 18 years of age or older, and</td>
<td>Discharge from critical care and ward-based care <strong>Theme 1:</strong> Reassurance on physical response Information and reassurance on physical response related to how the patients talked about their physical experiences in the immediate post-transfer period from ICU. It included 3 minor categories: • <strong>Sleep</strong> – tiredness, sleep difficulties, sleep disorders, weakness, exhaustion, flashback, hallucinations and nightmares • <strong>Digestion</strong> – feelings of sickness, nausea, lack of appetite, bowel complications • <strong>Mobility</strong> – lack of mobility, the aid of physiotherapists. <strong>Theme 2:</strong> Reassurance on emotional response and family involvement</td>
<td>The qualitative approach and research design adopted were well explained and justified, with focused aims and objectives. A positive feature of this study is reflexivity: researcher’s background, position, perspective were described and examined in order to ensure the effect the interviewer had on the data generation process was...</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
Sampling method: purposive sampling. Open interview style was adopted and 4 questions were used to draw out subjects’ own experiences in their own words. Data was analysed and meaning units were identified from 91 significant statements. The meanings identified were then grouped into clusters of themes that were subsequently sorted into 3 main categories.

Interviews were performed on the wards 3–5 days after transfer from ICU. The interview was conducted at the bedside and varied in length from 15 to 35 min.

Physically and mentally capable of participating in the study as deemed by the consultant in charge were invited.

This major theme described the emotional experiences of patients following transfer from ICU. It included 3 sub-themes:

- **Positive feelings** – progression towards physical recovery; gaining knowledge of the illness and information regarding treatment equipped patients with a feeling of control
- **Negative feelings** – encompasses feelings of anxiety, loneliness, depression and exhaustion
- **Family** – the importance of family presence and the strain on family due to the patient’s illness.

**Theme 3:**

**Provision of information and care management**

Concerns were expressed regarding the transfer process from ICU, information giving and care management on the ward.

- **Need for information** – the importance of information about patient’s own critical illness, explanation on recovery, a lack of continuity caused by inadequate communication between ICU staff and those in the general wards led to unnecessary stress.
- **Care management** – attitude, attention and organisation were important aspects of care management, demanded a high quality of individualised care.

**Summary of implications for nursing practice:**

- Opportunity should be offered to discuss memories and nightmares, both real and hallucinatory.
- Patients should be encouraged to re-adopt their ‘normal’ sleep pattern.
- Nursing interventions should aim at maximising patient control and help towards reducing anxiety levels.
- The need for patient information, explanation and reassurance is real.
- The position of a follow-up nurse to coordinate care for patients after discharge from ICU would be beneficial.

The sampling method is correct. The sample of this study was small but this is appropriate in terms of the methodology used. No follow-up interviews were conducted.

The interviews typically lasted 15–35 minutes, which is a limited amount of time given the in-depth nature of the interview design.

Clear inclusion and exclusion criteria.

Limited information on consent procedure and ethical considerations.

Source of funding: Not reported.
**Title: Leaving the intensive care unit: a phenomenological study of the patients’ experience**

<table>
<thead>
<tr>
<th>ID: 488</th>
<th>Research parameters</th>
<th>Population &amp; sample selection</th>
<th>Outcomes</th>
<th>Additional comments</th>
</tr>
</thead>
</table>
| Grading (+) | McKinney et al (2002) | Setting: Single hospital in Northern Ireland. Methodology: Phenomenology based on the interpretative Heideggerian approach was used. This approach is based on an existential perspective, which | Total no. of patients = 6 Age range = 42–75 ICU LOS range = 4–10 days Inclusion/exclusion: Individuals who could not speak, who were confused and/or | **Discharge from critical care and ward-based care**  
**Theme 1:** Information and reassurance on well-being  
- **Physical** – minor-to-moderate pain, sleeping difficulties, weakness, limited mobility/physical frailty and loss of appetite  
- **Psychological** – feeling of psychological distress, feeling depressed as not progressing physically as well as they perceived they should be.  
**Theme 2:** | The qualitative approach and research design adopted were well explained and justified with focused aims and objectives. Clear inclusion and exclusion criteria. Clear information on consent procedure and ethical considerations. |

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
considers that an understanding of the person cannot occur in isolation from the persons' world. Thus, it does not advocate 'bracketing' or remaining objective. Sampling method: purposive sampling. Open-ended interview method was adopted in this study. Data was analysed by using the hermeneutic analysis approach.

