

The following document is mainly addressed to Speech and Language Therapists. It aims to highlight the leading recommendations on neurogenic communication disorders following stroke, traumatic brain injury (TBI) and dementia rehabilitation. It is not intended as an exhaustive treatment, but rather as a collection of the main references and the main recommendations of the last 5 years.

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Guidelines on communication disorders following stroke and TBI were searched in the Scottish Intercollegiate Guideline Network (SIGN) database and in the National Guideline Clearinghouse database.

× **SIGN Guidelines**

- Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning (SIGN 118) (2010) – for this guideline SIGN notifies that “Some recommendations may be out of date. Declaration of interests governance may not be in line with current policy”.
- Brain injury rehabilitation in adults (SIGN 130) (2013).

× **National Guideline Clearinghouse**

Guidelines were searched using the following key search:

⇒ Years: 2010-2014;

⇒ Clinical specialty: Speech-Language Pathology

36 results were obtained and screened. After the screening **7 guidelines** about stroke and **4 guidelines** about TBI were considered. Major recommendations were selected and reported in the following document. Only recommendations related to SLT profession or SLT rehabilitation or largely reported in more guidelines were reported.

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- ⇒ Major recommendations from recent guidelines about stroke are provided from page 2.
- ⇒ Major recommendations from recent guidelines about TBI are provided from page 18.
- ⇒ Major recommendations from recent guidelines about dementia are provided from page 27.

Major recommendations from recent guidelines about stroke.

- **Stroke rehabilitation. Long-term rehabilitation after stroke** (2013). National Clinical Guideline Centre.
- **Clinical guidelines for stroke management** (2010). National Stroke Foundation (Australia).
 - ⇒ *Rehabilitation*
 - ⇒ *Community participation and long-term recovery*
- **Canadian best practice recommendations for stroke care** (2006, revised 2010). Canadian Stroke Network; Heart and Stroke Foundation of Canada.
 - ⇒ *Acute stroke management*
- **Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning. A national clinical guideline** (2002, revised 2010). Scottish Intercollegiate Guidelines Network.
- **Stroke management in the long term care setting** (2005, revised 2011). American Medical Directors Association.
- **VA/DoD clinical practice guideline for the management of stroke rehabilitation** (2003, revised 2010). American Heart Association; American Stroke Association; Department of Defense; Department of Veterans Affairs; Veterans Health Administration.

1) **Stroke rehabilitation. Long-term rehabilitation after stroke** (2013) National Clinical Guideline Centre.

Major Recommendations

- ✗ People with stroke should receive rehabilitation in a **dedicated stroke inpatient unit** and subsequently from a specialist stroke team.
- ✗ A **core multidisciplinary stroke rehabilitation team** should comprise professionals with expertise in stroke rehabilitation, including Speech and Language Therapists. Throughout the care pathway, the roles and responsibilities of the core multidisciplinary stroke rehabilitation team should be clearly documented and communicated to the person and their family or carer.
- ✗ Members of the core multidisciplinary stroke team should **screen** the person with stroke for a range of impairments and disabilities, in order to inform and direct further assessment and treatment; screening results should be documented and all needs recorded in the person's health and social care plan, with a copy provided to the person with stroke.
- ✗ Training in care should be offered to family members or carers who are willing and able to be involved in supporting the person after their stroke.
- ✗ On transfer of care from hospital to the community, provide information to all relevant health and social care professionals and the person with stroke, including a summary of rehabilitation progress and current goals, Functional abilities (including communication needs), mental capacity regarding the transfer decision, plans for follow-up, rehabilitation and access to health and social care and voluntary sector services.
- ✗ **Screening** on admission to hospital should include swallowing and communication, including the ability to understand and follow instructions and to convey needs and wishes.
- ✗ A comprehensive **assessment** (using valid, reliable, and responsive tools) of a person with stroke should take into account: their previous functional abilities, impairment of mental functioning (cognitive, emotional, and communication), impairment of body functions, including pain, activity limitations and participation restrictions. environmental factors (social, physical, and cultural).
- ✗ **Rehabilitation's goals** should be meaningful and relevant to people with aphasia, focused on activity and participation, challenging but achievable and should include both short-term and long-

term elements. It is fundamental to involve the person with stroke and, where appropriate, their family or carer in the discussion, assuring that people with stroke are provided with an explanation of the goal-setting process, information they need in a format that is accessible to them and all the support they need to make decisions and take an active part in setting goals. Goals should be reviewed at regular intervals during their stroke rehabilitation.

- ✘ Information and support should be given to enable the person with stroke and their family to actively participate in the **rehabilitation planning**. Plans should be reviewed regularly by the multidisciplinary team.
- ✘ **Intensity of stroke rehabilitation**: rehabilitation should be given for at least 45 minutes of each relevant stroke rehabilitation therapy for a minimum of 5 days per week to people who have the ability to participate, and where functional goals can be achieved.
- ✘ Provide information about **local resources** (for example, leisure, housing, social services, and the voluntary sector) that can help to support the needs and priorities of the person with stroke and their family or carer. Review information needs at the person's 6-month and annual stroke reviews.
- ✘ All persons with stroke should be **screened for cognitive deficits**. Where a cognitive deficit is identified, carry out a detailed assessment using valid, reliable, and responsive tools before designing a treatment programme. Also
 - visual neglect
 - memory function
 - attention function
 - emotional functioning
 - visionshould be considered.
- ✘ All persons with stroke should be **screened for swallowing**. Swallowing therapy has to be considered when necessary and could include compensatory strategies, exercises, and postural advice.
- ✘ **Communication**.
 - ✓ All persons with stroke should be **screened for communication difficulties** within 72 hours of onset of stroke symptoms. Each stroke rehabilitation service should devise a **standardised protocol** for screening for communication difficulties in people after stroke.
 - ✓ People with suspected communication difficulties after stroke should undergo a detailed speech and language assessment, including the assessment of clanguage and communication problems' impact.
 - ✓ Provide appropriate **information, education, and training** to the multidisciplinary stroke team to enable them to support and communicate effectively with the person with communication difficulties and their family or carer.
 - ✓ Provide **opportunities** for people with communication difficulties **to have conversation and social enrichment** with people who have the training, knowledge, skills, and behaviours to support communication. This should be in addition to the opportunities provided by families, carers, and friends.
 - ✓ Speech and language therapists should assess people with limited **functional communication** after stroke for their potential to benefit from using a communication aid or other technologies (for example, home-based computer therapies or smartphone applications).
 - ✓ Provide **communication aids** for those people after stroke who have the potential to benefit, and offer training in how to use them.

- ✓ Tell the person with communication difficulties after stroke about community-based communication and support groups (such as those provided by the voluntary sector) and encourage them to participate.
- ✓ Speech and language therapists should:
 - Provide **direct impairment-based therapy** for communication impairments (for example, aphasia or dysarthria)
 - Help the person with stroke to **use and enhance their remaining** language and communication **abilities**
 - Teach **other methods of communicating**, such as gestures, writing, and using communication props
 - Coach people around the person with stroke (including family members, carers, and health and social care staff) to develop **supportive communication skills** to maximise the person's communication potential
 - Help the person with aphasia or dysarthria and their family or carer to adjust to a communication impairment
 - Support the person with communication difficulties to **rebuild their identity**
 - Support the person to **access information** that enables decision-making.
- ✓ Help and enable people with communication difficulties after stroke to communicate their everyday needs and wishes, and support them to understand and participate in both everyday and major life decisions.
- ✓ Ensure that **environmental barriers** to communication are minimised
- ✗ All persons with stroke should be **screened for movement problems**. Rehabilitation programs should be planned when needed, taking into account recommendations on Strength Training, Fitness Training, Electrical Stimulation, Constraint-induced Movement Therapy, Shoulder Pain, Repetitive Task Training, Walking Therapies, Electromechanical Gait Training, Orthoses.
- ✗ **Return-to-work** issues should be identified as soon as possible after the person's stroke, reviewed regularly, and managed actively.
- ✗ Encourage people to focus on life after stroke and help them to achieve their goals (for example, participation in community activities, social roles, information about transport and driving).

2) **Clinical guidelines for stroke management - Rehabilitation** (2010). In: - National Stroke Foundation (Australia).

