<table>
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<th>Lorna I Hall NMCN ABI Manager</th>
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<tr>
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<td>NMCN Steering group &amp; Education &amp; Training Sub group</td>
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<tr>
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<td>Knowledge skills &amp; competences for staff working with patients with ABI</td>
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<td>Final V1.0</td>
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<td>Review Date:</td>
<td>January 2012</td>
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1. Document Version Tracking

1.1 Source Of The Document
Y:\MCN\ABI\ABI education & training workstream\Core competencies\Final V1.0 dec 2010\TBIcompetencies Final V1.0 Dec 2010.doc

1.2 Revision History

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<thead>
<tr>
<th>Revision date</th>
<th>Version</th>
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<td>08/12/10</td>
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1.3 Approvals

This document requires the following approvals:

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
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<tbody>
<tr>
<td>Dr Alan Carson</td>
<td></td>
<td>ABI Lead Clinician</td>
<td>Final V 1.0</td>
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1.4 Distribution

This document has been distributed to:

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<thead>
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<th>Name</th>
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<tbody>
<tr>
<td>Website</td>
<td><a href="http://www.sabin.scot.nhs.uk">www.sabin.scot.nhs.uk</a></td>
<td>Final V 1.0</td>
<td></td>
</tr>
</tbody>
</table>
2. Introduction
2.1 The Acquired Brain Injury- National Managed Clinical Network

Traumatic Brain Injury (TBI) is the most common cause of Acquired Brain Injury (ABI).

There is no universal agreement of what constitutes Acquired Brain Injury. The definitions given below share the theme of damage to the brain not resulting from insults to the brain before, during or shortly after birth and not due to progressive disease of the nervous system.

ABI implies damage to the brain that was sudden in onset and occurred after birth and the neonatal period. It is thus differentiated from birth injuries, congenital abnormalities and progressive or degenerative diseases affecting the central nervous system. Scottish needs Assessment Programme (SNAP) Report (2000).

ABI includes traumatic brain injuries such as open or closed head injuries and non-traumatic brain injuries such as those caused by strokes, tumours, infectious diseases (e.g. encephalitis or meningitis), hypoxic injuries (e.g. asphyxiation, near drowning, anaesthetic incidents, or severe blood loss), metabolic disorders (e.g. insulin shock or liver or kidney disease), and toxic products taken into the body through inhalation or ingestion. The term does not include brain injuries that are congenital or brain injuries induced by birth trauma.

Commission for Accreditation of Rehabilitation Facilities (CARF) (2005)

ABI often leads to a mixture of physical, communicative, cognitive, emotional, and behavioural changes with profound consequences for the individual and their family. The person with such complex disabilities requires expertise traditionally based in medicine, mental health and learning disability services but does not fit neatly into any of these categories and so may be denied access to appropriate treatment. The Scottish Needs Assessment Programme (SNAP) report of 2000 indicated that the provision of services for brain injured
people in Scotland was inadequate and patchy. A review of the SNAP report by the National Services Division (a division of NHS National Services Scotland) resulted in the establishment of a National Managed Clinical Network for ABI. A Managed Clinical Network (MCN) is defined as:

Linked groups of health professionals and organisations from primary, secondary and tertiary care, working in a co-ordinated manner, unconstrained by existing professional and Health Board boundaries, to ensure equitable provision of high quality clinically effective services throughout Scotland.

The Steering Group for the ABI•NMCN agreed that the initial focus would be on the health service provision for people aged 16-65 years with head injuries and the NMCN decided to begin with four principle objectives:

1. Develop standards of care
2. Map out current services for people aged 16 - 65 with traumatic brain injury
3. Identify the educational needs of health care groups involved in the care of people with traumatic brain injury
4. Identify information requirements of patients and carers

This report deals with the third of these objectives.

A much more detailed background on the NMCN and copies of other reports are available on request and via the website: www.sabin.scot.nhs.uk

2.2 Traumatic Brain Injury Competences

People who work for the NHS need to carry out their duties effectively and consistently (i.e. they should be competent.) They are, therefore, required to have specified competencies. This demands an understanding of what is necessary to carry out the required tasks (knowledge) and the ability to do so (skills). This document outlines those competencies required by staff working with people with ABI and their families, describes the knowledge and skills required and directs staff to educational material and courses.
The competencies described here are intended to be used in conjunction with the Knowledge & Skills Framework (KSF), a system recently introduced in the NHS to identify the skills and knowledge that employees need to apply in their roles to deliver quality services. The competencies proposed are, therefore, complementary to KSF dimensions.

In developing these TBI competencies we have borrowed freely from the Stroke Core Competencies, published by NHS Education for Scotland (NES) in 2005, and the subsequent work by Chest Heart & Stroke Scotland (CHSS) and Edinburgh University. We are grateful to Professor Martin Dennis, Clare Adams and the stroke team for sharing their work.

Although many people who suffer a head injury either do not attend hospital or do not require admission. For those admitted to hospital, the patient journey may involve a period of observation in A & E, specialised management in a neurosurgical or intensive care unit, post-acute care in a general surgical or orthopaedic ward or rehabilitation in a general or specialised rehabilitation unit.

These TBI competences should assist in determining job specifications and training needs of individuals and of teams working with people with a head injury. It should also help ensure that a multiprofessional team has the composite knowledge and skills to manage someone with brain injury safely and effectively.

The competencies proposed here relate to the in-patient hospital setting and refer to NHS staff. Many may be applicable to later stages of the patient journey and to social care or other staff.

In describing the TBI competencies we use three categories: Basic; Enhanced & Advanced to indicate the degree of knowledge and skills expected in different settings and different posts. These are not intended to be restrictive.

Basic competencies: All NHS clinical staff who encounter people affected by TBI should have this degree of competence.
Enhanced competencies: These should apply to those working in environments where people with TBI are regularly managed for significant periods of time (e.g. post-acute in-patient or generic rehabilitation settings). They are also relevant to neurosurgical and intensive care staff (in addition to the other competencies required in these specialist units). Not all staff in these settings are expected to have all enhanced competencies BUT these competencies should be contained within the multi-disciplinary team (MDT) or the MDT should be able to access people who have the competencies.

Advanced competencies: These refer to the expectations of staff working in specialist brain injury rehabilitation units or those in other settings with a lead responsibility for providing rehabilitation services to people with TBI.