Interviews were performed on the wards approx. 48-hours after transfer from ICU. Interviews typically lasted approximately 20 min. deemed by the researcher as too unwell to be reviewed.

**Briefing or information on differences between ICU and the ward**

- Differences in the physical environment – not as intense.
- Differences in staffing levels – acknowledge that they missed the close attention that they received in ICU, and commented how difficult it was to adjust from one-to-one care in ICU to ward circumstances.
- Differences in monitoring levels – less monitoring in the ward and also fewer staff available.

**Authors' recommendations based on study findings:**

- An education programme could be developed for ward nurses, outlining the psychological as well as physical needs of post critical care patients.
- This study has highlighted that the critical care experience transcends the boundaries of the ICU. Thus, there is a need to promote continuity of care. The development of Critical Care Outreach Services may prove beneficial.

Source of funding: not reported.

**Title: Meeting patient and relatives’ information needs upon transfer from an intensive care unit: the development & evaluation of an information booklet.**

<table>
<thead>
<tr>
<th>Study Type</th>
<th>Research parameters</th>
<th>Population &amp; sample selection</th>
<th>Outcomes</th>
<th>Additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Setting: Intensive care unit in Dundee</td>
<td>Methodology: identifying info needs</td>
<td>Population &amp; sample selection</td>
<td>Discharge from critical care (transfer to ward) Themes:</td>
</tr>
<tr>
<td></td>
<td>Interview guide adapted from McIver’s (1993) guidelines was used. A semi-structured interview format was used to encourage Phase 1: Total no. of patients = 7 (5 male, 2 female) Age range = 28–75 Admission type = 6 emergency, 1 elective Total no. of relatives = 2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Uncertain expectations about the ward and the future</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Concerns and worries</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ongoing physical effects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Effects on relatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Anxieties and fears</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of confidence in themselves and others</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Questions and communication issues</td>
</tr>
</tbody>
</table>

The qualitative approach and research design adopted were not well explained. No clear inclusion and exclusion criteria.

The sampling method is correct. The sample of this study is small but appropriate in terms of the methodology used. No follow-up interviews were conducted.

The interviews typically lasted 20 minutes, which is a limited amount of time given the in-depth nature of the interview design.

While the researcher did attempt to remain true to the patients' experiences, it was acknowledged by the researcher that the need to identify themes dictated what unit of discourse would be included or excluded.
patients and relatives to offer their experiences and specific information needs.

A convenience sample of 7 patients & 2 relatives was identified, interviews were performed in the ICU prior to transfer in the ward.

Interviews typically lasted for approximately 15 min.

A thematic content analysis was used to analyse data.

Phase 2: evaluation of the information provided
As in phase 1.

<table>
<thead>
<tr>
<th>Phase 2:</th>
<th>Total no. of patients = 7 (4 male, 3 female)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age range = 22–83</td>
</tr>
<tr>
<td></td>
<td>Admission type = all emergency</td>
</tr>
<tr>
<td></td>
<td>Total no. of relatives = 11</td>
</tr>
</tbody>
</table>

Inclusion/exclusion:
Not reported.

- Memory loss
- Relatives were more aware than patients of what the transfer from ICU involved

**Elements of the information provided in the booklet based on the findings:**

1) Preparing to leave ICU
   - Informs of patient and family of usual practice when preparing to transfer patient to a general ward.

2) Transfer to the ward
   - Discusses details of transfer

3) Settling into the ward
   - Prepares patient for new environment

4) Recovering from illness
   - Explores common post-ICU problems and ways of dealing with them

5) Preparing to go home
   - Discusses support services and rehabilitation

6) Further help
   - Details on sources of further help

7) Diary pages
   - Blank pages for patient to record progress, feelings and questions

The majority of the responses regarding the information booklet were very positive.

- All patients and relatives felt that the 24-48 hour period prior to transfer was the most appropriate time to receive the information.

Source of funding: not reported.

No clear information on consent procedure and ethical considerations.
6.5 Appendix 5 – Health economic evidence tables

This section provides evidence tables that summarise the data provided in the published economic evaluations identified for the purpose of this guideline.

Published economic evaluations were quality assessed using methods as described in the current ‘Guidelines methods manual’.

