Scottish Standards of Care

for Hip Fracture Patients 2016

This document has been updated as of October 2016 in collaboration with Healthcare Improvement Scotland to align with "Older People in Acute Care" and "Food, Fluids and Nutrition" standards.

These Standards are endorsed by the following organisations:

The Scottish Committee for Orthopaedics and Trauma (SCOT)

Royal College of Emergency Medicine National Board for Scotland (RCEM)

British Geriatric Society (BGS)

Orthopaedic Trauma Society (OTS)

And supported by:

Association of Anaesthetists of Great Britain and Ireland (AAGBI)

National Osteoporosis Society (NOS)

These standards were initially developed by the National Hip Fracture Steering Group in 2014 (renamed as the Scottish Hip Fracture Audit & Advisory Group in May 2016) and have been subsequently revised and updated as of October 2016. A list of current members of the group can be found at the end of this document (Appendix A).

Overall Rationale:

Audit data[1] shows that whilst there has been significant progress since the Standards of Care were introduced in 2014, variation still exists across Scotland in the quality of care and outcomes for patients who sustain a hip fracture. Many hospitals however exhibit good practice. The standard of care should be of high quality for all treatment interventions, for all hip fracture patients, and in all hospitals. To reduce variation and to further improve the quality of clinical care, this "Standards of Care" document has been prepared in accordance with SIGN 111[2], and SIGN 142[3] with endorsement from The Scottish Committee for Orthopaedics and Trauma (SCOT), The British Geriatric Society (BGS), and The Scottish Board of the College of Emergency Medicine (RCEM). It is also supported by the Association of Anaesthetists of Great Britain and Ireland (AAGBI) and the National Osteoporosis Society (NOS). This document has also been prepared in collaboration with Healthcare Improvement Scotland to align with "Older People in Acute Care"[4] and "Food, Fluids and Nutrition"[5] standards.

The "Standards of Care" apply to every patient who is admitted to hospital in Scotland after sustaining a hip fracture.

Audit data is reported each month at national and local level as management information and is available to NHS staff via the Trauma & Orthopaedic Portal (for details on how to access this see Appendix B). This data enables both national and local monitoring of improvements and sustainability.

Standard 1: Patients with a Hip Fracture should be transferred from the Emergency Department to the orthopaedic ward within 4 hours.

Rationale: Following clinical confirmation or diagnosis of a hip fracture, local protocols should ensure the efficient and safe transfer of the patient to an orthopaedic ward. This transfer should not be delayed by a requirement that the patient is reviewed by the receiving orthopaedic team in ED unless diagnostic uncertainty exists. Unless indicated for essential medical interventions, these frail elderly patients should not have an extended stay in an ED as this represents a delay to an area of definitive care.

It is, however, essential that the emphasis is on good clinical care while in the ED rather than focussed exclusively on transfer time.

Acute medical pathology is common in this patient group and early involvement of anaesthetic and medical teams may be required for focused physiological optimisation.

Local multidisciplinary care pathway documents such as a 'Hip Fracture Admission Form' should be used to document care and the clinical management plan for these patients. This should encompass the core elements of these standards. Examples of such documents currently in use are available for local adaptation and can be found at http://www.qihub.scot.nhs.uk/quality-and-efficiency/msk-and-orthopaedics-quality-drive/hip-fracture-care-pathway.aspx[6]

Standard 2: Patients who have a clinical suspicion or confirmation of a hip fracture should have the "Big Six" interventions/treatments before leaving the Emergency Department.

Rationale: Every patient who has a clinical suspicion or confirmation of a hip fracture should have the following "Big Six" interventions/treatments in the ED (or earlier if an inter hospital transfer), as part of a local protocol:

1. **Provision of Pain Relief.**

All patients who sustain this painful injury should be offered analgesia[2]. In many cases opiate analgesia will have been provided by ambulance staff pre-hospital. The early use of nerve blocks to reduce pain, opioid requirement and delirium, have grown in popularity with many hospitals introducing fascia iliaca blocks as standard. The use of a **nerve block** remains the recommendation of the advisory group. Provision of oral non-opiate analgesia without either opioid or regional analgesia should be regarded on the whole as sub-optimal care, however it may be sufficient in a few cases e.g. for subacute impacted fractures.