Major Recommendations

- ✗ **Amount, intensity and timing of rehabilitation.**
 - Rehabilitation should be structured to provide as much practice as possible within the first six months after stroke. (Grade A)
 - For patients undergoing active rehabilitation, as much therapy for dysphagia or communication difficulties should be provided as they can tolerate. (Grade C)
 - Treatment for aphasia should be offered as early as tolerated. (Grade B)
 - Patients should be encouraged to continue to practice skills they learn in therapy sessions throughout the remainder of the day. (GPP)
- ✗ **Dysphagia.**
 - Patients should be screened for swallowing deficits before being given food, drink or oral medications. Personnel specifically trained in swallowing screening using a validated tool should undertake screening. (Grade B)

- Swallowing should be screened for as soon as possible but at least within 24 hours of admission.(GPP)
- × People that appear to have difficulty with **visual field** should be screened using specific assessment tools.
- × **Physical activity** should include sitting, standing up, standing, walking and upper limb activity.
- × **Activities of Daily Living (ADL).**
 - Patients with difficulties in performance of daily activities should be assessed by a trained clinician (Grade A) and patients with confirmed difficulties in personal or extended ADL should have specific therapy (e.g., task-specific practice and trained use of appropriate aids) to address these issues. (Grade B).
- × **Communication**
 - All patients should be screened for communication deficits using a screening tool that is valid and reliable. (Grade C)
 - Those patients with suspected communication difficulties should receive formal, comprehensive assessment by a specialist clinician. (GPP)
- × **Aphasia**
 - The clinician should document the provisional diagnosis and explain and discuss the nature of the impairment with the patient, family/carers and treating team, and discuss and teach strategies or techniques which may enhance communication (GPP).
 - In collaboration with the patient and family/carer, identify goals for therapy and develop and initiate a tailored intervention plan. The goals and plans should be reassessed at appropriate intervals over time. (GPP)
 - All written information on health, aphasia, social and community supports (such as that available from local agencies) should be available in an aphasia-friendly format. (Grade D)
 - Alternative means of communication (such as gesture, drawing, writing, use of augmentative and alternative communication devices) should be used as appropriate. (GPP)
 - Interventions should be individually tailored but can include:
 - ✓ Treatment of aspects of language (including phonological and semantic deficits, sentence-level processing, reading and writing) following models derived from cognitive neuropsychology (Grade C)
 - ✓ Constraint-induced language therapy (Grade B)
 - ✓ The use of gesture (Grade D)
 - ✓ Supported conversation techniques (Grade C)
 - ✓ Delivery of therapy programs via computer. (Grade C)
 - The routine use of piracetam is NOT recommended. (Grade B)
 - Group therapy and conversation groups can be used for people with aphasia and should be available in the longer term for those with chronic and persisting aphasia. (Grade C)
 - People with chronic and persisting aphasia should have their mood monitored. (GPP)
 - Environmental barriers facing people with aphasia should be addressed through training communication partners, raising awareness of and educating about aphasia in order to reduce negative attitudes, and promoting access and inclusion by providing aphasia-friendly formats or other environmental adaptations. People with aphasia from culturally and linguistically diverse backgrounds may need special attention, for example, from trained healthcare interpreters. (GPP)

- The impact of aphasia on functional activities, participation and quality of life, including the impact upon relationships, vocation and leisure, should be assessed and addressed as appropriate from early post-onset and over time for those chronically affected. (GPP)
- ✱ **Dyspraxia of Speech**
 - Patients with suspected dyspraxia of speech should receive comprehensive assessment. (GPP)
 - Interventions for speech motor skills should be individually tailored and can target articulatory placement and transitioning, speech rate and rhythm, increasing length and complexity of words and sentences, and prosody including lexical, phrasal, and contrastive stress production. In addition, therapy can incorporate:
 - ✓ Integral stimulation approach with modelling, visual cueing, and articulatory placement cueing (Grade D)
 - ✓ Principles of motor learning to structure practice sessions (e.g., order in which motor skills are practised during a session, degree of variation and complexity of behaviours practised, intensity of practice sessions) and delivery of feedback on performance and accuracy (Grade D)
 - ✓ PROMPT therapy. (Grade D)
 - The use of augmentative and alternative communication modalities such as gesture or speech-generating devices is recommended for functional activities. (Grade D)
- ✱ **Dysarthria**
 - Patients with unclear or unintelligible speech should be assessed to determine the nature and cause of the speech impairment. (GPP)
 - Interventions for the treatment of dysarthria can include:
 - ✓ Biofeedback or a voice amplifier to change intensity and increase loudness (Grade D)
 - ✓ Intensive therapy aiming to increase loudness (e.g., Lee Silverman Voice Treatment) (Grade D)
 - ✓ The use of strategies such as decreased rate, over-articulation or gesture (GPP)
 - ✓ Oral musculature exercises (GPP)
 - People with severe dysarthria can benefit from using augmentative and alternative communication devices in everyday activities. (GPP)
- ✱ **Cognitive Communication Deficits**

Stroke patients with cognitive involvement who have difficulties in communication should have a comprehensive assessment, a management plan developed and family education, support and counselling as required. (GPP)
- ✱ **Cognition**
 - All patients should be screened for cognitive and perceptual deficits using validated and reliable screening tools. (GPP)
 - Patients identified during screening as having cognitive deficits should be referred for comprehensive clinical neuropsychological investigations. (GPP)
 - The following areas should be included
 - ✓ **Attention and Concentration.** Cognitive rehabilitation can be used in stroke survivors with attention and concentration deficits. (Grade C)
 - ✓ **Memory.** Any patient found to have memory impairment causing difficulties in rehabilitation or adaptive functioning should:
 - Be referred for a more comprehensive assessment of their memory abilities (GPP)
 - Have their nursing and therapy sessions tailored to use techniques which capitalise on preserved memory abilities (GPP)

- Be assessed to see if compensatory techniques to reduce their disabilities, such as notebooks, diaries, audiotapes, electronic organisers and audio alarms, are useful (Grade D)
 - Be taught approaches aimed at directly improving their memory (GPP)
 - Have therapy delivered in an environment as like the patient's usual environment as possible to encourage generalisation. (GPP)
- ✓ **Executive Functions.**
 Patients considered to have problems associated with executive functioning deficits should be formally assessed using reliable and valid tools that include measures of behavioural symptoms. (GPP)
 External cues, such as a pager, can be used to initiate everyday activities in stroke survivors with impaired executive functioning. (Grade C)
 In stroke survivors with impaired executive functioning, the way in which information is provided should be considered. (Grade C)
- ✓ **Limb Apraxia**
 People with suspected difficulties executing tasks but who have adequate limb movement should be screened for apraxia and, if indicated, complete a comprehensive assessment. (GPP)
- ✓ For people with confirmed apraxia, tailored interventions (e.g., strategy training) can be used to improve ADL. (Grade C)
- ✓ **Agnosia**
 The presence of agnosia should be assessed by appropriately trained personnel and communicated to the stroke team. (GPP)
- ✓ **Neglect**
 Any patient with suspected or actual neglect or impairment of spatial awareness should have a full assessment using validated assessment tools. (Grade C)
 Patients with unilateral neglect can be trialled with one or more of the following interventions:
- Simple cues to draw attention to the affected side (GPP)
 - Visual scanning training in addition to sensory stimulation (Grade C)
 - Prism adaptation (Grade C)
 - Eye patching (Grade C)
 - Mental imagery training or structured feedback. (Grade D)

Grading of Recommendations

Grade	Description
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution
Good Practice Point (GPP)	Recommended best practice based on clinical experience and expert opinion

3) **Canadian best practice recommendations for stroke care - Acute stroke management** (2006, revised 2010). Canadian Stroke Network; Heart and Stroke Foundation of Canada.

Major Recommendations

- × Patients admitted to hospital because of an acute stroke or transient ischemic attack should be treated on an interprofessional **stroke unit** [Evidence Level A] which is a specialized, geographically defined hospital unit dedicated to the management of stroke patients [**Evidence Level A**]
- × The **core interprofessional team** on the stroke unit should consist of healthcare professionals with stroke expertise, including speech–language pathology [**Evidence Level A**]. Additional disciplines may include pharmacy, (neuro)psychology, and recreation therapy [**Evidence Level B**].
- × The interprofessional team should **assess** patients within 48 hours of admission to hospital and formulate a management plan [**Evidence Level C**].
- × Clinicians should use standardized, valid **assessment tools** to evaluate the patient's stroke-related impairments and functional status [**Evidence Level B**]
- × Any **child** admitted to hospital with stroke should be managed in a centre with paediatric stroke expertise and/or managed using standardized paediatric stroke protocols [**Evidence Level B**].
- × Stroke patients with suspected nutritional concerns, hydration deficits, **dysphagia**, or other comorbidities that may affect nutrition should be referred to a dietitian for recommendations to meet nutrient and fluid needs orally while supporting alterations in food texture and fluid consistency recommended by a speech-language pathologist or other trained professional [**Evidence Level C**].
- × Upon or soon after admission, all stroke patients should have an **oral/dental assessment**, including screening for signs of dental disease, level of oral care, and appliances [**Evidence Level C**].
- × Patients surviving a stroke and their families should be approached by the stroke healthcare team to **participate in advance care planning** [**Evidence Level C**]. It may include identifying a substitute decision-maker, implementing a personal directive [**Evidence Level C**], and discussion of the patient's preferences and the medical appropriateness of therapies such as feeding tubes, hydration, treatment of the current illness, admission to intensive care, ventilation, cardiopulmonary resuscitation, and place of care [**Evidence Level B**].
- × The **goals of therapy** should be revisited periodically and when there is a change in health status [**Evidence Level B**].
- × The interprofessional team should have the appropriate communication skills and knowledge to address the physical, spiritual, psychological, ethical, and social needs of palliative or dying patients and their families [**Evidence Level C**].
- × The **palliative approach** should be used with those experiencing significant morbidity after a stroke, or to optimize end-of-life care for dying stroke patients and their families [**Evidence Level B**].

Summary of Definitions for Levels of Evidence*

Grade	Criteria
A	Strong recommendation. Evidence from randomized controlled trials or meta-analyses of randomized controlled trials. Desirable effects clearly outweigh undesirable effects, or vice versa.
B	Single randomized controlled trial or well-designed observational study with strong evidence; or well-designed cohort or case–control analytic study; or multiple time series or dramatic results of uncontrolled experiment. Desirable effects closely balanced with undesirable effects.
C	At least one well-designed, nonexperimental descriptive study (e.g., comparative studies, correlation studies, case studies) or expert committee reports, opinions and/or experience of respected authorities, including consensus from development and/or reviewer groups.

