

Electronic Annex 3c

Physical management of people in a disorder of consciousness

Aims, scope and definitions

To promote best practice in the use of physical and postural interventions for management of posture and prevention of secondary complications in adults with a disorder of consciousness (DOC).

Definitions: The terms 'global' and 'focal' management will be used to define the two broad elements of postural management.

- > **Global:** refers to whole body approaches (eg treatment to maintain posture).
- > **Focal:** refers to interventions specific to a localised body area (eg a joint).

24-hour posture management

An important part of rehabilitation and long-term care in this group is 24-hour posture management (including positioning in bed and wheelchairs). There is very little published literature on the effective management strategies used in patients in a DOC. The majority of literature discusses issues related to diagnosis, neuropathology or the assessment of low awareness states, but although not well researched, there is a great need to prevent physical deterioration in this group over time.

People in a DOC suffer frequent medical complications secondary to their brain injury and severe physical disability, which can negatively affect health, rehabilitation outcomes and contribute to complications in care.¹ Regular changes in posture have been shown to alter muscle length, redistribute pressure, facilitate the respiratory system, help in improving alertness and orientation as well as providing comfort.²⁻⁴ Immobility and sustained postures will lead to soft tissue shortening which is a major secondary complication with this group of patients.⁵

Contracture management

Contractures arising through inappropriate positioning can hinder effective seating and provision of care/hygiene needs.⁶ This could lead to pain, discomfort and can make personal care difficult.

Once again there is very limited evidence for the effectiveness of conservative management of contractures with stretch interventions.^{7, 8} A preventative approach is likely to be more effective than restoring range once a contracture is present. Alternatively, if loss of passive joint range is identified early, it may be possible to reverse initial changes.⁹⁻¹¹ However, consistent with all management in this area of practice, the best interests of the individual should be the primary focus and intervention may not always be indicated.¹²

Prevention of pressure ulcers

A further serious secondary complication for those in a DOC is pressure ulcer formation associated with prolonged static positioning.¹³ These complications are common and are observed in patients admitted to rehabilitation and long-term units. Pressure ulcer occurrence has been reported to occur in 56% of people in a DOC within the first 6 months of brain injury.¹

Algorithm

The physical management care algorithm on page 3 provides an overview to consider physical and postural management provision for patients in DOC.

Physical management for people in a DOC

Acute – stabilise physical management

- Acute:** maintain joint, muscle and skin integrity to enable ongoing positioning in bed and wheelchair
- > Record range of movement at key joints (hips, knees, ankles, shoulders, elbows, wrists) and impact on personal care. *1 or *2
 - > Implement global physical management regime with postural support in sitting and lying. Provide bed positioning and seating guidelines and orthotics instructions to be viewed readily
 - > Consider need for focal interventions (eg orthotics or botulinum toxin injection)

Bed positioning

Aim to achieve mid line positioning in side lying and supine while maintaining skin integrity

Sitting

Aim to achieve mid line positioning with 90 degrees at hips and knees while maintaining skin integrity

Focal interventions

Consider focal interventions when progressive loss of range is likely or occurring at a joint or is already impacting on function or care (see below)*1

Post-acute – plan physical management

- Post-acute:** maintain joint, muscle and skin integrity to enable ongoing positioning in bed and wheelchair
- > Record range of movement at key joints (hips, knees, ankles, shoulders, elbows, wrists) and impact on personal care. *1 or *2 compare to previous measures
 - > Implement global physical management regime with postural support in sitting and lying. Provide bed positioning and seating guidelines and orthotics instructions to be viewed readily
 - > Consider need for focal interventions (eg orthotics or botulinum toxin injection)

To assess for long-term bed positioning with the aim of maintaining joint, muscle and skin integrity

Provide positioning aids (positioning rolls, wedges or sleep systems)

To assess for long-term seating with the aim of maintaining joint, muscle and skin integrity