Data extraction table for included study – rehabilitation interventions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td>Centre for Health Planning and Management – Keele University</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>2001</td>
<td></td>
</tr>
<tr>
<td>Type of economic evaluation</td>
<td>Cost utility analysis based on a randomised controlled trial (RCT)</td>
<td></td>
</tr>
<tr>
<td>Currency used</td>
<td>GBP (£)</td>
<td></td>
</tr>
<tr>
<td>Year to which costs apply</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>Perspective used</td>
<td>The analysis was from a NHS and PSS perspective. The authors stated that a broad perspective considering health service costs from both the secondary and primary care perspective was taken. Indirect or patient costs were not considered.</td>
<td></td>
</tr>
<tr>
<td>Timeframe</td>
<td>6 months. The overall time frame is unclear. The RCT was conducted over a 2 year period with final follow-up carried out at 6 months post discharge. Outcome data was collected on the pre-morbid state, 2 months and 6 months post discharge. The authors state that resources were only costed from the end of the inpatient stay (intervention itself and post discharge costs) because prior to the intervention, no cost will be affected by the intervention itself.</td>
<td></td>
</tr>
<tr>
<td>Comparators</td>
<td>The intervention was a patient information booklet given to patients following a stay in an intensive care unit. The booklet was given to the intervention group following a 20 minute discussion with a dedicated nurse. The control group were discharged from hospital following the standard hospital protocol with no additional information being given to the patient. Both groups received a follow up telephone call at weeks 2, 4 and 6. Jones et al (2003) report that control patients also received usual care consisting of dedicated ICU follow-up clinic visits at 8 weeks and 3 months. Therefore, standard care in this evaluation was routine follow up and ICU rehabilitation clinic.</td>
<td></td>
</tr>
<tr>
<td>Source(s) of effectiveness data</td>
<td>This economic evaluation was conducted alongside a RCT (Jones et al. 2003) and all effectiveness data were collected within this trial. EQ-5D and SF-36 data were collected.</td>
<td></td>
</tr>
<tr>
<td>Source(s) of resource use data</td>
<td>As for effectiveness data, resource use data were collected from patients in the clinical trial. Social and other local authority services data were obtained directly for each patient from the appropriate social services department and information elicited directly from patients at outpatient follow-up was supplemented by hospital records.</td>
<td></td>
</tr>
<tr>
<td>Source(s) of unit cost data</td>
<td>NHS reference costs were used for all outpatient costs and readmission ward costs. All primary and community care contacts were taken from the PSSRU (2000) including GP time, practice nurse time and community nurse time (taking into account whether the visit occurred at the practice or the patient’s home). Individual unit costs were not presented.</td>
<td></td>
</tr>
<tr>
<td>Modelling approach used</td>
<td>Trial based evaluation – no model was used</td>
<td></td>
</tr>
<tr>
<td>Summary of effectiveness results</td>
<td>EQ-5D data were collected at the pre-morbid state as well as at 2 months and 6 months post discharge - at 6 months the intervention group sustained a slightly lower fall in health loss or benefit (0.77 to 0.68) from the pre-morbid state (compared with a fall from 0.71 to 0.60 in the control group) although the difference is extremely small at 0.02 between the two groups. There is no significant difference in EQ-5D scores between the groups at pre-morbid stage or 6 months follow-up. No statistics on this significance were reported. Overall quality adjusted life years (QALYs) were reported for the intervention and control groups at 6 months. QALYs for each of the groups were as follows: Intervention – 20.54, Control – 15.65.</td>
<td></td>
</tr>
</tbody>
</table>
Summary of cost results - the table below outlines the total costs for the intervention and control groups. It is unclear why intervention costs are attributed to the control group. The differences in costs were not significant. No statistics on this significance were reported.

<table>
<thead>
<tr>
<th>Costs (£)</th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total GP cost</td>
<td>172.19</td>
<td>120.32</td>
</tr>
<tr>
<td>Total nurse cost</td>
<td>113.32</td>
<td>118.88</td>
</tr>
<tr>
<td>Total physiotherapy cost</td>
<td>22.18</td>
<td>38.27</td>
</tr>
<tr>
<td>Social service cost</td>
<td>0.63</td>
<td>0.00</td>
</tr>
<tr>
<td>Total primary cost</td>
<td>308.32</td>
<td>277.46</td>
</tr>
<tr>
<td>Outpatient cost</td>
<td>205.43</td>
<td>193.38</td>
</tr>
<tr>
<td>Total inpatient cost</td>
<td>430.03</td>
<td>453.08</td>
</tr>
<tr>
<td>Intervention cost</td>
<td>14.00</td>
<td>4.50</td>
</tr>
<tr>
<td>Secondary cost</td>
<td>649.47</td>
<td>650.96</td>
</tr>
<tr>
<td>Total cost</td>
<td>957.79</td>
<td>928.42</td>
</tr>
</tbody>
</table>

Summary of cost-effectiveness results - The overall cost effectiveness results showed that by switching from no booklet to providing a patient information booklet costs £939.61 per QALY gained (£1204.52 in 2007 prices if inflation is accounted for).