2. **Screening for Delirium.**

Identification of patients with delirium by means of a screening test within the ED is essential. The 4AT[7] is recommended for this purpose and can be conducted by both medical and nursing staff. Delirium screening should be included as part of an ED hip fracture protocol. Patients who score 4 or more should be identified as having delirium requiring further cognitive assessment, attention to underlying causes and appropriate management. This will have potential implications in respect of informed consent and the patient's capacity should be assessed.

3. **Early Warning Score (EWS) system.**

This requires the measurement of respiratory rate, oxygen saturation, temperature, systolic blood pressure, heart rate and neurological status. NICE[8] recommends that all hospital inpatients should be monitored using a physiological scoring system at least every 12 hours.

4. **Full Blood Investigation and Electrocardiogram.**

Electrolyte abnormalities and anaemia are common in the hip fracture patient. Intravenous cannulation with pre-operative laboratory tests including: urea/electrolytes, full blood count, glucose, group and save and coagulation screen should be carried out. Further tests may be required depending on clinical circumstances. An electrocardiogram (ECG) should be carried out and reviewed in ED. Further tests may be required depending on the result.

5. **Intravenous Fluids Therapy.**

Many hip fracture patients are fluid deplete at presentation. Elderly frail patients may not exhibit typical physiological responses such as tachycardia or hypotension, which can make assessment of hydration difficult. Additionally this patient group tolerates hypovolaemia poorly, risking cardiovascular instability and organ hypoperfusion. All patients should have a documented assessment of fluid status and resuscitation with IV fluids where appropriate. From admission to hospital, on-going blood loss, pain, confusion and fasting for theatre all contribute to poor oral intake. Consideration must be made to how normovolaemia will be maintained until surgery. IV fluid resuscitation and maintenance fluids may be required in most cases.

6. **Pressure Area Care.**

Assessment must be carried out to minimise the risk of pressure injury. Hip fracture patients are at high risk of developing pressure sores and all patients should undergo pressure area assessment when admitted to the ED. This assessment may not necessarily be a formal Waterlow Score, although such a score should be encouraged. While such assessments may frequently be undertaken but not formally recorded, it is assumed in the audit that if the assessment was not recorded it was not undertaken.

Standard 3: Every patient with a hip fracture should receive the "inpatient bundle of care" within 24 hours of admission.

Rationale: An inpatient care bundle has been developed which must be completed within 24 hours of admission to the orthopaedic/receiving ward. These assessments, as well as the subsequent interventions, are essential to maximise the quality of care and overall patient outcome through a multi-disciplinary approach to patient care. Involvement with patients and relatives/carers is essential.

Seven day supported working must be provided to ensure day of admission or surgery does not affect time to theatre and subsequent overall patient recovery.

1. **Baseline assessment of Cognitive function within 24 hours of ward admission**.

Both acute delirium (hyperactive, hypoactive or mixed) and chronic cognitive impairment are common in hip fracture patients. 35-65% of older patients with hip fracture will develop delirium after hospital admission. The risk of developing delirium as well as the incumbent risks associated with this condition can be mitigated with better identification and management.

Delirium is associated with increased length of stay, admission to care homes and mortality. It has strong associations with other hospital associated adverse events including pressure ulcers and falls and is often under diagnosed.

Health Improvement Scotland, in collaboration with the Scottish Delirium Association, NHS Education for Scotland and colleagues across NHS Scotland have developed a range of tools and resources for healthcare professionals to help improve the identification and immediate management of delirium in clinical settings. This includes the 4AT, which is a validated rapid assessment test for both delirium and cognitive impairment [9] and the TIME bundle to improve the early detection and improved management of delirium[10] .

All older patients should be screened for delirium at point of admission and within 24 hours of admission to the ward using the 4AT with associated appropriate use of the TIME bundle. If there is a change in the patient's cognitive function or alteration in conscious level during their inpatient stay this should be repeated.

Patients requiring further assessment for cognitive impairment should have an MMSE or ACER performed. Where cognitive impairment is identified, management plans should be discussed with staff and relatives/carers and documented in the patient care plan. This includes the assessment of the capacity to consent to medical treatment and the appropriate use of the Section 47 certificate under the Adults with Incapacity Act[11].