Provide an appropriate seating system

Focal management

Long-term care – Consolidate physical management

- Long-term management:** translate physical management plan to community or care setting
- > Provision of photographic guidelines for optimal position in bed and seating system(s) and focal management such as orthotics
 - > Monitor range of movement at key joints (hips, knees, ankles, shoulders, elbows, wrists) and impact on personal care *1 or *2 compare to previous measures

Review/monitor bed positioning regime, use and effectiveness as a component of the individuals care plan

Review/monitor seating system, use and effectiveness as a component of the individuals care plan

Focal management

Review and monitoring: To maintain physical management programme for the maintenance of joint, muscle and skin integrity

- > Formally review physical management plan (seating and bed positioning) every 3–6 months using comparison to baseline. *1 or *2 compare to previous measures

For *1 Care (Passive function): Arm activity measure and/or leg activity measure (passive function sub-scales). Range-of-movement (ROM): Rapid deterioration in range of movement at a joint (eg wrist and fingers) such as 10% loss in range within a month^{14–16}

For *2 Range-of-movement (ROM): Rapid deterioration in range of movement in multiple joints, such as 10% loss in joint ranges within a month. Skin integrity: Occurrence of pressure sores (document location and severity)

For measurement of ROM, the 'Neutral-0-method' should be ideally be applied,¹⁷ to enable consistent communication across services

Checklist guidance on physical management for individuals with a disorder of consciousness

To help prevent secondary complications and resultant challenges with care the following monitoring regime is recommended (review in conjunction with the algorithm presented on page 3):

- > **Establish the physical and postural management needs** of individuals through a plan for positioning in lying (bed) and sitting (wheelchair), with regular changes of position (repositioning). The development of the plan should involve (as a minimum) physiotherapist, occupational therapist and nurse.
- > **Assessment and provision of the appropriate bed positioning system** including skin pressure relief management as needed. Simple bed positioning aids should be considered first, followed by more complex positioning aids dictated by patient need. Appropriate training should be provided on use to family,* carers and professionals, and should be incorporated into the care plan (eg photographic guidelines).
- > **Provision of seating system** following assessment including provision for pressure relieving cushion to achieve optimum seated position. Appropriate training should be provided on use to family,* carers and professionals, and should be incorporated into the care-plan (eg photographic guidelines).
- > **Sitting tolerance should be gradually increased** and carefully monitored to maintain the individual's skin integrity and optimal posture. Sitting tolerance of 6–8 hours is feasible if no issues occur.
- > **Community-based assessment:** Individuals transferred into community care should be reassessed by a therapist (physiotherapist or occupational therapist) and other relevant professionals within 3 months of their discharge from the hospital setting. This initial assessment should check that the patient remains stable and that the care plan established in the hospital remains appropriate.
- > **Initial quarterly review:** During the first year living in the community, the individual should be reviewed by a therapist at 3-month intervals to help adapt their care plan as they settle into their new home. The frequency of reviews over subsequent years may be reduced provided the person is stable.
- > **Annual review and assessment:** Individuals who are established in a long-term care environment, who are stable and remain well managed, should receive an annual review of their physical and postural management plan. This should encompass a review of their posture in the wheelchair and bed, re-examination of joint range of movement, repeat assessment through validated outcome measures (ie range of movement at key joints, arm activity measure (ArmA) and leg activity measure (LegA) for passive function/care and a review of their skin care and continence regimes.^{14–16}
- > **Re-referral:** Any change in physical or postural status must initiate a referral to the appropriate therapy or nursing team.¹² External referrals to appropriate specialists should be made by the treating/reviewing therapists once a problem is identified, examples could include:
 - referral to a specialist spasticity management service. Systemic, regional (eg intrathecal) and focal (eg botulinum toxin) should be available options
 - a posture management service (specialist in posture and mobility)
 - splinting/orthotic service.

**Family members should be offered appropriate training and support provided they want to be involved in these aspects of physical care.*

Physical Management Guidance Development Group:

Rasheed Meeran, Stephen Ashford, Teresa Clark, Karen Hoffman, Dave Long, Macarena Montesinos Ruiz, Anand Pandyan, Diane Playford, Helen Gill-Thwaites, Karen Elliott

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