The same structure is used for each competence:

- A title indicates the area on which the competence focuses
- This is followed by a competence statement outlining the knowledge required
- The rationale section provides the reasons why the competence is considered to be important
- Competencies outline the skills required
  - Basic competence
  - Enhanced competence
  - Advanced competence

In many instances TBI does not occur in isolation as people may suffer significant extracranial injuries in addition to the injury to the head (e.g. orthopaedic, chest or abdominal injuries). These are not included within the competencies listed. There are several specific references to the need to inform the patient and their family about the areas covered. It is however essential that all staff take a family centred approach to the management of TBI. They should communicate sensitively and fully with patients and their families within the level of their competency and know when to seek input from other members of the multidisciplinary team when more detailed or expert information is required.
2.3 Sources

This document aims to outline the competencies expected of NHS staff involved in the care of people with TBI. It is not a textbook or training manual.

Competencies should be regarded as the minimal level of knowledge and skills that should be expected of staff or of the multidisciplinary team in the three categories described. Healthcare professionals working in specialist TBI services will often have more specialist roles, which will be associated with additional knowledge and skills than are listed in the advanced category here.

As the Field of TBI is continually developing the inclusion of references is liable to age rapidly. It is therefore recommended that the reader consults the ABI-NMCN website (www.sabin.scot.nhs.uk) to obtain relevant references. Anyone who is unable to access the internet is welcome to contact the NMCN office for a printed list.

In addition to the ABI-NMCN website we would particularly recommend looking at the Stars website for stroke www.strokecorecompetencies.org which contains much information relevant to other forms of acquired brain injury including TBI.

The NHS in Scotland’s e-Library provides access to a wide range of textbooks, journals and other resources such as the Cochrane library.

See also Appendix B

The term impairments, activity limitations and participation restrictions are used in the title or description of the several competencies and warrant a short explanation. They come from the World Health Organisation’s International Classification of Functioning, Disability & Health (ICF). The ICF describes functioning & disability associated with health conditions. The key definitions of the terms used in the ICF are as follows:
- Body functions are the physiological (incl. psychological) functions of body systems
- Body structures are anatomical parts of the body such as organs, limbs & their components
- Impairments are problems in body function or structure such as significant deviation or loss
- Activity is the execution of a task or action by an individual
- Participation is involvement in a life situation
- Activity limitations are difficulties an individual may have in executing activities
- Participation restrictions are problems an individual may experience in involvement in life situations
- Environmental factors make up the physical, social & attitudinal environment

Put simply impairment refers to a loss of a body part (e.g. an amputated limb) or to loss of or defect in a normal physiological function (e.g. movement of a limb or a normal psychological function (e.g. memory).

Activity limitations refer to difficulties doing everyday activities such as bathing dressing or getting around. Many of these activities are commonly referred to as Activities of Daily Living (ADL).

Participation restrictions are problems in getting involved in work, social or leisure pursuits.
### 3. Competencies

#### 3.1 Causes and Mechanisms of TBI

**Statement**

TBI is the result of a blow to the head/skull of sufficient force to damage the underlying brain tissue. A number of different mechanisms of damage may occur to different areas of the brain. The damage may occur at the time of injury (primary) or later (secondary).

**Rationale**

The principal causes of TBI are falls, road traffic accidents and assaults. The mechanisms of damage can be multiple and include focal lesions (e.g. contusions and haematoma); diffuse damage (e.g. diffuse axonal injury, cerebral oedema and ischaemia). The situation in which the TBI occurred and the site and extent of injury influence the effects seen. It is also important to recognize the association of TBI with alcohol and drug misuse and relevant premorbid factors. On occasions, depending on other injuries or co-existing problems, TBI might not be recognised e.g. subdural haematoma in the elderly.

**Knowledge & Skills**

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Be aware of the causes of TBI and relevant premorbid factors</td>
<td>• Understand the mechanisms of damage associated with TBI and have a basic knowledge of the pathological processes involved</td>
</tr>
<tr>
<td></td>
<td>• Understand the importance of the possible effects of previous drug or alcohol misuse and relevant premorbid disorders on recovery after TBI e.g. premorbid psychiatric illness</td>
</tr>
<tr>
<td></td>
<td>• Have a basic understanding of recovery mechanisms</td>
</tr>
<tr>
<td></td>
<td>• Be able to explain the nature of brain damage in simple and accessible language to patient and family.</td>
</tr>
</tbody>
</table>
| Advanced | • Have a detailed knowledge of the epidemiology and aetiology of TBI  
|          | • Understand the neuropathology of TBI  
|          | • Be able to describe the correlation between anatomical lesions and impairments in TBI  
|          | • Be able to give some prognostic information to patient or family |
### 3.2 Initial Stages of Care Pathway

#### Statement

The primary concern in the initial (acute) phase after injury is to detect and manage potential life-threatening complications of TBI that may require intensive and/or neurosurgical care. In addition, it is necessary to determine those individuals requiring management of persisting impairments and those who have recovered.

#### Rationale

Intensive / neurosurgical care may be required for treatment of complications of TBI such as brain swelling, hypoxia and intracranial haematoma. Systematic clinical monitoring with repeated observation is required to detect and record changes in conscious level and neurological status. The possible masking effects of alcohol, prescribed and non-prescribed drugs must be recognised.

#### Knowledge & Skills

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Understand the importance of using the Glasgow Coma Scale (GCS)</td>
<td>• Be able to record and monitor the Glasgow Coma Scale (GCS) using its component parts.</td>
</tr>
<tr>
<td>• Recognise and know how and when to report changes in the individual’s condition following head injury</td>
<td>• Be able to monitor and record other essential measures (i.e. vital signs, pupil size, focal neurological signs)</td>
</tr>
<tr>
<td>• Understand the effects of TBI on levels of consciousness and behaviour.</td>
<td>• Understand the possible masking effects of alcohol or prescribed and non-prescribed drugs</td>
</tr>
<tr>
<td></td>
<td>• Be familiar with local protocols for management of alcohol or drug withdrawal</td>
</tr>
<tr>
<td></td>
<td>• Be able to describe, use and document an appropriate pain assessment tool</td>
</tr>
<tr>
<td>Advanced</td>
<td></td>
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<tr>
<td>----------------------------------------------</td>
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</tr>
<tr>
<td>• Be able to interpret the component parts of the GCS and be able to identify and respond appropriately to these changes</td>
<td></td>
</tr>
<tr>
<td>• Be able to assess and record the duration of Post Traumatic Amnesia (PTA) and understand its importance on an individual’s recovery</td>
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<tr>
<td>• Have an in-depth knowledge of the reasons for and the management of PTA; challenging/disruptive behaviours; alcohol or drug withdrawal; pain management and know when to seek specialist advice</td>
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<tr>
<td>• Be able to formulate an appropriate discharge plan</td>
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</table>