2. **Falls Assessment within 24 hours of ward admission.**

Falls are common and increase with age, with 30% of those aged 65 or more who live in the community, falling each year and the percentage increasing to 45% in those aged over 80 years[12]. The vast majority of hip fractures are the result of a fall[13] (latest studies indicate 95%). The biggest risk for a new fracture is having sustained a previous fracture. Interventions to reduce the risk of falls after the occurrence of a fracture may contribute to the reduction in the risk of further fractures. Recurrent falls are associated with increased mortality, increased rates of hospitalisation, and higher rates of institutionalisation[14]. There are further psychological sequelae with loss of confidence, increased fear of falling and lower quality of life. Half of older people who fall will have a further fall within the next 12 months[15]. All patients who sustain a hip fracture should have a falls risk assessment performed on admission as part of their initial nursing assessment. This should be coupled with a care plan to identify modifiable risk factors and appropriate interventions for each patient with the aim to reduce future falls. This will usually require a multidisciplinary approach. The need for further assessment and management of falls risk in the community should be considered and arranged if deemed necessary.

3. **Food, Fluids and Nutritional Assessment within 24 hours of ward admission.**
The Standards of Food, Fluids & Nutritional Care[5], highlight the importance of nutritional screening within 24 hours of hospital admission, to identify malnutrition and ensure accuracy of drug dosage. Fluid status should continue to be assessed and monitored regularly during the inpatient stay as patients are at risk of dehydration given that potential on-going blood loss, delirium and fasting for theatre all affecting oral intake.

4. **Pressure Area Assessment within 24 hours of ward admission.**
Pressure sores occur in people who cannot reposition themselves, the acutely ill, the older person and the malnourished[16]. Hip fracture patients are therefore especially at risk, with early assessment vital. Assessment for risk of pressure injuries must be made on all patients within 24 hours of admission and interventions to minimise the risk of development of pressure injury carried out on at risk patients.

Standard 4: Patients must undergo surgical repair of their hip fracture within 36 hours of admission.

Rationale: It is essential that the surgical fixation of femoral fractures is expedited. Delayed fixation correlates with increased one-year mortality, increased complications and increased hospital stay. The optimal timescale for surgery has yet to be identified. A systematic review in 2008 suggested that delay past 48hr increased one-year mortality by 32%[17], but recent studies have suggested mortality reductions by reducing time to theatre to 24hr and even 12hr from admission[18]. Hospitals must therefore be organised in such a way that facilitates timely and planned surgery without delays, meaning not only adequate theatre capacity for trauma surgery and availability of anaesthetists and surgeons, but also a means of rapidly assessing and optimising frail, elderly patients with multiple co-morbidities.

Patients with a medically reversible condition, who are considered initially medically unfit for theatre, may require optimisation before surgery. Such pre-surgery optimisation must be realistic, focussed, follow a formal risk assessment process and should aim to be completed without unnecessary delaying of surgery. If further optimisation is required, delaying surgery is only acceptable if it is for an intervention thought to significantly improve outcome or reduce mortality, greater than the increase in mortality associated with delay. In general, surgery should not be delayed for investigations as this does not appear to alter outcome[19]. Patients who require transfer to another unit for surgery should be transferred as close to admission as possible so that surgery is not delayed.

The previous standard of "within 48 hours of admission to theatre" has now been reduced to "within 36 hours of admission to theatre" to align with the standards included within the National Hip Fracture Database (applicable in England, Wales and Northern Ireland). This time period means that patients in effect should undergo surgery on the day of, or day after admission. As such, the audit will now measure time to theatre for all patients (including those classed as medically unfit on first anaesthetic assessment) in order to promote the efficient investigation and medical treatment of hip fracture patients prior to surgery.

In the very rare case that conservative treatment is agreed as more appropriate, the management plan for these patients (or a palliative plan if deemed to be approaching end of life) should be clearly recorded in case note documentation following a formal risk assessment. This decision should also be subject to regular re-evaluation should the patient's medical condition improve.

Standard 5: No patients should be repeatedly fasted in preparation for surgery. In addition, oral fluids should be encouraged up to two hours prior to surgery.