*Based on Guyatt GH, Cook DJ, Jaeschke R, et al. Grades of recommendation for antithrombotic agents: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th edition). [published erratum in Chest 2008;34:47]. Chest 2008;133(6 Suppl):123S-131S.

4) **Clinical guidelines for stroke management - Community participation and long-term recovery** (2005, revised 2010). National Stroke Foundation (Australia).

Major Recommendations

× **Self-Management**

- Stroke survivors who are cognitively able should be made aware of the availability of generic self-management programs before discharge from hospital and be supported to access such programs once they have returned to the community. (**Grade C**)
- Stroke-specific programs for self-management should be provided for those who require more specialised programs. (**GPP**)
- A collaboratively developed self-management care plan can be used to harness and optimise self management skills. (**GPP**)

× **Driving**

- All patients admitted to hospital should be asked if they intend to drive again. (**GPP**)
- Any patient who does wish to drive should be given information about driving after stroke and be assessed for fitness to return to driving using the national guidelines (*Assessing Fitness To Drive*) and relevant state guidelines. Patients should be informed that they are required to report their condition to the relevant driver licence authority and notify their car insurance company before returning to driving. (**GPP**)
- Stroke survivors should not return to driving for at least one month post event. A follow-up assessment should be conducted prior to driving to assess suitability. Patients with transient ischaemic attack (TIA) should be instructed not to drive for two weeks. (**GPP**)
- If a person is deemed medically fit but is required to undertake further testing, they should be referred for an occupational therapy driving assessment. Relevant health professionals should discuss the results of the test and provide a written record of the decision to the patient as well as informing the GP. (**GPP**)

× **Leisure**

- Targeted occupational therapy programs can be used to increase participation in leisure activities. (**Grade A**)

× **Return to Work**

- Stroke survivors who wish to work should be offered assessment (i.e., to establish their cognitive, language and physical abilities relative to their work demands), assistance to resume or take up work, or referral to a supported employment service. (**GPP**)

× **Sexuality**

- Stroke survivors and their partners should be offered:
 - ✓ The opportunity to discuss issues relating to sexuality with an appropriate health professional (**GPP**)
 - ✓ Written information addressing issues relating to sexuality post stroke. (**GPP**)
- Any interventions should address psychosocial aspects as well as physical function. (**GPP**)

× **Support**

- **Peer Support.** Stroke survivors and family/carers should be given information about the availability and potential benefits of a local stroke support group and/or other sources of peer support before leaving hospital and when back in the community. (**GPP**)
- **Carer Support.**
 - ✓ Carers should be provided with tailored information and support during all stages of the recovery process. This includes (but is not limited to) information provision and opportunities to talk with relevant health professionals about the stroke, stroke team

- members and their roles, test or assessment results, intervention plans, discharge planning, community services and appropriate contact details. **(Grade C)**
- ✓ Where it is the wish of the person with stroke, carers should be actively involved in the recovery process by assisting with goal setting, therapy sessions, discharge planning, and long-term activities. **(GPP)**
 - ✓ Carers should be provided with information about the availability and potential benefits of local stroke support groups and services, at or before the person's return to the community. **(Grade C)**
 - ✓ Carers should be offered support services after the person's return to the community. Such services can use a problem-solving or educational-counselling approach. **(Grade C)**
 - ✓ Assistance should be provided for families/carers to manage stroke survivors who have behavioural problems. **(GPP)**

Grading of Recommendations

Grade	Description
A	Body of evidence can be trusted to guide practice
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C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution
Good Practice Point (GPP)	Recommended best practice based on clinical experience and expert opinion

5) Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning. A national clinical guideline. (2002, revised 2010). Scottish Intercollegiate Guidelines Network.

Major Recommendations

× Organisation of Services

A: Stroke patients requiring admission to hospital should be admitted to a stroke unit staffed by a coordinated multidisciplinary team with a special interest in stroke care.

B: The core multidisciplinary team should include appropriate levels of nursing, medical, physiotherapy, occupational therapy, speech and language therapy, and social work staff.

B: Patients and carers should have an early active involvement in the rehabilitation process.

B: Members of the multidisciplinary stroke team should undertake a continuing programme of specialist training and education.

× Management and Prevention Strategies

C: All stroke patients should be screened for visual problems, and referred appropriately.

× Communication

Aphasia

B: Aphasic stroke patients should be referred for speech and language therapy. Where the patient is sufficiently well and motivated, a minimum of two hours per week should be provided.

Dysarthria

D: Patients with dysarthria should be referred to an appropriate speech and language therapy service for assessment and management.

× General Rehabilitation Principles

Nutrition and Swallowing

Nutritional Screening and Assessment

D: Assessment of nutritional risk should be carried out within the first 48 hours with regular reassessment thereafter during the patient's recovery and be recorded prior to discharge.

D: Ongoing monitoring of nutritional status after a stroke should include Swallowing status
Dysphagia Therapy

D: All patients who have dysphagia for more than one week should be assessed to determine their suitability for a rehabilitative swallowing therapy programme. Consideration should be given to:

- The nature of the underlying swallowing impairment
- Patient suitability in terms of motivation and cognitive status

B: Patients with dysphagia should have an oropharyngeal swallowing rehabilitation programme that includes restorative exercises in addition to compensatory techniques and diet modification.

× **Transfer from Hospital to Home**

A: Patients with mild/moderate stroke should be able to access stroke specialist early supported discharge services in addition to conventional organised stroke inpatient services.

A: Home based or hospital based (*outpatient or day hospital*) rehabilitation should be considered for people after stroke.

A: Stroke patients in the community should have access to specialist therapy-based rehabilitation services.

Driving After a Stroke

D: If there is doubt about a patient's ability to drive, patients should be referred to the local Disabled Drivers' Assessment Centre.

× **Roles of the Multidisciplinary Team**

Speech and Language Therapy

D: Speech and language therapists should be involved in stroke management at all stages in the recovery process and should liaise closely with all related healthcare professionals, with outside agencies, both statutory and voluntary, with the individual who has had a stroke and with his/her carers.

Provision of Information

Information Needs of Patients and Carers

D: Stroke patients and their carers should be offered information about stroke and rehabilitation.

A: Information should be available to patients and carers routinely and offered using active information strategies, which include a mixture of education and counseling techniques.

A: Information should be tailored to the information needs of individual patients and carers, followed up to check understanding and ensure clarity, and repeated as appropriate.

D: Information should be tailored to the communication needs and visual needs of individual patients and carers. Patients with aphasia should be provided with accessible and easy to read material, be given sufficient time for assimilation and be followed up by health professionals to ensure understanding.

A: Information needs should be monitored and information should be provided at appropriate time points during the recovery trajectory, as information needs change over time.

Grades of Recommendation

A: At least one meta-analysis, systematic review, or RCT rated as 1++ and directly applicable to the target population; *or* A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results

B: A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; *or* Extrapolated evidence from studies rated as 1++ or 1+

C: A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; *or* Extrapolated evidence from studies rated as 2++

D: Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+

6) **Stroke management in the long term care setting.** 2005 (revised 2011). American Medical Directors Association.

Major Recommendations

- ✘ If the diagnostic evaluation confirms the occurrence of a stroke or TIA, perform a broad interdisciplinary assessment of the patient. The findings of this assessment should guide decision making about further diagnostic testing, treatment, rehabilitation, prevention, and monitoring.
- ✘ The assessment should characterize the patient's:
 - Cognitive and psychosocial abilities and impairments, including safety awareness
 - Physical abilities and impairments, including ability to perform activities of daily living (ADLs)
 - Current and expected level of physical endurance
 - Presence and severity of chronic medical conditions
 - Risk of stroke complications (e.g., bladder and bowel dysfunction, deep vein thrombosis [DVT], dysphagia, falls, and pressure ulcer)
 - Presence of stroke complications (e.g., urinary tract infection [UTI], DVT, aspiration, malnutrition, pain, depression, dementia, and skin breakdown)
- ✘ After the patient with an acute stroke has been stabilized, the interdisciplinary team can determine the patient's specific rehabilitation needs. Stroke rehabilitation may help the patient to optimize physical, cognitive, psychosocial, and vocational functioning. It is important to develop the rehabilitation plan in collaboration with the patient and family and to individualize each patient's rehabilitation regimen to reflect the patient's prognosis, comorbid conditions, and personal goals.
- ✘ Rehabilitation and restorative therapies may include speech therapy to optimize communication, chewing, and swallowing.
- ✘ Monitor and periodically document the physical, functional, and psychosocial progress of the patient with an old or new stroke.
- ✘ Treatment goals may change as the patient either recovers from the stroke or experiences decline. The interdisciplinary team should regularly re-evaluate both the treatment goals and progress made toward those goals. The team should monitor the continued appropriateness of the treatment plan by taking into consideration the patient's clinical condition and ability to meet treatment goals, as well as the presence of adverse treatment effects.

7) **VA/DoD clinical practice guideline for the management of stroke rehabilitation.** (2003, revised 2010). American Heart Association; American Stroke Association; Department of Defense; Department of Veterans Affairs; Veterans Health Administration.