- Be able to recognise and know how to report persisting confusion (i.e. of more than 24 hrs)
- Identify when a patient requires specialist intervention and implement local protocol for referral to appropriate service.
- Be able to give verbal and written advice at the time of discharge to the patient and relatives/carers
### 3.3 Post – Acute Inpatient Stage

#### Statement

Recovery following TBI can occur over weeks, months or years. The rate and level of recovery is difficult to accurately predict. Rehabilitation aims to maximise an individual’s independence to an optimum level addressing physical, cognitive, behavioural and social factors. Rehabilitation within a specialist neuro-rehabilitation service results in better outcomes for individuals than those who receive their care within a non-specialist environment.

#### Rationale

After the initial (acute) period, staff should be aware of, and be able to recognise, the common sequelae which occur following TBI and the effect these may have on an individual and family. These include physical, cognitive, behavioural and social consequences of TBI. It is important that the on-going needs of the individual are identified and timely referral to appropriate services made.

#### Knowledge & Skills

<table>
<thead>
<tr>
<th>Basic</th>
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<tbody>
<tr>
<td>• Be aware of the common consequences of TBI and the possible effects on the individual and their interaction with others</td>
<td>• Be able to describe the impact of these common consequences (physical, cognitive, behavioural and social) on the individual and their family</td>
</tr>
<tr>
<td>• Know when to seek advice</td>
<td>• Know when to seek advice and referral for rehabilitation</td>
</tr>
<tr>
<td></td>
<td>• Be able to give clear explanation of the rehabilitation process to person/family</td>
</tr>
<tr>
<td></td>
<td>• Be able to formulate care plans in relation to the person’s needs during early stages of care</td>
</tr>
<tr>
<td></td>
<td>• Be able to implement care plans, evaluate and modify as required during early stages of care</td>
</tr>
<tr>
<td></td>
<td>• Be familiar with the local procedure for referral for assessment</td>
</tr>
</tbody>
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for specialist rehabilitation

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<tr>
<td></td>
<td>• Know how to arrange transfer to specialist rehabilitation</td>
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<td>service as appropriate.</td>
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<tr>
<td>Advanced</td>
<td>• Know when it is appropriate to refer to a specialist</td>
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<td>rehabilitation service and be able to arrange transfer when</td>
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<td>indicated</td>
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</table>
### 3.4 Motor Impairments

**Statement**

A wide range of disorders of movement (motor impairments) can occur after TBI. These may be accompanied by abnormal muscle tone (spasticity/flaccidity).

**Rationale**

In TBI damage may occur to one or more of the connections within the central nervous system that control movement (the motor pathways). This can result in loss of power or muscle weakness; abnormal muscle tone; or lack of co-ordination. Such impairments can interfere with daily activities and result in falls and other injuries. In addition, optimal positioning may help to decrease spasticity and contractures.

**Knowledge & Skills**

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
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<tbody>
<tr>
<td>• Be aware of the motor (movement) problems that the patient can have following TBI.</td>
<td>• Be able to identify and document motor impairments and have a basic understanding of the neuropathology of motor problems</td>
</tr>
<tr>
<td>• Understand how motor problems can impact on the patient’s ability to carry out day to day activities</td>
<td>• Be able to explain motor problems to the patient and family</td>
</tr>
<tr>
<td>• Be able to assist in providing interventions to enable a person’s independence.</td>
<td>• Identify when a patient requires specialist intervention and implement local protocol for referral to appropriate service.</td>
</tr>
<tr>
<td>• Be aware of the importance of correct positioning and the use of splinting</td>
<td>• Be able to work collaboratively with other professionals in addressing an individuals motor impairment</td>
</tr>
<tr>
<td></td>
<td>• Be able to assess motor problems and formulate and monitor</td>
</tr>
<tr>
<td>Level</td>
<td>Tasks</td>
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<tr>
<td></td>
<td>appropriate treatment plans</td>
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<td></td>
<td>• Understand the use of oral and other medical treatments of spasticity (e.g. botulinum toxin)</td>
</tr>
<tr>
<td>Advanced</td>
<td>• Recognise and differentiate between upper motor neurone, extrapyramidal and cerebellar damage</td>
</tr>
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<td></td>
<td>• Be able to manage spasticity and altered tone to avoid secondary complications</td>
</tr>
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</table>
### 3.5 Sensory Changes

#### Statement

TBI may cause loss of or changes in sensation, including pain, in any part of the body.

Sensory changes can include pain, intolerance to noise, loss/altered ability to smell and visual impairments.

#### Rationale

The individual may not be able to feel pain or extremes of temperature in the affected area or experience an exaggerated response to physical stimuli. As a result such impairments can interfere with the individual’s ability to attend to and perform tasks and the loss of sensation carries the risk of injury. TBI may also cause abnormal sensations (e.g. pins and needles) or pain.

#### Knowledge & Skills

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
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</thead>
</table>
| • Be aware of the nature of sensory changes which can occur after TBI.  
• Understand how sensory problems can impact on the patient’s ability to carry out day to day activities  
• Be able to provide support to the individual to manage sensory problems and, with guidance, assist in providing interventions to manage the effects of sensory changes  
• Understand the basic principles of pain management. | • Be able to identify and document sensory changes and have a basic understanding of the neuropathology of sensory problems  
• Be able to explain sensory problems to the patient and family  
• Understand the use and adverse effects of medications used in pain management  
• Identify when a patient requires specialist intervention and implement local protocol for referral to appropriate service.  
• Be able to work collaboratively with other professionals in |
<table>
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<tr>
<th>Addressing an individual’s sensory problems</th>
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</table>

**Advanced**

- Advise on and understand the use of medication and other recognised treatments for management of pain and other sensory changes
### 3.6 Visual & Perceptual Impairments

#### Statement

TBI can result in loss of or alterations in vision. This may be complete blindness in one or both eyes, partial loss of vision in one or both eyes, blurred or double vision. In addition the shape, colour and/or size of objects may be altered (perceptual problems).