Rationale: Nearly 30% of hip fracture patients are nutritionally at risk. Maintaining adequate caloric intake is therefore important to attenuate peri-operative nitrogen loss and loss of muscle mass. Repeated fasting cycles occur when patients are fasted for surgery and then cancelled and results in limited oral intake over a number of days. This

can be avoided with careful and realistic planning of theatre lists and ensuring adequate theatre capacity. Communication between the theatre/ward teams and the patient (including relatives/carers) is essential. This collaborative approach can be facilitated through an identified trauma liaison nurse led service.

Patients should be offered drinks up to two hours before surgery. Most patients will be receiving intravenous fluids so prevention of dehydration is less of an issue, however intravenous fluids do not attenuate the sensation of thirst, so allowing oral fluids is humane and will improve patient comfort. Hip fracture patients are frequently malnourished and/or dehydrated on admission to hospital. Repeated fasting of this patient group can further exacerbate this issue. Repeating a fasting cycle must therefore be avoided where possible, and the length of pre-operative fasting should be minimised.

Standard 6: Pre-operative catheterisation should only be carried out for identified medical reasons and not used as 'routine' practice.

Rationale: Pre-operative catheterisation should only be carried out for identified medical reasons and not used as 'routine' practice. SIGN 111[2] recommends that insertion of urinary catheters should be avoided, except within specific circumstances such as urinary retention or need for accurate fluid balance.

Standard 7: Cemented hemi-arthroplasty implants should be standard unless clinically indicated otherwise.

Rationale: Use of cemented hemi-arthroplasty implants should be standard as recommended by NICE[8]/SIGN[2] unless specifically contra-indicated by significant operative risk. The patient's pre-existing ambulatory status should be a consideration when selecting the type of implant.

Cemented total hip arthroplasty should be considered in all patients who are: mobile independently (with the use of no aids/1 stick), do not suffer from cognitive impairment and who are medically fit for such surgery. This decision should be made in accordance with the wishes of the patient after discussion of the potential risks/benefits of each procedure.

Extra-capsular hip fracture should generally be managed with the use of a dynamic/sliding hip screw unless of a reverse oblique or sub-trochanteric fracture pattern.

DVT/PE prophylaxis treatment: All patients should be assessed for risk of deep venous thrombosis (DVT)/ pulmonary embolus (PE) with prophylaxis prescribed according to local protocols.

Standard 8: Every patient who is identified locally as being frail, should receive comprehensive geriatric assessment within three days of admission.

Rationale: Many patients presenting with hip fractures are frail and have complex medical problems. Collaborative working with Geriatricians has been shown to improve the standards of medical care in this frail group[20 21]. The benefits include reduction in delay to surgery caused by medical problems, improved management of perioperative medical complications, better coordination of multidisciplinary team work, improved communication with patients and relatives and reduction in adverse events including delirium and falls[22 23] . There is also a trend towards reduced length of stay and lower in-hospital mortality[24].

There are a number of models of orthogeriatric care, including reactive consultation models where patients are referred to Medicine for the Elderly on an adhoc basis but are primarily managed by the orthopaedic team, regular visits by a geriatrician or specialist nurse who provide advice on medical care on a regular basis in the orthopaedic ward, and combined orthogeriatric care with input from both the orthopaedic team and geriatricians. Advanced Nurse Practioner roles are developing in some areas to deliver support in the identification and management of frailty, including participating in the delivery of Comprehensive Geriatric Assessment. In units where the geriatric resource is insufficient to meet required needs, ward sessions for GPs with a specialist interest should also be considered.

Comprehensive Geriatric Assessment (CGA) is specialist coordinated multidisciplinary care that seeks to assess a patient's needs across medical, functional and psychiatric domains to identify, quantify and manage their deficits to avoid long term disability. In an orthopaedic context this will include: falls history and assessment including an ECG and lying and standing blood pressures, assessment of co-morbidities and functional abilities, medication review, cognitive assessment, nutritional assessment, assessment for sensory impairment, continence review, assessment of bone health and discharge planning.

Input from the Geriatric team should be commenced within 3 days of admission for all patients identified at risk.

Standard 9: Mobilisation should have begun by the end of the first day after surgery and every patient should have physiotherapy assessment by end of day two.

Rationale: Early mobilisation in combination with post-operative physiotherapy may be of value in reducing pulmonary complications, optimising early recovery and reducing falls. If the patient's overall medical condition allows, mobilisation and multidisciplinary rehabilitation should begin within 24 hours post-operatively.