Major Recommendations

- ✘ **Rehabilitation during the Acute Phase.** The Agency for Health Care Policy and Research (AHCPR) (1995) defines "acute care" as the period immediately following the onset of an acute stroke.
 - Patients with an acute stroke are typically treated in a medical service or in a specialized stroke unit, and rehabilitation interventions are normally begun during the acute phase. Outcomes can be improved if a patient is admitted to a facility that specializes in the care of stroke. The goals of early supportive care after admission to the hospital include: begin efforts to restore function through rehabilitation or other techniques.
 - After stabilization of the patient's condition the following can be initiated when appropriate: rehabilitation, measures to prevent long-term complications, chronic therapies to lessen the likelihood of recurrent stroke, and family support.

× **Screening for Aspiration Risk.**

- Strongly recommend that all acute/newly diagnosed stroke patients be screened for swallowing problems prior to oral intake of any medication, foods, or fluids to determine risk for aspiration.
- Screening should be performed by an appropriately trained provider within the first 24 hours of admission to determine the risk of aspiration.
- If screening results indicate that the patient is at high risk for dysphagia, oral food and fluids should be withheld from the patient (i.e., the patient should be Nil per os [NPO]) and a comprehensive clinical evaluation of swallowing food and fluids be performed within 24 hours by a clinician trained in the diagnosis and management of swallowing disorders.

× **Assessment of Stroke Severity.**

- Recommend that all patients should be screened for depression and motor, sensory, cognitive, communication, and swallowing deficits by appropriately trained clinicians, using standardized and valid screening tools. [C]
- If depression or motor, sensory, cognitive, communication, or swallowing deficits are found on initial screening assessment, patients should be formally assessed by the appropriate clinician from the coordinated rehabilitation team.[C]
- Recommend that the clinician use standardized, validated assessment instruments to evaluate the patient's stroke-related impairments, functional status, and participation in community and social activities. [C]
- Recommend that the standardized assessment results be used to assess probability of outcome, determine the appropriate level of care, and develop interventions.
- Recommend that the assessment findings should be shared and the expected outcomes discussed with the patient and family/caregivers.
- Strongly recommend that rehabilitation therapy should start as early as possible, once medical stability is reached. [A]
- Recommend that the patient receive as much therapy as "needed" and tolerated to adapt, recover, and/or reestablish the premorbid or optimal level of functional independence.
- The assessment should cover the following areas:
 - Risk of Complications (including swallowing problems)
 - Determination of Impairment (including communication and cognition) and assessment of prior and current functional status (e.g., Functional Independence Measure [FIM™])
 - Assessment of participation in community and social activities, and a complete psychosocial assessment (family and caregivers, social support, financial, and cultural support).

× **Assessment of Impairments.**

- Assessment of **communication ability** should address the following areas: listening, speaking, reading, writing, gesturing, and pragmatics. Problems in communication can be language-based (as with aphasia), sensory/motor based (as with dysarthria), or cognitive-based (as with dementia).
- Assessment should include standardized testing and procedures. [B]
- Assessment of **cognitive function** should be conducted to identify areas of cognitive impairment, including assessment of arousal, cognition, and attention (arousal, attention deficits, visual neglect, learning and memory deficits, executive function and problem-solving difficulties). There is insufficient evidence to recommend for the use of any specific tools to assess cognition. Several screening and assessment tools exist.

× **Recommend that all patients be screened for sensory deficits by appropriately trained clinicians.**

- ✘ Recommend that a standardized assessment tool be used to assess **functional status** (ADL/IADL) of stroke patients. [B]
- ✘ Recommend a **home assessment** for all patients who will be discharged home with functional impairments.
- ✘ Families and caregivers should be educated in the care of patients who have experienced a severe stroke, who are maximally dependent in ADL, or have a poor prognosis for functional recovery; as these patients are not candidates for rehabilitation intervention.
- ✘ Families should receive counseling on the benefits of nursing home placement for long-term care.
- ✘ **Determine Rehabilitation Needs**
 - Once the patient is medically stable, the primary physician should consult with **rehabilitation services** (i.e., physical therapy, occupational therapy, speech and language pathology, kinesiotherapy, and Physical Medicine) to **assess the patient's impairments** as well as **activity and participation** deficiencies to establish the patient's rehabilitation **needs and goals**.
 - A **multidisciplinary assessment** should be undertaken and documented for all patients. [A]
 - Patients with no residual disability postacute stroke who do not need rehabilitation services may be discharged back to home.
 - Strongly recommend that patients with mild to moderate disability in need of rehabilitation services have access to a setting with a coordinated and organized **rehabilitation care team** that is **experienced** in providing stroke services. [A]
 - Post-acute stroke care should be delivered in a setting where rehabilitation care is formally coordinated and organized.
 - If an organized rehabilitation team is not available in the facility, patients with moderate or severe disability should be offered a referral to a facility with such a team. Alternately, a physician or rehabilitation specialist with some experience in stroke should be involved in the patient's care.
 - Post-acute stroke care should be delivered by a variety of treatment disciplines which are experienced in providing post-stroke care, to ensure consistency and reduce the risk of complications.
 - The multidisciplinary team may consist of a physician, nurse, physical therapist, occupational therapist, kinesiotherapist, speech and language pathologist, psychologist, recreational therapist, social worker, patient, and family/caregivers.
 - Patients who are severely disabled and for whom prognosis for recovery is poor may not benefit from rehabilitation services and may be discharged to home or nursing home in coordination with family/care giver.
- ✘ **Determine Rehabilitation Setting**
 - The medical team, including the patient and family, must analyze the patient's medical and functional status, as well as expected prognosis in order to establish the most appropriate rehab setting. The severity of the patient's impairment, the rehabilitation needs, the availability of family/social support and resources, the patient/family goals and preferences and the availability of community resources will determine the optimal environment for care. [I]
 - Where comprehensive interdisciplinary community rehabilitation services and caregiver support services are available, early supported discharge services may be provided for people with mild to moderate disability. [B]
 - Recommend that patients remain in an inpatient setting for their rehabilitation care if they are in need of daily professional nursing services, intensive physician care, and/or multiple therapeutic interventions.

- Patients should receive as much therapy as they are able to tolerate in order to adapt, recover, and/or reestablish their premorbid or optimal level of functional independence. [B]
- × **Treatment Plan**
 - Patients and/or their family members should be educated in order to make informed decisions.
 - The rehabilitation program should be guided by specific goals developed in consensus with the patient, family, and rehabilitation team.
 - Document the detailed treatment plan in the patient's record to provide integrated rehabilitation care.
 - The patient's family/caregiver should participate in the rehabilitation sessions, and should be trained to assist patient with functional activities, when needed.
 - As patients progress, additional important educational topics include subjects such as the resumption of driving, sexual activity, adjustment and adaptation to disability, patient rights/responsibilities, and support group information.
- × **Treatment Interventions**
 - Initiate/continue rehabilitation program and interventions indicated by patient status, impairment, function, activity level and participation.
 - Patients should be re-evaluated intermittently during their rehabilitation progress. Particular attention should be paid to interval change and progress towards stated goals.
 - Patients who show a decline in functional status may no longer be candidates for rehabilitation interventions. Considerations about the etiology of the decline and its prognosis can help guide decisions about when/if further rehabilitation evaluation should occur.
 - Psychosocial status and community integration needs should be re-assessed, particularly for patients who have experienced a functional decline or reached a plateau.
- × **Transfer to Community Living**
 - Recommend that the patient, family, and caregivers are fully informed about, prepared for, and involved in all aspects of healthcare and safety needs. [I]
 - Recommend that case management be put in place for complex patient and family situations. [I]
 - Recommend that acute care hospitals and rehabilitation facilities maintain up-to-date inventories of community resources, provide this information to stroke patients and their families and caregivers, and offer assistance in obtaining needed services. Patients should be given information about, and offered contact with, appropriate local statutory and voluntary agencies. [I]
- × Patients and family caregivers should have their individual **psychosocial and support needs** reviewed on a regular basis post-discharge.
- × Recommend that **leisure activities** should be identified and encouraged and the patient enabled to participate in these activities. [I]
- × **Return to Work**
 - Recommend that all patients, if interested and their condition permits, be evaluated for the potential of returning to work.[C]
 - Recommend that all patients who were previously employed, be referred to vocational counseling for assistance in returning to work. [C]
 - Recommend that all patients who are considering a return to work, but who may have psychosocial barriers (e.g., motivation, emotional, and psychological concerns) be referred for supportive services, such as vocational counseling or psychological services. [C]
- × **Return to Driving**