#### Rationale

Visual or perceptual impairments interfere with activities of daily living and carry the risk of injury from falls or walking into objects. It is important to be aware of environmental factors; lighting and colour contrasts; and the positioning of objects, e.g. cups, plates of food or buzzers.

#### Knowledge & Skills

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
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</thead>
<tbody>
<tr>
<td>• Be aware of the variety and nature of visual and perceptual impairments associated with TBI.</td>
<td>• Be able to identify and document visual and perceptual impairments and have a basic understanding of the underlying neuropathology.</td>
</tr>
<tr>
<td>• Be able to assist people with a change in vision to meet their daily needs</td>
<td>• Know how to facilitate a person’s independence which may include modifying the environment; the individual’s position; and by formulating and implementing treatment plans</td>
</tr>
<tr>
<td>• Be able to assist in providing interventions to maximise a person’s independence and safety</td>
<td>• Provide advice to person/families about visual changes</td>
</tr>
<tr>
<td>• Be aware of environmental/position changes required to support a person’s independence</td>
<td>• Identify when a patient requires specialist intervention and implement local protocol for referral to appropriate service. E.G. Occupational Therapy; neurovisual technology.</td>
</tr>
</tbody>
</table>
| **Advanced** | • Be able to examine visual acuity and visual fields  
• Be able to screen for perceptual impairments  
• Know when and how to refer for a neuro-ophthalmology opinion |
3.7 Communication Impairments

Statement

Communication impairments are common after TBI with both verbal and non-verbal aspects likely to be affected.

Rationale

There are many factors which may contribute to problems with communication in TBI including impairments in motor, linguistic, cognitive and/or behavioural systems. Problems can vary in severity and can include having no verbal ability; dysarthria (slurred speech); problems with comprehension or expressive language. As a result social interaction may be disrupted and social isolation result.

It is important to understand the frightening and negative impact on an individual’s wellbeing when they are unable to communicate effectively their needs or anxieties.

Knowledge & Skills

<table>
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<tr>
<th>Basic</th>
<th>Enhanced</th>
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<tbody>
<tr>
<td>• Be aware of the variety and the nature of communication problems associated with TBI</td>
<td>• Be able to identify and document communication impairments</td>
</tr>
<tr>
<td>• Understand how to modify one’s own communication to support an individual with communication difficulties.</td>
<td>• Have a basic understanding of the underlying neuropathology.</td>
</tr>
<tr>
<td>• Assist in any agreed interventions or programmes to support the individual’s communication including checking if an individual uses existing aids to help e.g. hearing aid, glasses, picture or word chart.</td>
<td>• Identify when and how to refer for specialist speech and language therapy assessment</td>
</tr>
<tr>
<td>• Implement a plan to aid communication and monitor its</td>
<td>• Implement a plan to aid communication and monitor its</td>
</tr>
</tbody>
</table>
effectiveness.

<table>
<thead>
<tr>
<th>• Be able to support the individual’s use of augmentative/alternative communication aids (AAC)</th>
<th>• Know and explain to others how physical, behavioural and/or psychological aspects can affect an individual’s ability to understand and/or communicate.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced</strong></td>
<td>• Be able to facilitate an individual’s communicative ability, both in expressing themselves and in understanding others.</td>
</tr>
<tr>
<td></td>
<td>• Differentiate between linguistic (language), cognitive, physical, psychological and functional problems with regard to communication</td>
</tr>
<tr>
<td></td>
<td>• Develop, deliver and evaluate strategies to promote communication and manage an individual’s communication programme/monitoring and updating this as required.</td>
</tr>
<tr>
<td></td>
<td>• Working knowledge of range of AAC methods available and referral pathways for AAC (Low and high tech aids).</td>
</tr>
<tr>
<td></td>
<td>• Be aware of the availability of very specialist services and how and when to refer to them e.g. training in lip reading, sign language, neurovisual services</td>
</tr>
</tbody>
</table>
3.8 Cognitive (Thinking) Impairments

Statement

TBI often results in disturbance of thinking processes which are referred to as cognitive abilities.

Rationale

Cognition includes a wide range of processes e.g.

- Orientation (knowing date, place and who people are)
- Memory, (recalling people’s names, faces, recent activities, appointments etc.)
- Concentration/attention
- Speed of processing
- Executive function (reasoning, planning, problem solving, sequencing processing speed, insight, ability to initiate, thinking flexibly, impulse control, inhibition)
- Language (expressive & receptive) (see 7)
- Visual perception (see 6)
- Praxis (translating idea into action)

Cognitive impairments can impact on a person’s behaviour, personality, rehabilitation potential, quality of life, emotional status and social interaction with others.

Knowledge & Skills

Basic

- Understand the common cognitive problems which patients can experience after TBI
- Be aware of the possible impact of cognitive impairment on patient independence, behaviour and emotional well being
- Be aware of the potential risks which may be associated with common cognitive problems and alert colleagues appropriately
- Be able to assist in interventions developed to promote cognitive rehabilitation, independence and emotional well being
| Enhanced | Be able to perform screening using a recognised test (e.g. Mini Mental State or Addenbrookes Cognitive Assessment)  
Be able to implement management strategies to reduce the impact cognitive impairments may have on a patient in collaboration with other pertinent members of staff and/or family members.  
Be able to explain common cognitive impairment to patients and relatives/carers  
Identify and refer for specialist assessment and intervention e.g. Clinical/Neuro Psychology, Occupational Therapy |
|---|---|
| Advanced | Be familiar with the neuropathology and the cognitive consequence of TBI and the impact of psychological and psychosocial factors on cognitive function  
Be able to administer or interpret specialist neuropsychological assessment to direct care and treatment  
Be able to develop, implement and evaluate interventions |
### 3.9 Emotional Changes

**Statement**

As the person with TBI becomes aware of what has happened to them they may experience a number of different emotions.

**Rationale**

There are a wide range of emotional changes which may occur following TBI either early or later in the individual’s recovery. These include:

- Distress and grieving for any physical, emotional and cognitive losses.
- A “normal” anxiety about their future.
- Anxiety
- Depression
- Emotional lability (inability to control emotions and easily break into tears or laughter without obvious cause)
- Post-traumatic stress disorder (PTSD)
- Emotional blunting so that the individual does not/cannot experience joy or sadness in appropriate circumstances

It is important to understand the impact of emotional change on the family as well as the patient and that family members also experience significant emotional reactions to the TBI.