Standard 10: Patients with a hip fracture should have an Occupational Therapy (OT) assessment by the end of day three post operatively.

Rationale: Occupational therapy contributes to both enabling patients to regain function post operatively and assessing the need for support following discharge. It is likely that OT input will continue in rehabilitation settings and inform on-going discharge processes. Patients being discharged to their own home or a care home can also benefit from occupational therapy input.

Standard 11: Every patient who has a hip fracture should have an assessment of their bone health prior to leaving the acute orthopaedic ward.

Rationale: Osteoporosis risk assessment and treatment is integral to the prevention of further fractures alongside falls prevention strategies. Fracture begets fracture: a previous fracture will approximately double the risk of a subsequent fracture with the greatest risk occurring in the first year following the incident fracture[25]. There is extensive evidence showing the effectiveness of bisphosphonate and other osteoporosis treatments, demonstrating up to a 50% relative risk reduction in fracture risk[26]. Hence admission with hip fracture offers a prime opportunity to assess and instigate osteoporosis medication as appropriate. Some units have a Fracture Liaison Service in operation which has been recognised internationally as an effective model of delivering care[27]. Some patients are commenced directly onto treatment whilst in hospital whereas others have treatment deferred until after they have their bone densitometry assessment.

Significant variation in practice across Scotland is evident in terms of osteoporosis treatment and diagnostic interventions. The aim should be that all patients where appropriate are either started on treatment during the acute admission aimed at reducing future fracture risk or have an assessment planned for this in the early discharge period.

Standard 12: Every patient's recovery should be optimised by a multi-disciplinary team approach such that they are discharged back to their original place of residence within 30 days from the date of admission.

The main aim of the improvement work is "getting patients back to their original place of residence as rapidly as possible, whilst optimising their ability to retain their independence". This should be achieved by optimising the pathway of care during their acute hospital stay and a seamless and supported transition back to the original place of residence within 30 days from date of admission.

In future the Scottish Hip Fracture Audit and Advisory Group plans to expand this aim to include the whole patient journey by developing standards to include; fracture prevention through services providing falls prevention programmes, management of osteoporosis and discharge management back to original residence.

Outcome Measures and Patient/Carer Experience.

Optimal hospital care and supported discharge will improve patient outcomes and should reduce mortality and readmission rates. Whilst this is monitored Nationally, local morbidity and mortality meetings should review these outcomes and address any outliers through agreed and documented actions.
All professionals involved in the care pathway should have a continuous improvement process in place through established MDT meetings to coincide with the release of National audit data. Patient Reported Outcome Measures (PROMS) and Patient/Carer Experience should also be carried out, recorded and acted on. Written care information or information booklets should be given to patients and carers.

Appendices:

A - Scottish Hip Fracture Audit and Advisory Group Membership & Contacts

Name	Role	Organisation	Email
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Appendix B: Access to the Trauma and Orthopaedic Dashboard

Trauma & Orthopaedic Portal Trauma & Orthopaedic Portal

Audit data is updated and added to this web based platform each month and is provided as management information only i.e. it is routinely available to participating boards. Access can be granted by requesting a username and password by following the process below;

To become an approved user of the Trauma & Orthopaedic Portal please go to NSS User Access System .

- Users who already have an LDAP username/password (it is the same as the LDAP/UNIX one which you may already have for other data systems hosted by ISD). Once logged in please select 'Request new access' from the menu. Then select the 'Trauma & Orthopaedic Portal' from the drop down list and proceed to input your details.

Once you have created and submitted your request an email will be sent to your local authoriser (Health Board T&O project lead) who will approve your request. Once approved you will shortly receive an email with a link to the Trauma & Orthopaedic Portal.

- Users who think they already have an LDAP username/password but have forgotten them

If you have forgotten these please contact the Customer Support desk via e-mail nss.csd@nhs.net or phone 0131 275 7777 and then follow the instructions above.

- Users who don't have an LDAP username/password

Please register for one by using the link above and clicking the 'register' button and then follow the instructions above.

If you have any issues or questions please contact the team at NSS.TraumaandOrthopaedicPortal@nhs.net

Appendix C- References

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National Hip Fracture Database http://www.nhfd.co.uk/