Sensitivity analysis - No sensitivity analysis was carried out, this is likely to reflect the type of evaluation this was, in that it was based on data from a clinical trial and no assumptions were made.

Main conclusions - The results show that the intervention is relatively low cost and there is little difference in either the costs or QALYs gained with the intervention or control group. The majority of costs associated with the intervention are associated with the time spent by staff administering the booklet. The authors state that given the small cost per QALY gained by the intervention, purchasers of health care may deem this an acceptable threshold when considering introducing this patient information booklet, however, this will depend upon other competition for health care funds.

1. An inflation factor of 1.28 was applied to update this cost from Curtis (2007). Unit costs of health and social care. PSSRU. University of Kent.

6.6 Appendix 6 – NICE Checklists

NICE Methodology checklist: randomised controlled trials

<table>
<thead>
<tr>
<th>Study identification</th>
<th>Include author, title, reference, year of publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guideline topic:</td>
<td>Review question no:</td>
</tr>
<tr>
<td>Checklist completed by:</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 1: INTERNAL VALIDITY

In a well-conducted RCT:  

<table>
<thead>
<tr>
<th>A. Selection bias (systematic differences between the comparison groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 An appropriate method of randomisation was used to allocate participants to treatment groups (which would balance any confounding factors equally across groups)</td>
</tr>
<tr>
<td>A2 There was adequate concealment of allocation (such that investigators, clinicians and participants cannot influence enrolment or treatment allocation)</td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
### A. Baseline comparability (confounding and prognosis factors)

<table>
<thead>
<tr>
<th>A3</th>
<th>The groups were comparable at baseline, including all major confounders/prognostic factors</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>N/A</th>
</tr>
</thead>
</table>

Based on your answers to the above, in your opinion was selection bias present? If, so what is the likely direction of its effect?

<table>
<thead>
<tr>
<th></th>
<th>Low risk of bias</th>
<th>Unclear/unknown risk</th>
<th>High risk of bias</th>
</tr>
</thead>
</table>

Likely direction of effect:

### B. Performance bias (systematic differences between groups in the care provided, apart from the intervention under investigation)

<table>
<thead>
<tr>
<th>B1</th>
<th>The comparison groups received the same care apart from the intervention(s) studied</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2</td>
<td>Patients receiving care were kept 'blind' to treatment allocation</td>
<td>Yes</td>
<td>No</td>
<td>Unclear</td>
<td>N/A</td>
</tr>
<tr>
<td>B3</td>
<td>Individuals administering care were kept 'blind' to treatment allocation</td>
<td>Yes</td>
<td>No</td>
<td>Unclear</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Based on your answers to the above, in your opinion was selection bias present? If, so what is the likely direction of its effect?

<table>
<thead>
<tr>
<th></th>
<th>Low risk of bias</th>
<th>Unclear/unknown risk</th>
<th>High risk of bias</th>
</tr>
</thead>
</table>

Likely direction of effect:

### C. Attrition bias (systematic differences between the comparison groups with respect to participants lost)

<table>
<thead>
<tr>
<th>C1</th>
<th>All groups were followed up for an equal length of time (or analysis was adjusted to allow for differences in length of follow-up)</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>How many patients did not complete treatment in each group?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The groups were comparable for treatment completion (that is, no important/systematic differences between groups in terms of those who did not complete treatment)</td>
<td>Yes</td>
<td>No</td>
<td>Unclear</td>
<td>N/A</td>
</tr>
<tr>
<td>C3</td>
<td>For how many patients in each group were no outcome data available?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The groups were comparable with respect to the availability of outcome data (that is, no important/systematic differences between groups in terms of those for whom outcome data were not available) | Yes | No | Unclear | N/A
---|---|---|---|---

Based on your answers to the above, in your opinion was selection bias present? If, so what is the likely direction of its effect?

| Low risk of bias | Unclear/unknown risk | High risk of bias |
---|---|---|

Likely direction of effect:

**D. Detection bias (bias in how outcomes are ascertained, diagnosed or verified)**

| D1 | The study had an appropriate length of follow-up | Yes | No | Unclear | N/A |
---|---|---|---|---|---|
| D2 | The study employed a precise definition of outcome | Yes | No | Unclear | N/A |
| D3 | A valid and reliable method was used to determine the outcome | Yes | No | Unclear | N/A |
| D4 | Investigators were kept ‘blind’ to patients’ exposure to the intervention | Yes | No | Unclear | N/A |
| D5 | Investigators were kept ‘blind’ to other important confounding/prognostic factors | Yes | No | Unclear | N/A |

Based on your answers to the above, in your opinion was selection bias present? If, so what is the likely direction of its effect?

| Low risk of bias | Unclear/unknown risk | High risk of bias |
---|---|---|

Likely direction of effect:

**SECTION 2: OVERALL ASSESSMENT OF THE STUDY**

| 2.1 | How well was the study done to minimise bias? |
---|---|
| Code ++, + or – |
NICE Methodology checklist: the QUADAS tool for diagnostic test accuracy studies

<table>
<thead>
<tr>
<th>Study identification</th>
<th>Guideline topic:</th>
<th>Review question no:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Including author, title, reference, year of publication</td>
<td>Checklist completed by:</td>
<td></td>
</tr>
</tbody>
</table>

**SECTION 1: QUALITY APPRAISAL**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Was the spectrum of patients representative of the patients who will receive the test in practice?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Were selection criteria clearly described?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Was the reference standard likely to classify the target condition correctly?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Was the period between the reference standard and the index test short enough to be reasonably sure that the target condition did not change between the two tests?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Did the whole sample or a random selection of the sample receive verification using a reference standard?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6 Did the patients receive the same reference standard regardless of the index test result?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.7 Was the reference standard independent of the index test (that is, the index test did not form part of the reference standard)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.8 Was the execution of the index test described in sufficient detail to permit replication of the test?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9 Was the execution of the reference standard described in sufficient detail to permit its replication?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.10 Were the index test results interpreted without knowledge of the results of the reference standard?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.11 Were the reference standard results interpreted without knowledge of the results of the index test?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.12 Were the same clinical data available when the test results were interpreted as would be available when the test is used in practice?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.13 Were uninterpretable/intermediate test results reported?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.14 Were withdrawals from the study explained?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NICE clinical guideline 83 – Critical illness rehabilitation (appendices)
### SECTION 2: OVERALL ASSESSMENT OF THE STUDY

| 2.1 | How well was the study done to minimise bias? | Code +++, + or – |

### NICE Methodology checklist: qualitative studies

<table>
<thead>
<tr>
<th>Study identification</th>
<th>Include author, title, reference, year of publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidance topic:</td>
<td>Key research question/aim:</td>
</tr>
<tr>
<td>Checklist completed by:</td>
<td></td>
</tr>
</tbody>
</table>

### Section 1: theoretical approach

1. **Is a qualitative approach appropriate?**
   - For example,
     - Does the research question seek to understand processes or structures, or illuminate subjective experiences or meanings?
     - Could a quantitative approach better have addressed the research question?
   - [ ] Appropriate
   - [ ] Inappropriate
   - [ ] Not sure
   - Comments:

2. **Is the study clear in what it seeks to do?**
   - For example,
     - Is the purpose of the study discussed – aims/objectives/research question(s)?
     - Is there adequate/appropriate reference to the literature?
     - Are underpinning values/assumptions/theory discussed?
   - [ ] Clear
   - [ ] Unclear
   - [ ] Mixed
   - Comments:
### Section 2: study design

3. How defensible/rigorous is the research design/methodology?

*For example,*
- Is the design appropriate to the research question?
- Is a rationale given for using a qualitative approach?
- Are there clear accounts of the rationale/justification for the sampling, data collection and data analysis techniques used?
- Is the selection of cases/sampling strategy theoretically justified?

<table>
<thead>
<tr>
<th>□ Defensible</th>
<th>□ Not defensible</th>
<th>□ Not sure</th>
<th>Comments:</th>
</tr>
</thead>
</table>

### Section 3: data collection

4. How well was the data collection carried out?

*For example,*
- Are the data collection methods clearly described?
- Were the appropriate data collected to address the research question?
- Was the data collection and record keeping systematic?