**Knowledge & Skills**

<table>
<thead>
<tr>
<th>Basic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Be aware of the range of emotional changes which may occur after TBI</td>
</tr>
<tr>
<td></td>
<td>• Be aware of the potential risks which may be associated with common emotions and alert colleagues appropriately</td>
</tr>
<tr>
<td></td>
<td>• Be able to respond to emotional disturbance in an appropriate sensitive manner</td>
</tr>
<tr>
<td></td>
<td>• Understand the possible impact of any emotional change on family members</td>
</tr>
<tr>
<td>Enhanced</td>
<td>Advanced</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>• Understand the nature of depression, anxiety, emotional lability and PTSD in relation to TBI</td>
<td>• Know the indications and side effects of medication used in the treatment of behavioural and other neuropsychiatric consequences of brain injury</td>
</tr>
<tr>
<td>• Be able to recognize the clinical features of these conditions in people with TBI</td>
<td>• Know when to refer for a psychiatric opinion</td>
</tr>
<tr>
<td>• Know how and when to refer for specialist assessment and advice.</td>
<td>• Know how to refer on for specialist advice for ongoing psychological services</td>
</tr>
<tr>
<td>• Be able to explain the nature of emotional reactions to the patient and family</td>
<td>• Following specialist advice be able to evaluate the effects of pharmacological/behavioural interventions</td>
</tr>
</tbody>
</table>
3.10 Behavioural And Personality Changes

Statement

Behavioural changes may occur at different times and for varying periods after TBI. They may be perceived as out of character for the individual and represent a personality change.

Rationale

Behaviour problems may vary with the time after brain injury:

- The period of PTA is characterised by confusion and disorientation and may be accompanied by agitation, restlessness and aggression.
- Damage to the frontal lobe of the brain may result in:
  - Disinhibition
  - Inappropriate social or sexual behaviour
  - Impulsivity
  - Irritability & anger outbursts
  - Apathy & anhedonia (inability to experience pleasure)
  - Cognitive impairments (see 8) e.g. poor planning/organisation
- Emotional changes (see 9) affect behaviour
- Post-ictal confusion may occur after seizures

Knowledge & Skills

Basic

- Be aware of the possible range of behaviours after TBI.
- Understand the fundamental principles of managing the agitated or confused patient.
- Know how and when to report changes and when to ask for advice.
- Be able to assist in interventions e.g. specific approaches to manage behaviours.
| Enhanced | • To be able to accurately observe and record behaviour  
|          | • Understand the need for an individually tailored approach to  
|          |   behavioural management  
|          | • Know how and when to refer for specialist assessment &  
|          |   advice  
|          | • Be able to work collaboratively with other professionals in  
|          |   addressing an individual’s behavioural management  |
| Advanced | • Have an in depth knowledge of the factors which may  
|          |   contribute to challenging behaviour  
|          | • Understand the strategies employed to manage challenging  
|          |   and aggressive behaviour  
|          | • Understand the range of interventions for managing  
|          |   behavioural difficulties other than challenging or aggressive  
|          |   behaviour.  
|          | • Plan, implement and evaluate interventions used to  
|          |   manage/treat behaviours – including environmental and  
|          |   pharmacological approaches  
|          | • Understand the indications, side effects and limitations of the  
|          |   pharmacological and non-pharmacological interventions  
|          |   used in the management of challenging behaviour |
### 3.11 Nutrition And Hydration (Eating, Drinking and Swallowing)

#### Statement

TBI may cause difficulties in eating, drinking and swallowing. This may lead to dehydration and malnutrition and increases the risk of developing chest infection. Aspiration and choking are serious risks associated with swallowing problems.

#### Rationale

Physical impairments may result in difficulties in eating, drinking and swallowing. Cognitive impairments (see 8), emotional changes (see 9), behavioural changes (see 10), loss or impairment of the sense of smell, and specific lesions to the brain areas responsible for disturbances in appetite and thirst control which may also lead to problems.

Severe TBI can have a negative impact on an individual’s nutritional status and nutritional support may be necessary.

#### Knowledge & Skills

| Basic | • Be able to recognise the signs that an individual may have swallowing or eating problems and be able to report any signs that indicate a change in the individual’s condition to the appropriate staff.  
• Be able to identify a person’s nutritional risk using a validated screening tool e.g. MUST screening tool  
• Be aware that changes in behaviour during the eating and drinking process (e.g. eating too fast, overfilling mouth or failure to initiate the process) may lead to an increased risk of choking and/or aspiration.  
• Be aware of the effects of emotional changes on appetite and eating.  
• Be aware of the effects of physical problems on eating, drinking and swallowing  
• Be able to explain/demonstrate the first aid procedure to deal with a choking episode |

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| Understand the impact and risks of swallowing or nutritional problems on clinical condition, hydration, oral care and clinical outcome |
| Assist with interventions to manage a swallowing problem, including mouth care, thickening fluids, the optimal environment and feeding techniques for maximising nutritional intake. |
| Assist with interventions to manage a nutritional problem including the need for food and fluid balance charts |
| Be familiar with the terminology used in consistency modification of diet and fluids, how this can increase a patient's nutritional risk, and the practicalities of feeding the dysphagic patient |

**Enhanced**

| Identify strategies and equipment to assist with eating and drinking. |
| Know how to seek advice on the management of physical and/or sensory problems that impact on nutrition and hydration |
| Identify action plans and referral processes for specialist assessment e.g. Dietician, Occupational Therapist |
| Explain the rationale in the management of non-oral feeding |
| Implement, monitor and evaluate the nutrition/swallowing care plan, including non-oral feeding, hydration, oral care, food and fluid balance charts |
| Be able to identify issues related to safe administration of medicines |
| Demonstrate understanding of the ethical issues around feeding/non-oral feeding including capacity for decision making |
| Advanced | • Assess a person’s swallow using a validated swallow screening tool  
• Develop, deliver and evaluate strategies to promote safe feeding and nutritional management, including non-oral feeding, optimising the environment and training/education to patients/carers/staff  
• Manage the risks involved in dysphagia management  
• Manage the transitions from different stages of dysphagia/different consistencies of diet and fluids, whilst ensuring nutritional status is maintained |
### 3.12 Continence

#### Statement

TBI may cause an individual to have problems with bladder/bowel dysfunction with or without incontinence of urine and/or faeces.