- Recommend all patients be given a clinical assessment of their physical, cognitive, and behavioral functions to determine their readiness to resume driving. In individual cases, where concerns are identified by the family or medical staff, the patient should be required to pass the state road test as administered by the licensing department. Each medical facility should be familiar with their state laws regarding driving after a stroke. [I]
- Consider referring patients with residual deficits to adaptive driving instruction programs to minimize the deficits, eliminate safety concerns, and optimize the chances that the patient will be able to pass the state driving test. [I]
- × **Discharge Patient from Rehabilitation**
 - Recommend that the rehabilitation team ensure that a discharge plan is complete for the patient's continued medical and functional needs prior to discharge from rehabilitation services.
 - Recommend that every patient participate in a secondary prevention program. [A]
 - Recommend that the family and caregivers receive all necessary equipment and training prior to discharge from rehabilitation services. [I]
- × **Rehabilitation Intervention include**
 - *Cognitive Rehabilitation*
 - Recommend that patients be given cognitive re-training, if any of the following conditions are present: attention deficits [A], visual neglect [B], memory deficits [B] and executive function and problem-solving difficulties [C]
 - Patients with multiple areas of cognitive impairment may benefit from a variety of cognitive re-training approaches that may involve multiple disciplines. [C]
 - Recommend the use of training to develop compensatory strategies for memory deficits in post-stroke patients who have mild short term memory deficits. [B]
 - *Apraxia*
 - *Hemispatial Neglect/Hemi-inattention*
 - Recommend cognitive rehabilitation for patients with unilateral spatial neglect such as cueing, scanning, limb activation, aids and environmental adaptations. [B]
 - Nursing and therapy sessions (e.g., for shoulder pain, postural control, feeding) need to be modified to cue attention to the impaired side in patient with impaired spatial awareness. [I]
 - **Communication**
 - If the communication assessment indicates impairment in speech, language, and/or cognition, treatment should be considered for those affected components. Treatment can be provided individually, in groups, or by computer or trained volunteer under the supervision of a clinician.
 - Maximum restoration of the impaired ability should initially be considered:
 - ✓ For dysarthria (and other impairments of speech), treatment can include techniques to improve articulation, phonation, fluency, resonance, and/or respiration.
 - ✓ For aphasia (and other impairments of language), treatment can include models designed to improve comprehension (e.g., stimulation/facilitation) and/or expression (e.g., word retrieval strategies) of language. It is recommended that the rate of treatment ("intensity", "dosage") should be higher rather than lower.
 - ✓ For dementia (and other impairments of cognitive aspects of communication), treatment can include techniques to maximize attention, memory, problem-solving, and executive functions.

- Once maximum restoration is achieved, compensation of the remaining impairment should be considered:
 - ✓ For dysarthria, compensatory approaches include prostheses (e.g., palatal lift for hypernasality), alternate modalities (e.g., writing or gesturing), and augmentative/alternative communication (AAC) devices (e.g., a portable typing device that generates synthesized speech).
 - ✓ For aphasia, compensatory approaches include alternate modalities (e.g., gesturing) and AAC devices (e.g., a portable electronic pointing board).
 - ✓ For dementia, compensatory approaches include memory books, portable alarms, Personal Digital Assistants (PDAs), and similar devices to provide reminders and other information as needed.
- Once maximum restoration and maximum benefits of compensation are achieved, counsel and educate those closest to the patient to modify the patient's environment to minimize and eliminate obstacles to communication, assisting them in such activities as helping them pay their bills or recording a message on their phone answering machine instructing callers to leave a message.
- *Motor Impairment and Recovery*
- *Sensory Impairment*
- *Activities (ADL, IADL)*
 - Recommend all patients receive ADL training. [A]
 - Recommend all patients receive IADL training in areas of need. [C]
- *Family/Community Support*
 - Patients and caregivers should be educated throughout the rehabilitation process to address patient's rehabilitation needs, expected outcomes, procedures and treatment as well as appropriate follow-up in the home/community. [B]
 - Patient and caregiver education should be provided in both interactive and written formats. [B]
 - Caregivers should be provided with a variety of methods of training based on their specific needs, cognitive capability, and local resources; training may be provided in individual or group format, and in community-based programs. [B]

Strength of Recommendation Rating

A	A strong recommendation that the clinicians provide the intervention to eligible patients. Good evidence was found that the intervention improves important health outcomes and concludes that benefits substantially outweigh harm.
B	A recommendation that clinicians provide (the service) to eligible patients. At least fair evidence was found that the intervention improves health outcomes and concludes that benefits outweigh harm.
C	No recommendation for or against the routine provision of the intervention is made. At least fair evidence was found that the intervention can improve health outcomes, but concludes that the balance of benefits and harms is too close to justify a general recommendation.
D	Recommendation is made against routinely providing the intervention to asymptomatic patients. At least fair evidence was found that the intervention is ineffective or that harms outweigh benefits.
I	The conclusion is that the evidence is insufficient to recommend for or against routinely providing the intervention. Evidence that the intervention is effective is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

Major recommendations from recent guidelines about TBI.

- **Brain injury rehabilitation in adults. A national clinical guideline.** (2013) Scottish Intercollegiate Guidelines Network
- **Traumatic brain injury medical treatment guidelines.** (2012) Colorado Division of Workers' Compensation
- **Best evidence statement (BEST). Speech therapist directed use of computer assisted cognitive rehabilitation (CACR) for patients with acquired brain injury.** (2011) Cincinnati Children's Hospital Medical Center

- 1) **Brain injury rehabilitation in adults. A national clinical guideline.** (2013) Scottish Intercollegiate Guidelines Network

KEY TO EVIDENCE STATEMENTS AND GRADES OF RECOMMENDATIONS
LEVELS OF EVIDENCE
1++ High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
1+ Well conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias
1 – Meta-analyses, systematic reviews, or RCTs with a high risk of bias
2++ High quality systematic reviews of case control or cohort studies relationship is causal
High quality case control or cohort studies with a very low risk of confounding or bias and high probability that the relationship is causal
2+ Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2- Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3 Non-analytic studies, eg case reports, case series
4 Expert opinion
GRADES OF RECOMMENDATION
<i>Note: The grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation</i>
A At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; or A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results
B A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; <i>or</i> Extrapolated evidence from studies rated as 1++ or 1+
C A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; <i>or</i> Extrapolated evidence from studies rated as 2++
D Evidence level 3 or 4; <i>or</i> Extrapolated evidence from studies rated as 2+
GOOD PRACTICE POINTS

✓ Recommended best practice based on the clinical experience of the guideline development group

× **ASSESSMENT AND TREATMENT OF MILD BRAIN INJURY**

✓ **Epidemiology and definitions**

The definition of what constitutes an MTBI varies. Differing criteria including measures of GCS, duration of total loss of consciousness and duration of post-traumatic amnesia have been recommended and adopted in different settings. Following comprehensive review of the scientific literature the World Health Organisation (WHO) recommended the following definition:

“Mild traumatic brain injury is an acute brain injury resulting from mechanical energy to the head from external force. Operational criteria for clinical identification include:

(i). One or more of the following: confusion or disorientation, loss of consciousness for 30 minutes or less, post-traumatic amnesia for less than 24 hours, and/or other transient neurological abnormalities such as focal signs, seizure, and intracranial lesion not requiring surgery;

AND

(ii). GCS score of 13-15 after 30 minutes post head injury or later upon presentation for healthcare. These manifestations of MTBI must not be due to drugs, alcohol, medications, caused by other injuries or treatment for other injuries (eg systemic injuries, facial injuries or intubation), caused by other problems (eg psychological trauma, language barrier or coexisting medical conditions) or caused by penetrating craniocerebral injury”.

The diagnosis of mild traumatic brain injury should be made according to WHO task force operational criteria, subject to clinical judgement when complicating factors are present, eg skull fracture, seizures, or a haematoma.[B]

Non-specific symptoms

Using ‘post-concussional syndrome’ as a diagnostic term may imply a mechanism of neuronal damage that is not supported by the available evidence. A wider formulation of all relevant factors to the patient’s symptoms is more appropriate.[✓]

✓ **Prognostic factors in adults**

Non-specific symptoms

- Patients presenting with non-specific symptoms following mild traumatic brain injury should be reassured that the symptoms are benign and likely to settle within three months. [B]
- Consideration should be given to alternate diagnostic explanations for ongoing symptoms post MTBI, eg coincidental mood disorder or thyroid disease, and further investigation may be warranted. Other secondary pathologies which are consequences of the original injury but not associated with, or dependent on, any brain injury may occur in the context of a head injury, eg benign positional paroxysmal vertigo, and should be treated accordingly.[✓]

Cognitive deficits

- Referral for cognitive (psychometric) assessment is not routinely recommended after MTBI.[B]
- If a cognitive assessment has been conducted clinicians should be aware that false positives can occur and that results may be unreliable in the absence of effort testing.[✓]

Mood and anxiety disorders

- As PTSD and other psychiatric disorders may contribute to the overall burden of symptoms in some individuals following MTBI, particularly where problems persist for more than three months, mental state should be routinely examined with an emphasis on symptoms of phobic

avoidance, traumatic re-experiencing phenomena (eg flashbacks and nightmares) and low mood.[C]

Substance misuse

- Assessment and consideration of pre-existing health variables such as previous neurological disorders and substance misuse should be carried out for all patients with MTBI.[D]

Intracranial pathology

- Cranial imaging is not routinely recommended for the assessment of post-acute mild brain injury, but should be considered in an atypical case.[B]

✓ **Treatment of mild traumatic brain injury**

- Educational interventions
All patients should be offered reassurance about the nature of their symptoms and advice on gradual return to normal activities after uncomplicated mild traumatic brain injury.[C]
- Pharmacological interventions
Antidepressants may be considered for symptom relief after MTBI.[C]
- Psychological interventions
Referral for cognitive behavioural therapy following MTBI may be considered in patients with persistent symptoms who fail to respond to reassurance and encouragement from a general practitioner after three months.[C]

× **COGNITIVE REHABILITATION**

1. Memory

- Patients with memory impairment after TBI should be trained in the use of compensatory memory strategies with a clear focus on improving everyday functioning rather than underlying memory impairment.[D]
 - for patients with mild-moderate memory impairment both external aids and internal strategies (eg use of visual imagery) may be used.
 - for those with severe memory impairment external compensations with a clear focus on functional activities is recommended.
- Learning techniques that reduce the likelihood of errors being made during the learning of specific information should be considered for people with moderate-severe memory impairment.