<table>
<thead>
<tr>
<th>□ Appropriate</th>
<th>□ Inappropriate</th>
<th>□ Not sure/inadequately reported</th>
<th>Comments:</th>
</tr>
</thead>
</table>
### Section 4: validity

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Is the role of the researcher clearly described?</td>
<td>Clear, Unclear, Not described</td>
<td></td>
</tr>
<tr>
<td><em>For example,</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Has the relationship between the researcher and the participants been adequately considered?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Does the paper describe how the research was explained and presented to the participants?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Is the context clearly described?</td>
<td>Clear, Unclear, Not sure</td>
<td></td>
</tr>
<tr>
<td><em>For example,</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Are the characteristics of the participants and settings clearly defined?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Were observations made in a sufficient variety of circumstances?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Was context bias considered?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Were the methods reliable?</td>
<td>Reliable, Unreliable, Not sure</td>
<td></td>
</tr>
<tr>
<td><em>For example,</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Were data collected by more than one method?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Is there justification for triangulation, or for not triangulating?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Do the methods investigate what they claim to?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 5: analysis

#### 8. Is the data analysis sufficiently rigorous?
*For example,*
- Is the procedure explicit – that is, is it clear how the data were analysed to arrive at the results?
- How systematic is the analysis; is the procedure reliable/dependable?
- Is it clear how the themes and concepts were derived from the data?

<table>
<thead>
<tr>
<th>Rigorous</th>
<th>Not rigorous</th>
<th>Not sure/not reported</th>
<th>Comments:</th>
</tr>
</thead>
</table>

#### 9. Are the data ‘rich’?
*For example,*
- How well are the contexts of the data described?
- Has the diversity of perspective and content been explored?
- How well has the detail and depth been demonstrated?
- Are responses compared and contrasted across groups/sites?

<table>
<thead>
<tr>
<th>Rich</th>
<th>Poor</th>
<th>Not sure/not reported</th>
<th>Comments:</th>
</tr>
</thead>
</table>

#### 10. Is the analysis reliable?
*For example,*
- Did more than one researcher theme and code transcripts/data?
- If so, how were differences resolved?
- Did participants feed back on the transcripts/data if possible and relevant?
- Were negative/discrepant results addressed or ignored?

<table>
<thead>
<tr>
<th>Reliable</th>
<th>Unreliable</th>
<th>Not sure/not reported</th>
<th>Comments:</th>
</tr>
</thead>
</table>

#### 11. Are the findings convincing?
*For example,*
- Are the findings clearly presented?
- Are the findings internally coherent?
- Are extracts from the original data included?
- Are the data appropriately referenced?
- Is the reporting clear and coherent?

<table>
<thead>
<tr>
<th>Convincing</th>
<th>Not convincing</th>
<th>Not sure</th>
<th>Comments:</th>
</tr>
</thead>
</table>

#### 12. Are the findings relevant to the aims of

<table>
<thead>
<tr>
<th>Relevant</th>
<th>Comments:</th>
</tr>
</thead>
</table>

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<table>
<thead>
<tr>
<th>the study?</th>
<th>Irrelevant</th>
<th>Partially relevant</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>13. Are the conclusions adequate?</th>
<th>Adequate</th>
<th>Inadequate</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>For example,</td>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- How clear are the links between data, interpretation and conclusions?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Are the conclusions plausible and coherent?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Have alternative explanations been explored and discounted?</td>
<td></td>
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<tr>
<td>- Does this study enhance understanding of the research subject?</td>
<td></td>
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<tr>
<td>- Are the implications of the research clearly defined?</td>
<td></td>
<td></td>
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<tr>
<td>- Is there adequate discussion of any limitations encountered?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Section 6: ethics | |
|-------------------|-----------------------------------|------------|----------|
| 14. How clear and coherent is the reporting of ethics? | Adequate | Inappropriate | Not sure/not reported |
| For example,      | Comments:                          |            |
| - Have ethical issues been taken into consideration? |          |            |
| - Are they adequately discussed; for example, do they address consent and anonymity? |          |            |
| - Have the consequences of the research been considered; for example, raising expectations, changing behaviour? |          |            |
| - Was the study approved by an ethics committee? |          |            |

<table>
<thead>
<tr>
<th>Section 7: overall assessment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15. As far as can be judged from the paper, how well was the study conducted? (see guidance notes)</td>
<td>++</td>
</tr>
</tbody>
</table>

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