#### Rationale

There are many factors which contribute to bladder and bowel dysfunction in TBI, including physical, psychological and functional issues. Incontinence may contribute to an increased risk of the development of pressure sores; bladder and bowel dysfunction can lead to an individual developing low self-esteem/self-worth, social isolation and carer strain.

#### Knowledge & Skills

<table>
<thead>
<tr>
<th>BASIC</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Recognise and know how to report the symptoms of bladder/bowel dysfunction</td>
<td>• Be able to assess and monitor an individual’s bladder &amp; bowel function and have a basic understanding of the causes (physical, functional &amp; psychological) of bladder/bowel dysfunction.</td>
</tr>
<tr>
<td>• Describe methods of monitoring and documenting bladder/bowel dysfunction</td>
<td>• Plan, implement and evaluate processes to improve continence</td>
</tr>
<tr>
<td>• Assist in interventions to help an individual maintain or regain continence following TBI</td>
<td>• Describe the range and choice of products available to promote continence and manage incontinence</td>
</tr>
<tr>
<td>• Identify when and know how to refer for specialist assessment</td>
<td>• Understand the indications for the use of a bladder scanner and be able to either perform or facilitate the procedure.</td>
</tr>
</tbody>
</table>
| Advanced             | • Differentiate between physical, psychological and functional problems related to bladder & bowel function  
|                     | • Develop, deliver and evaluate strategies to promote continence and manage incontinence |
3.13 Activities of Daily Living (ADL)

Statement

TBI may result in activity limitations for the individual in that they may be unable to perform functional tasks because of physical, sensory, cognitive, perceptual or behavioural problems.

See also 4,5,6,8,10

Rationale

It may cause the individual to have difficulty initiating or carrying out personal activities such as washing or dressing and performing domestic, work and leisure tasks. These are often referred to as activities of daily living (ADL). In providing assistance with these activity limitations it is important that it is done in a way which ensures safety while retaining as much of the individual’s independence, autonomy and dignity as possible.

Knowledge & Skills

Basic

- Be aware of ADL problems which can arise following TBI and know how to report them
- Have a basic understanding of how behavioural, physical and cognitive issues may have an impact on how the individual manages their ADLs
- Be aware of and be able to use interventions to support an individual in activities of daily living
- Be aware of the functions of basic assistive technology/equipment

Enhanced

- Be able to assess a patients ADLs and formulate and monitor appropriate plans
- Have a good knowledge of assistive equipment and be able to provide the rationale for choice of equipment.
- Have a good understanding of how psychological, cognitive and behavioural issues may affect ADLs
- Know how to refer for specialist (Occupational Therapy or
### Physiotherapy assessment

| Advanced | • Have an in depth knowledge of assistive equipment and provide evidence of clinical reasoning when choosing equipment  
• Have an in depth knowledge of the complex interfaces between psychological, cognitive and behavioural issues and how they can affect ADLs |
3.14 Moving And Handling

Statement

TBI may mean the individual is unable to sit, stand or walk safely due to poor balance, arm/leg/trunk weakness or loss of co-ordination. Cognitive impairments (see 8); emotional changes (see 9) and behavioural changes (see 10) may further compromise patient & carer safety.

Rationale

Individuals may be at risk of falling or of injury if they try to move by themselves or are moved by people without training in movement and handling (which is mandatory for NHS staff). The patient may be unaware of some or all of their difficulties and limitations and may put themselves or others at risk of harm without realising it. They may be at risk of impulsive, unsafe actions.

Knowledge & Skills

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
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</thead>
<tbody>
<tr>
<td>• Be aware that balance and mobility problems are relatively common following TBI</td>
<td>• Be able to determine a patient’s abilities in order to carry out a moving and handling risk assessment</td>
</tr>
<tr>
<td>• Be aware of any equipment required for moving and handling and know how to use equipment.</td>
<td>• Know when and how to implement local policy for referral to Moving &amp; Handling person/dept for further assessment/advice</td>
</tr>
<tr>
<td>• Have an awareness of how behavioural, physical and cognitive issues may have an impact on how the individual responds in relation to moving and handling</td>
<td>• Be able to identify and use correct moving and handling techniques</td>
</tr>
<tr>
<td></td>
<td>• Be able to identify whether it is necessary to use moving and handling equipment</td>
</tr>
<tr>
<td></td>
<td>• Be able to select correct equipment to be used.</td>
</tr>
<tr>
<td>Level</td>
<td>Description</td>
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</tbody>
</table>
| Advanced | - Be able to advise on technical and practical details/uses of equipment to assist clinicians in their clinical reasoning when selecting a piece of M&H equipment  
- Design & deliver training to staff to allow them to identify when a patient requires a piece of equipment for moving and handling |

- Be able to educate patients, family/carers and junior members of staff on M&H techniques and risks of incorrect techniques |
### 3.15 Pressure Care And DVT Prophylaxis

**Statement**

TBI may increase the risk of an individual developing pressure sores or deep venous thrombosis (DVT).

**Rationale**

Patients who experience a period of prolonged unconsciousness or who are severely disabled are at particular risk of developing pressure sores. This risk is compounded by poor nutrition, incontinence and/or infection. Immobility after trauma may carry an increased risk of an individual developing a DVT or pulmonary embolism.

**Knowledge & Skills**

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Be aware of the principal risk factors that contribute to the development of pressure sores</td>
<td>• Identify causes, and recognise the importance of preventing the development of pressure sores</td>
</tr>
<tr>
<td>• Be aware of the increased risk of patients who are immobile developing a DVT.</td>
<td>• Document a comprehensive skin assessment and plan subsequent interventions relating to skin care and positioning of the patient</td>
</tr>
<tr>
<td>• Know the actions to be taken to reduce the risk of developing pressure sores</td>
<td>• Discuss relevant risk factors and explain the purpose and limitations of risk assessment tools</td>
</tr>
<tr>
<td>• Know the measures to reduce the risk of DVT including anti-coagulant therapy, positioning and the correct application of antiembolism stockings</td>
<td>• List the type and capabilities of equipment used in the prevention and management of pressure sores</td>
</tr>
<tr>
<td></td>
<td>• Interpret pressure sore prevalence and incidence data.</td>
</tr>
<tr>
<td>Competency</td>
<td>Description</td>
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<tr>
<td>------------</td>
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</tr>
<tr>
<td>Advanced</td>
<td>Know when and how to refer for specialist advice and assessment (e.g. from tissue viability nurse for pressure care issues.)</td>
</tr>
<tr>
<td></td>
<td>Be able to assess for the correct size and type of antiembolism stockings</td>
</tr>
<tr>
<td></td>
<td>Understand the use and safe administration of anti-coagulant therapy for the prevention of DVT</td>
</tr>
</tbody>
</table>
### 3.16 Risk Assessment