2. Attention

- Patients with attention impairment in the post-acute phase after TBI should be given strategy training relating to the management of attention problems in personally relevant functional situations.[C]

3. Executive Functioning

- Patients with TBI and deficits in executive functioning should be trained in meta-cognitive strategies relating to the management of difficulties with planning, problem solving and goal management in personally relevant functional situations.[B]

4. Comprehensive/holistic treatment programmes

- In the post-acute setting interventions for cognitive deficits should be applied in the context of a comprehensive/holistic neuropsychological rehabilitation programme. This would involve an interdisciplinary team using a goal-focused programme which has the capacity to address cognitive, emotional and behavioural difficulties with the aim of improving functioning in

meaningful everyday activities.[D]

× REHABILITATION OF BEHAVIOURAL AND EMOTIONAL DISORDERS

✓ Challenging or aggressive behaviour

After acquired brain injury medically remediable causes of agitation should be excluded before therapies are started. Therapies should take account not just of the nature of the brain injury but the characteristics of the individual affected and the potential adverse effects of treatment.[✓]

Non-pharmacological interventions

The family and key members of the affected individual's social network should be provided with education about appropriate management of behaviour and emotion.[✓]

Pharmacological interventions

Propranolol or pindolol may be considered as a first line treatment option for moderate levels of agitation/aggression.[B]

Drug treatments should be individually tailored and commenced in very low doses. The patient's progress should be monitored with surveillance for possible adverse effects.[✓]

✓ Depression and anxiety

Cognitive behavioural therapy should be considered for the treatment of acute stress disorder following mild TBI.[✓]

Cognitive behavioural therapy should be considered for the treatment of anxiety symptoms following mild to moderate TBI, as part of a broader neurorehabilitation programme.[✓]

× COMMUNICATION AND SWALLOWING

✓ Managing communication problems

Patients with communication deficits post TBI should be referred to speech and language therapy for assessment and management of their communication impairments.

✓ Assessing and managing dysphagia

Instrumental assessment of dysphagia in patients post TBI should be considered where:

- bedside assessment indicates possible pharyngeal stage problems (which would potentially include the aspiration of food and fluid into the lungs)
- the risks of proceeding on the basis of the bedside assessment outweigh the possible benefits (the patient at very high risk of choking or aspiration if fed orally), and
- the bedside assessment alone does not enable a sufficiently robust clinical evaluation to permit the drawing up of an adequate plan for swallowing therapy.[D]

× VOCATIONAL REHABILITATION

- Early in the rehabilitation pathway patients should be asked about vocational activities and liaison initiated with employers. Once work requirements are established patients should have appropriate assessments made of their ability to meet the needs of their current or potential employment. [✓]
- NHS Boards should consider providing a specific local expert therapist to provide advice to rehabilitation teams including signposting to relevant statutory services such as Disability Employment Advisors at job Centres, organisations specifically providing opportunities for people with disabilities, eg Momentum, or voluntary services which can provide help and support, eg Headway, Disability Alliance.[✓]

× Management of the patient in the minimally conscious or vegetative state

Definitions

Considerable progress has been made in reaching consensus regarding the specific diagnostic criteria used to differentiate patients at various points after injury. This work has focused on identifying patterns of behavioural responses which indicate increased conscious level and emergence from coma, through the VS into the MCS and beyond. For patients who remain in the VS, issues of chronicity and permanence have been described in relation to prognosis.

○ VEGETATIVE STATE

Diagnosis of VS can only be made a minimum of one month after injury and requires the presence of all the following:

- no evidence of awareness of self or environment and an inability to interact with others y no evidence of sustained, reproducible, purposeful, or voluntary behavioural responses to visual, auditory, tactile or noxious stimuli
- no evidence of language comprehension or expression
- intermittent wakefulness manifested by the presence of sleep-wake cycles
- sufficiently preserved hypothalamic and brain stem autonomic functions to permit survival with nursing and medical care
- bowel and bladder incontinence
- variably preserved cranial nerve reflexes and spinal nerve reflexes.[4]

It has been proposed that the issue of permanence of the VS may be raised when a patient has remained in the VS for more than 12 months after a traumatic brain injury and more than three months after a brain injury of non-traumatic cause (eg cerebral anoxia). After this point, recovery of consciousness can be considered highly improbable but not impossible and critical issues regarding life sustaining treatment and interventions may therefore become pertinent in individual cases.

○ MINIMALLY CONSCIOUS STATE

A patient can be considered to be functioning in the MCS if there is clear evidence of being able to perform one or more of the following behaviours:

- follow simple commands
- demonstrate gestural or verbal yes/no responses (regardless of accuracy)
- verbalise intelligibly
- demonstrate purposeful behaviour, including movements or affective behaviours which are contingent upon environmental stimuli (eg appropriate smiling/crying, visual tracking object, vocalised/gestural response appropriate to questions or instruction).

A patient can be considered to have emerged from the MCS when they are able to reliably and consistently demonstrate one or both of the following:

- functional interactive communication (eg verbal/gestural yes/no responses to questions, or written questions)
- functional use of two different objects.

A wide range of medical, surgical, pharmacological, environmental and sensory stimulation intervention techniques has been used with patients in states of disordered consciousness. Many published studies have reported outcomes with single cases or a small case series. There are very few group designs reported in the literature and a lack of control data for comparative purposes.

Assessing changes in conscious level

- The Coma Recovery Scale - Revised should be used to assess patients in states of disordered consciousness. [B]

- Given the challenges associated with assessing patients with disorders of consciousness, it is important that clinicians should have training in administering disorders of consciousness assessment tools and also an appreciation of the range of assessment tools available for use with this population. [✓]

Pharmacological therapy

- Amantadine may be considered as a means of facilitating recovery of consciousness in patients following severe brain injury.[B]

Non-pharmacological therapy

One RCT with methodological limitations provided evidence regarding the efficacy of a family visiting programme in improving conscious level.¹⁶³ Fifty patients in coma were randomly allocated to either a treatment condition (n=25) or to standard nursing care condition (n=25). The treatment condition incorporated six daily visits from a close family member lasting 15 minutes during which the visitor was trained to verbally interact with the patient and provide tactile stimulation to the hands and face. The authors reported a significant difference between the two groups' conscious level (mean GCS scores) after the final treatment session on day six but no significant difference at baseline. [1-]

× SERVICE DELIVERY

Inpatient care

- There is little direct evidence to support the rehabilitation of brain injured patients within a specialist unit compared with a non-specialist/general unit. Ethical considerations surrounding the differential provision of care to different groups limit the availability of high quality randomised data.
- A specialist service has been defined as a group of (therapeutic) interventions delivered by one or more people or organisation(s), which may incorporate one or more programmes, methods, techniques or approaches. Such services are:
 - not generic primary, intermediate or secondary health or social services (although much of the care received by people with these conditions are provided by such generic services), and
 - generally provided by more than one professional grouping.
- For optimal outcomes, higher intensity rehabilitation featuring early intervention should be delivered by specialist multidisciplinary teams.[B]

Community rehabilitation

- While there is limited research comparing the outcomes of community rehabilitation with other or no rehabilitation, there is evidence of beneficial outcomes for patients with TBI who have access to the following features of community rehabilitation services:
 - interdisciplinary rehabilitation planned transfer of patient care from hospital to community services
 - ongoing family and carers support
 - neuropsychology rehabilitation programmes
 - community rehabilitation many years post injury
- Community rehabilitation services for patients with brain injuries should include a wide range of disciplines working within a co-ordinated interdisciplinary model/framework and direct access to generic services through patient pathways.[✓]
- Each patient should have a named worker. [✓]

- A guideline from the British Society of Rehabilitation Medicine and Royal College of Physicians recommends that, as a minimum, a community specialist service to support people with brain injuries should include:
 - specialist brain injury nurses, physiotherapists, occupational therapists, speech and language therapists, clinical psychologists, specialist social workers, dietitians, technical instructors, generic assistant, consultants in rehabilitation medicine, with access to other relevant services such as neurology, neurosurgery, neuropsychology, neuropsychiatry and mental health services as required.[4]
- Family and carers should be provided with access to ongoing support when the patient with brain injury is living within the community. [✓]
- Children and adolescents affected by a family member with brain injury may require referral to specialist support services through education, health or social work. [✓]
- Neuropsychological rehabilitation programmes

An RCT of 68 patients with moderate to severe brain injuries showed that a group receiving a comprehensive, holistic programme of neuropsychological rehabilitation in a community setting demonstrated greater improvement in the community integration questionnaire and the perceived quality of life scale than a group receiving standard rehabilitation in the same setting. The Intensive Cognitive Rehabilitation Program consisted of 15 hours of individual and group therapies conducted three days per week. Patients used a variety of functional and social problem-solving tasks to tackle their individual problems, while pragmatic and interpersonal communication was addressed through role playing, interpersonal and videotaped feedback, and analysis of social interactions. Functional compensatory strategies were used (for example, note-taking) and the application and monitoring of strategies reviewed within each participant's home and community, including regular homework exercises. At completion of treatment, significantly more patients in the neuropsychological rehabilitation programme group were engaged in community based employment than in the standard rehabilitation group (47% v. 21%; p=0.02). [1+]
- LONG TERM ACCESS TO REHABILITATION

An RCT of multidisciplinary rehabilitation in the community for patients with moderate to severe TBI (n=110) showed improvements in functional outcomes compared with an information provision intervention. Outreach participants who received individualised programmes of rehabilitation from a multidisciplinary team which used a goal planning framework where participants were seen for two to six hours per week demonstrated significantly larger gains on the Barthel Index (35% v. 20%, p<0.05), the Brain Injury Community Rehabilitation Outcome-39 (BICRO-39) (80% v. 70%, p=0.05) but not in FIM and FAM scales (85.4% v. 88.9%, not significant). Median changes on individual subscales were small, reflecting the diversity of the clinical population; however, 40% of outreach but only 20% of information participants made a clinically significant improvement of at least 2 points on at least one BICRO-39 scale. The cohort included patients up to 20 years post injury, and the authors noted a weak positive correlation between time since injury and extent of improvement. There were no significant improvements in socialising, predictive employment or anxiety and depression.[1+]
- TELEMEDICINE

Where further rehabilitation is indicated for patients with brain injury who are discharged from

inpatient care, it may be offered by telephone or face-to-face methods to alleviate long term burdens due to depression, behavioural and cognitive consequences.[✓]

○ DISCHARGE PIANNING

Discharge policies should be implemented for inpatient rehabilitation to home transitions for patients with brain injuries.

Planned discharge for patients with brain injuries has been associated with:

- improvement in knowledge of their disability
- improvement in Mayo Portland Adaptability Inventory results
- improvement in functional status
- slight decrease in mortality rates
- improvement in Activities of Daily Living scores
- improvement in psychological re-integration and global functioning. [1+2+3]

○ Planned discharge from inpatient rehabilitation to home for patients who have experienced an ABI provides beneficial outcomes and should be an integrated part of treatment programmes.[D]

○ At the time of discharge, the discharge document should be sent to all the relevant agencies and teams.[✓]

PRE-DISCHARGE

○ The pre-discharge process should involve the patient and carer(s), primary care team, social services and allied health professionals as appropriate. It should take account of the domestic circumstances of the patient or, if the patient lives in residential or sheltered care, the facilities available there. [✓]

○ Essential alterations to the patient's home should be completed and necessary aids installed prior to discharge. [✓]

○ Pre-discharge home visits should be undertaken for patients who require them.[D]

CHECKLIST FOR PROVISION OF INFORMATION TO PATIENTS

This section gives examples of the information patients/carers may find helpful at the key stages of the patient journey. The checklist was designed by members of the guideline development group based on their experience and their understanding of the evidence base. The checklist is neither exhaustive nor exclusive.

At ALL stages	
Healthcare professionals should:	<ul style="list-style-type: none"> ensure that advice and support from the multidisciplinary team for patients (and, where appropriate, carers) is available in a variety of formats, taking account of each patient's communication abilities.
In primary care	
At presentation to primary care:	<ul style="list-style-type: none"> explain to patients the importance of accurately recording the full history including when problems were first noted, by whom and how they manifest ascertain what information or advice the patient was given if they attended the emergency department and reiterate this information (see also SIGN 110, Annexes 8-12)³ if the patient is presenting following MTBI in the post-acute period, provide reassurance and information about the likelihood of good prognosis.
At referral for further assessment:	<ul style="list-style-type: none"> explain to the patient and carers why they are being referred for further assessment and where this assessment will be carried out. ensure that the patient understands what they can do to help themselves and provide written information, if available.
At assessment appointment(s)	
The specialist team receiving the referral should:	<ul style="list-style-type: none"> ensure the patient receives information about the process which will follow referral, including likely timescale and who will be involved keep patients advised of correspondence with other members of the rehabilitation team when arranging further assessments.
Following assessment appointment(s)	
Specialist team should:	<ul style="list-style-type: none"> ensure that the referring healthcare professional is kept informed of any outcome and interventions that they should support or be involved in consider the inclusion of patient and family in goal setting or case planning.
At discharge from rehabilitation	
Specialist team should:	<ul style="list-style-type: none"> provide information tailored to the patient's individual needs and communication abilities which includes contact details for any liaison or outreach professionals who can provide ongoing contact and support following discharge.

Major recommendations from recent guidelines about dementia

- **Dementia and Cognitive Impairment Diagnosis and Treatment Guideline.** (2012) Group Health Cooperative
- **Guidelines for psychosocial interventions in dementia care: a European survey and comparison.** (2011) E. Vasse, M. Vernooij-Dassen, I. Cantegreil, M. Franco, P. Dorenlot, B. Woods and E. Moniz-Cook
- **Clinical practice guideline for dementia. Part I: diagnosis & evaluation.** (2011) Clinical Research Center for Dementia of South Korea
- **Management of patients with dementia: a national clinical guideline.** (2006) Scottish Intercollegiate Guidelines Network

KEY TO EVIDENCE STATEMENTS AND GRADES OF RECOMMENDATIONS	
LEVELS OF EVIDENCE	
1++	High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
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1 –	Meta-analyses, systematic reviews, or RCTs with a high risk of bias
2++	High quality systematic reviews of case control or cohort studies relationship is causal
2+	Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2-	Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, eg case reports, case series
4	Expert opinion
GRADES OF RECOMMENDATION	
<i>Note: The grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation</i>	
A	At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; or A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results
B	A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 1++ or 1+
C	A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2++
D	Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+
GOOD PRACTICE POINTS	
<input checked="" type="checkbox"/>	Recommended best practice based on the clinical experience of the guideline development group

- × **Management of patients with dementia: a national clinical guideline.** (2006) Scottish Intercollegiate Guidelines Network

DEFINITIONS

Dementia: A generic term indicating a loss of intellectual functions including memory, significant deterioration in the ability to carry out day-to-day activities, and often, changes in social behaviour.

Diagnosis

Dementia is a clinical diagnosis made when acquired cognitive deficits in more than one area of cognition interfere with activities of daily living and represent a decline from a previously higher level of functioning. Dementia can result from a number of single or combined underlying aetiologies and is usually progressive. Dementia is not usually diagnosed in the presence of delirium, although the two can coexist. The accurate differential diagnosis of dementia subtypes has become increasingly important with the advent of licensed treatments for Alzheimer's disease and the recognition of the potentially serious side effects of antipsychotics in people with dementia with Lewy bodies.

Initial cognitive testing

- In individuals with suspected cognitive impairment, the mmse should be used in the diagnosis of dementia.[B]
- Initial cognitive testing can be improved by the use of Addenbrooke's Cognitive Examination. The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE; *see Annex 8*) is a short questionnaire filled out by someone who knows the patient and can be an adjunct to direct cognitive testing.[✓]
- A questionnaire, such as the IQCODE, completed by a relative or friend may be used in the diagnosis of dementia.[✓]

Screening for comorbid conditions

as part of the assessment for suspected dementia, the presence of comorbid depression should be considered.[B]

The use of imaging

- structural imaging should ideally form part of the diagnostic workup of patients with suspected dementia.[C]
- Spect may be used in combination with CT to aid the differential diagnosis of dementia when the diagnosis is in doubt.[C]

Neuropsychological testing

Neuropsychological testing should be used in the diagnosis of dementia, especially in patients where dementia is not clinically obvious.[B]

It may be useful to repeat neuropsychological testing after six to 12 months in patients where:

- the diagnosis is unclear
- measurement of the progression of deficits in a typical pattern supports a diagnosis of dementia and helps in differential diagnosis. [✓]

The provision of neuropsychology services is variable and in places non-existent.

NON-PHARMACOLOGICAL INTERVENTIONS

Behaviour management

- Behaviour management may be used to reduce depression in people with dementia.[B]
- Evidence suggests that reduction of repetitive verbalisations, management of aggression and management of eating behaviours in people with dementia have a positive effect on behaviour and well-being. [1–]

- Multilevel behavioural management interventions may be more effective than individual interventions at improving behaviour and well-being in people with dementia.[✓]
- **Caregiver intervention programmes**

There is evidence to support the use of comprehensive caregiver support in reducing institutionalisation. In one study, 65% of the intervention group were living at home after 30 months compared to 26% in the control group. In a Finnish study the median time of residing in the community following a programme of systematic comprehensive support by a nurse or dementia family care coordinator was 647 days in the intervention group and 396 days in the control group. The clinical impact of this treatment on the patient was minimal and time- limited, with greatest benefit to those with severe dementia.[1+]

 - Caregivers should receive comprehensive training on interventions that are effective for people with dementia.[B]
- **Cognitive stimulation**

Cognitive stimulation may occur informally through recreational activities, or formally through:

 - a programme of memory provoking, problem-solving and conversational fluency activities
 - the spaced retrieval method
 - face name training.