#### Statement

Following TBI the patient may present significant risk(s) to themselves and/or others. (Aspects of risk assessment are also covered in specific topic areas e.g. manual handling, pressure care)

#### Rationale

Areas of risk to self may include the following:

- Swallowing problems
- Compromised nutritional status
- Skin integrity and pressure care
- Infections (Chest infection, MRSA, C. Diff)
- Risk of self harm (Intentional and/or accidental)
- Risk of harm due to cognitive impairments e.g. Kitchen Safety, Road Safety, Smoking
- Risks associated with physical disability e.g. Falls
- Seizure Activity

Areas of risk to others may include the following:

- Risk of violence and aggression towards others
- Child Protection

Relevant legislation may required to be implemented to protect the well-being of the patient and/or others (See section 17)

#### Knowledge & Skills

<table>
<thead>
<tr>
<th>Basic</th>
<th>To be able to recognise the possible risks which may occur as a result of TBI.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recognise and report relevant clinical information to a senior member of staff.</td>
</tr>
<tr>
<td></td>
<td>Be aware of the local or NHS Board policy or guidelines on Risk</td>
</tr>
<tr>
<td>Management</td>
<td></td>
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</tr>
</tbody>
</table>
| **Enhanced** | • Recognise when specialist assessment is required and know how to access it.  
• Following specialist advice is able to implement strategies aimed at reducing risk. |
| **Advanced** | • Evaluate the effectiveness of risk management plans. |
3.17 Legal Issues

Statement

Cognitive and behavioural changes after TBI can make a person at risk of harming themselves or others. There is a body of relevant legislation and regulations that may be implemented to reduce such risk.

Rationale

Following TBI patients may have significant cognitive impairment, impulsive behaviour and lack of insight into their difficulties. As a result there can be a risk to self because of vulnerability, self harm or neglect.

And/or they may have challenging behaviour and are a risk to others because of aggressive behaviour. On occasions relevant legislation may need to be applied to ensure the health, safety and welfare of the individual and/or the safety of others.

Current relevant legislation includes -

- Mental Health (Care & Treatment) (Scotland) Act 2003
- Adults with Incapacity (Scotland) Act 2000
- Adult Support & Protection (Scotland) Act 2007
- Protection of children (Scotland) Act 2003
- Living wills

Staff need to know how and when to apply relevant legislation to support effective care and treatment of an individual with brain injury and to recognise when and how to access specialist support and assessment.

Knowledge & Skills

Basic

- To be aware that in certain circumstances related to the care and treatment of an individual with a TBI legislation may be applicable

Enhanced

- Recognise when specialist assessment and advice is required and know how and when to access it.
- Know how to apply the relevant legislation (MHA, AWIA, Child
<table>
<thead>
<tr>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Know the main aspects of key relevant legislation (MHA, AWIA, Child Protection, Adult Support &amp; Protection) and how it applies in the management of TBI</td>
</tr>
<tr>
<td>• Understand the role of independent bodies (e.g. Central Legal Office, Mental Welfare Commission) in providing advice in individual cases.</td>
</tr>
</tbody>
</table>
3.18 Seizure Activity

Statement

The risk of seizure activity is increased following a TBI.

Rationale

The increased risk of seizures following a TBI is dependant on the severity of the head injury and the length of time since the injury. Significant risk factors for the development of seizure activity post injury include: Brain confusion with subdural haematoma, skull fracture, loss of consciousness or amnesia for more than one day, and aged 65 years or older.

Seizure activity following TBI needs to be correctly diagnosed and treated appropriately.

Knowledge & Skills

<table>
<thead>
<tr>
<th>Basic</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Be aware that seizure activity is a possible consequence following TBI</td>
<td>• To be able to accurately observe and record seizure activity</td>
</tr>
<tr>
<td>• Recognise changes in a patient’s clinical presentation and report them to the appropriate members of staff</td>
<td>• Institute emergency management when seizure activity is evident</td>
</tr>
<tr>
<td>• Be able to summon assistance if there is evidence of seizure activity</td>
<td>• Know how and when to refer on for specialist assessment and advice</td>
</tr>
<tr>
<td></td>
<td>• Be able to work collaboratively with other professionals following the implementation of treatment to manage seizure activity</td>
</tr>
<tr>
<td>Level</td>
<td>Content</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Advanced</td>
<td>• Understand the neuropathology associated with the development of seizure activity following TBI</td>
</tr>
<tr>
<td></td>
<td>• Evaluate the effects of pharmacological interventions</td>
</tr>
<tr>
<td></td>
<td>• Be able to explain the rational and importance of drug regimes in the management of seizures to the patient/family/carers</td>
</tr>
<tr>
<td></td>
<td>• Be aware of the psychological and psychosocial consequences seizure activity may have for an individual and/or family members</td>
</tr>
<tr>
<td>activity</td>
<td>• Know the indications for, and side-effects of medication used in the treatment of seizure activity</td>
</tr>
</tbody>
</table>
Appendices

Appendix A - Acknowledgements

The following people were involved in the development of the TBI knowledge and skills document.

Dr Brian Pentland  Consultant Neurologist (NMCN Clinical lead-retired 2009)
Ms Chris Flannery  NMCN Manager (retired December 2009)
Mrs Ailsa McMillan  Lecturer in Nursing Studies (Queen Margaret University)
Dr Julia Clark  Clinical Neuropsychologist
Ms Robyn MacLeod  Occupational Therapist
Ms Lynda McLean  Speech & Language Therapist
Ms Claire MacDonald  Occupational Therapist
Dr Sharon Mulhern  Clinical Neuropsychologist
Ms Morag Ogilvie  Senior Dietician
Ms Claire O'Brien  Specialist ABI Liaison Nurse
Dr Lorna Langrell  Associate Specialist
Ms Mandy Gentleman  Clinical Nurse Specialist

We would like to thank the following people for their input.