Formal cognitive stimulation produced a positive clinical impact on cognitive function in people with dementia. Although memory of specific pieces of information was improved it did not produce general benefits to memory function. These studies did not generalise to overall neuropsychological function and had short follow up.[1+]

 - Cognitive stimulation should be offered to individuals with dementia.[B]
- **Environmental design**

Measures which should be considered when planning an environment for people with dementia include:

 - incorporating small size units
 - separating non-cognitively impaired residents from people with dementia
 - offering respite care as a complement to home care
 - relocating residents, when necessary, in intact units rather than individually
 - incorporating non-institutional design throughout the facility and in dining rooms in particular
 - moderating levels of stimulation
 - incorporating higher light levels
 - using covers over fire exit bars and door knobs to reduce unwanted exiting
 - incorporating outdoor areas with therapeutic design features
 - considering making toilets more visible to potentially reduce incontinence
 - eliminating factors that increase stress when bathing. [✓]
- **Multisensory stimulation and combined therapies**
 - In people with dementia who show behavioural disturbance despite the use of psychotropic medication, aromatherapy may influence behaviour but cannot be recommended as a direct alternative to antipsychotic drugs, nor for the reduction of specific behavioural problems.[✓]
 - The use of aromatherapy to reduce associated symptoms in people with dementia should be discussed with a qualified aromatherapist who can advise on contraindications.[✓]
 - Bright light therapy is not recommended for the treatment of cognitive impairment, sleep disturbance or agitation in people with dementia.[✓]
 - For people with moderate dementia who can tolerate it, multisensory stimulation may be a

- clinically useful intervention.[✓]
 - Multisensory stimulation is not recommended for relief of neuropsychiatric symptoms in people with moderate to severe dementia. [✓]
- **Physical activities**
 - For people with dementia, a combination of structured exercise and conversation may help maintain mobility.[✓]
- **Reality orientation therapy**

ROT may slow cognitive decline and delay nursing home placement.⁸⁷ The study found that therapy conducted over a long period using the 24 hour method had more benefits than the formal method.[2+]

 - Reality orientation therapy should be used by a skilled practitioner, on an individualised basis, with people who are disorientated in time, place and person.[D]
- **Recreational activities**
 - Recreational activities should be introduced to people with dementia to enhance quality of life and well-being.[B]
 - Individualised activities adapted to maximise the person's remaining abilities and based on previous interests may be more beneficial to people with dementia than generic activities.[✓]
- **Validation therapy**

Benefits claimed for patients through the use of validation therapy include:

 - restoration of self worth
 - minimisation of the degree to which patients withdraw from the outside world
 - promotion of communication and interaction with other people
 - reduction of stress and anxiety
 - stimulation of dormant potential
 - help in resolving unfinished life tasks
 - facilitation of independent living for as long as possible.

A systematic review of two RCTs and a further RCT showed no statistically significant or clinically relevant effects from using validation therapy with people with dementia.[1+]

PHARMACOLOGICAL INTERVENTIONS

- Donepezil, at daily doses of 5 mg and above, can be used to treat cognitive decline in people with alzheimer's disease.[B]
- Age and severity of Alzheimer's disease should not be contraindications to the use of donepezil.[✓]
- Donepezil, at daily doses of 5 mg and above, can be used for the management of associated symptoms in people with alzheimer's disease.[B]
- galantamine, at daily doses of 16 mg and above, can be used to treat cognitive decline in people with alzheimer's disease and people with mixed dementias.[B]
- galantamine, at daily doses of 16 mg and above, can be used for the management of associated symptoms in people with alzheimer's disease.[B]
- Rivastigmine, at daily doses of 6 mg and above, can be used to treat cognitive decline in people with alzheimer's disease.[B]
- Rivastigmine, at daily doses of 6 mg and above, can be used to treat cognitive decline in people with dementia with lewy bodies.[B]

- Rivastigmine, at daily doses of 6 mg and above, can be used for the management of associated symptoms in people with alzheimer’s disease and dementia with lewy bodies.[B]
- Antidepressants can be used for the treatment of comorbid depression in dementia providing their use is evaluated carefully for each patient.[D]
- If necessary, conventional antipsychotics may be used with caution, given their side effect profile, to treat the associated symptoms of dementia.[A]
- Oestrogen is not recommended for the treatment of associated symptoms in women with dementia.[B]
- Valproate is not recommended for the treatment of behavioural symptoms associated with dementia.[A]

INFORMATION FOR DISCUSSION WITH PATIENTS AND CARERS

- Patients and carers should be offered information tailored to the patient’s perceived needs.[C]
- Good communication between healthcare professionals, patients and carers is essential.[✓]

Disclosure of diagnosis

- Healthcare professionals should be aware that many people with dementia can understand their diagnosis, receive information and be involved in decision making.[C]
- Healthcare professionals should be aware that some people with dementia may not wish to know their diagnosis.[C]
- Healthcare professionals should be aware that in some situations disclosure of a diagnosis of dementia may be inappropriate.[D]
- The wishes of the person with dementia should be upheld at all times. [✓]
- The diagnosis of dementia should be given by a healthcare professional skilled in communication or counselling. [✓]
- Where diagnosis is not disclosed there should be a clear record of the reasons. [✓]

Information at other stages of the patient journey

- Patients and carers should be provided with information about the services and interventions available to them at all stages of the patient’s journey of care.[✓]
- Information should be offered to patients and carers in advance of the next stage of the illness. [✓]
- Methods of disseminating information which may be appropriate for people with dementia and their carers include:
 - written information
 - individual education programmes
 - group education programmes
 - counselling
 - telemedicine service
 - communication workshops
 - cognitive behaviour therapy (CBT)
 - stress management
 - combinations of the above.

Guidelines for psychosocial interventions in dementia care: a European survey and comparison. (2011) E. Vasse, M. Vernooij-Dassen, I. Cantegreil, M. Franco, P. Dorenlot, B. Woods and E. Moniz-Cook

Table 1. Appraisal of sections about psychosocial interventions in European dementia guidelines. Appraisal of Guidelines Research and Evaluation domain scores

Domain	Guidelines							Mean domain score
	UK ^a	UK ^b	GE	NL ^c	IT	NL ^d	SP	
Scope and purposes	89	65	89	83	57	39	78	71
Stakeholder involvement	<u>88</u>	<u>32</u>	71	83	36	50	46	58
Rigour of development	90	79	79	52	45	43	38	61
Clarity and presentation	<u>88</u>	56	67	63	42	67	71	65
Applicability	89	46	<u>28</u>	<u>22</u>	<u>6</u>	<u>17</u>	17	32
Editorial independence	100	72	58	50	33	42	<u>8</u>	52

UK = United Kingdom; GE = Germany; NL = Netherlands; IT = Italy; SP = Spain.

All numbers are percentages. For each guideline: the highest domain score is **bolded**; the lowest domain score is underlined.

a National Institute for Clinical Excellence and Social Care Institute for Excellence.

b Scottish Intercollegiate Guideline Network.

c Netherlands Institute for Health Services Research.

d Wind *et al*

Table 2. Comparison of recommendations for psychosocial interventions in different European guidelines

Intervention	Guidelines						
	UK ^a	UK ^b	GE	NL ^c	IT	NL ^d	SP
	Recommended (yes/no/MNR)						
Carer interventions	Yes ^e	Yes ^e	—	—	Yes ^e	Yes	Yes
Physical activities	Yes	Yes	Yes	—	Yes	—	Yes
Reminiscence	Yes	MNR	Yes ^f	—	Yes ^g	—	MNR
Multisensory stimulation/snoezelen	Yes	Yes ^h	Yes	Yes ⁱ	No	—	—
Massage/touch	Yes	—	Yes	—	—	—	—
Behaviour management	Yes ⁱ	Yes ^{e,k}	Yes ^l	—	—	—	Yes
Cognitive behavioural therapy	Yes ^m	—	—	Yes ⁿ	—	—	—
Recreational activities	Yes ^e	Yes ^e	—	—	—	—	Yes
Environmental design	Yes	Yes ^e	—	—	—	—	Yes
Cognitive stimulation	Yes ^{e,o}	Yes ^e	—	—	—	—	MNR
Music therapy	Yes	MNR	—	—	Yes ^g	—	MNR
Aromatherapy	Yes	No	—	—	Yes	—	—
Animal-assisted therapy	Yes	—	—	—	—	—	—
Reality orientation	MNR	Yes ^{e,p}	—	—	Yes ^{e,o}	—	MNR
Memory training	MNR	—	—	—	Yes ^g	—	—
Validation	MNR	MNR	Yes ^q	—	No	—	—
Emotion-oriented care	MNR	—	—	Yes	—	Yes	—

- o UK = United Kingdom; GE = Germany; NL = Netherlands; IT = Italy; SP = Spain.
- o MNR = Mentioned, but no recommendation made.
- o a National Institute for Clinical Excellence and Social Care Institute for Excellence.
- o b Scottish Intercollegiate Guideline Network.
- o c Netherlands Institute for Health Services Research.
- o d Wind *et al.*
- o e Strongly advised.
- o f Recollection of positive memories only.
- o g Not beneficial to all patients.
- o h Only when the patient tolerates it.
- o i In case of apathetic behaviour.
- o j Tailored and individualized.
- o k In the case of depression.
- o l Need-Driven Dementia-Compromised Behaviour Model.
- o m Patients and carers.
- o n Behaviour therapy—pleasant events/problem solving.
- o Group therapy not individualized.
- o p Individualized, not group, therapy.
- o q Validating attitude by nursing staff