Ms Clare Adams  Stroke Competencies project manager
Mrs Jeannie Angelosanto  NMCNs Administrator
Ms Helen Cook  Clinical Nurse Practitioner (Neurosurgery) WGH
Ms Ann Sanderson  Specialist Nurse (continence) AAH
Ms Sarah Hardy  Clinical Nurse Manager RIE
Appendix B- References

The ABINMCN website is a useful source of information

http://www.sabin.scot.nhs.uk/

In the section Professional Resources you will find that references are organised into general material and by topic area. There is some attempt to relate references to the level of competency; however, you may find useful information in each category. For some of the documents listed you may need an Athens password.

For NHS staff the e-library is the source for many of the references and for arranging an Athens password.

www.elib.scot.nhs.uk
The following books and journals are recommended as useful sources of information.


Journals

• Journal Of Head Trauma Rehabilitation
• Archives Of Physical Medicine & Rehabilitation
• Clinical Rehabilitation
• Journal Of Rehabilitation
Profession Specific Information Can Be Found On:

Association of Chartered Physiotherapists interested in Neurology
http://www.acpin.net/resources.html

Brain Injury Social Work Group
http://www.biswg.co.uk/

British Dietetic Association
http://www.bda.uk.com/

British Neuroscience Association
http://www.bna.org.uk/

British Psychological Society division of neuropsychology
http://www.bps.org.uk/don/don_home.cfm

British Society of Rehabilitation Medicine
http://www.bsrn.co.uk/

British Journal of Neuroscience Nursing
http://www.bjnn.co.uk/
Journal of emergency medicine

http://emj.bmj.com/

British Association of Neuroscience Nurses

http://www.bann.org.uk/

College of Occupational therapy – neurology specialist section

http://www.ssnp.co.uk/

Neuroscience Nursing Benchmarking Group

This page contains a number of links to web based neuroscience resources

http://www.nnbg.org.uk/web/p/?s=11&pid=16

Royal College of Psychiatrists

http://www.rcpsych.ac.uk/

Royal College of Speech & Language Therapists

http://www.rcslt.org/
Scottish Neuropsychology Society

http://www.snn.org.uk/

Society of British Neurological Surgeons

http://www.sbns.org.uk/

The following resources can be accessed through the e-Library:

Self Management & Rehabilitation

Clinical Decisions Portal
Appendix C - Topics

1. Causes & Mechanism Of TBI

Headway – about the brain

http://www.headway.org.uk/sitePages.asp?step=4&contentID=1350&navID=111

Headway – Traumatic Brain Injury

http://www.headway.org.uk/sitePages.asp?step=4&contentID=1342&navID=112

Patient & relative information and education leaflets – brain injury

www.sabin.scot.nhs.uk

2. Initial Stages Of The Care Pathway

Brain & Spine Foundation – Head injury and concussion


BASIC – mild head injury

SIGN 110 Early Management of patients with a head injury

http://www.sign.ac.uk/guidelines/fulltext/110/index.html

Triage, assessment, investigation and early management of head injury in infants, children and adults 2007

http://www.nice.org.uk/guidance/index.jsp?action=byID&o=11836

Head Injury Management in Adults in Greater Manchester (2006)

Impaired Consciousness Research Group

The above link will take you to information on this group of healthcare professionals and academics. There is also an accompanying leaflet which can be downloaded via the link below;

Coma & Impaired Consciousness after Brain Injury

3. Post – Acute In-Patient Management
4. Motor Impairments
Headway – physical effects

http://www.headway.org.uk/sitePages.asp?step=4&contentID=1331&navID=120

5. Sensory Changes (Somatic)

6. Visual & Perceptual Impairments

Optometrists Network – vision problems associated with brain injury

http://www.braininjuries.org/

Common vision problems in TBI

http://www.lowvision.org/traumatic_brain_injury.htm

Neuro Optic Rehabilitation Association – Introduction to vision and brain injury

http://nora.cc/content/view/20/64/

Vision Help – vision disorders in acquired brain injury

http://www.visionhelp.com/brain.htm
7. Communication Impairments

Aphasia help. About aphasia

http://www.aphasiahelp.org/information/aphasia/

Speakability. Aphasia

http://www.speakability.org.uk/Aphasia+Information/

RCSLT. TBI reading list

http://www.rcslt.org/docs/free-pub/TBI_reading_list_Feb_07__2_.pdf

Connect. About aphasia

http://www.ukconnect.org/aboutaphasia.aspx
8. Cognitive (Thinking) Impairments

Headway – cognitive effects

http://www.headway.org.uk/sitePages.asp?step=4&contentID=1329&navID=121

9. Emotional Changes

Headway - Emotion & behaviour

http://www.headway.org.uk/sitePages.asp?step=4&contentID=1333&navID=122

10. Behaviour And Personality Changes

11. Eating, Drinking And Nutrition

Basic

Nestle - What is dysphagia?


West Shore endoscopy Centre – Difficulty in swallowing

http://www.endowsec.com/pated/edtgs07.htm
**Enhanced**

NHS Education Scotland. Nutritional care in hospitals. Online learning resource

http://www.nutritioncare.scot.nhs.uk/home.aspx

Nutritional support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. NICE 2006

http://guidance.nice.org.uk/CG32

Clinical Resource Efficiency Team (CREST) - guidelines for enteral feeding in adults


Inter professional dysphagia framework 2004


Guidelines for enteral feeding in adult hospital patients


http://www.bsg.org.uk/pdf_word_docs/enteral.pdf
Best Practice Statement: Gastrostomy Tube insertion and aftercare for adults being cared for in hospital or in the community.

http://www.nhshealthquality.org/nhsqis/files/Gastrostomy%20FINAL%202_0_2_.pdf

National Patient Safety agency – Problems swallowing?


Advanced

UK swallowing research group (UKSRG)

http://www.uksrorg.org.uk/

West Sussex Hospital patient information leaflets – swallowing


British Association of Parenteral nutrition – MUST toolkit

http://www.bapen.org.uk/musttoolkit.html


Nestle – Dysphagia on line

http://www.dysphagiaonline.com/Pages/home.aspx


British Dietetic Association

National descriptors for texture modification in Adults April 2009

12. Incontinence
13. Activities Of Daily Living

14. Moving And Handling

15. Pressure Care & DVT

16. Risk Management

17. Legal Issues

18. Seizure Activity
   A population based study of seizures after traumatic brain injuries
   John F Annegers, W Allen Hauser, Sharon Croan, Walter Rocca