

IRISH ASSOCIATION FOR EMERGENCY MEDICINE



IAEM Clinical Guideline 11

Management of Patients with Suspected Hip Fracture in the Emergency Department

Version 1

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**Irish Hip Fracture
Database IHFD** 

NOCA National Office of
Clinical Audit

DISCLAIMER

IAEM recognises that patients, their situations, Emergency Departments and staff all vary. These guidelines cannot cover all clinical scenarios. The ultimate responsibility for the interpretation and application of these guidelines, the use of current information and a patient's overall care and wellbeing resides with the treating clinician.

GLOSSARY OF TERMS

Hip Fracture (or proximal femoral fractures)	Fractures occurring between the edge of the femoral head and 5cm below the lesser trochanter. The term “hip fracture” will be used in this guideline, which includes neck of femur fracture
Nerve Block	This refers to a fascia iliaca or femoral nerve block
RCEM	The Royal College of Emergency Medicine
ED	Emergency Department
NAS	National Ambulance Service
EWS	Early Warning Score

Management of Patients with Suspected Hip Fracture in the Emergency Department

INTRODUCTION

Hip fracture is a major public health issue, and the challenge to healthcare providers is set to increase with improving life expectancy and an increasingly ageing population. An estimated 100% increase in the number of hip fractures has been projected in Ireland between 2008 and 2026. (1) International evidence indicates increased morbidity and mortality for patients with hip fractures. Mortality is high - however, fewer than half of the deaths are attributable to the fracture. (2) Most deaths are caused by associated conditions, as the occurrence of fall and fractures is often associated with underlying ill health. These patients are best served by a comprehensive multidisciplinary approach, which includes expeditious surgical fixation and optimisation of medical co-morbidities. (2)

Patients with hip fractures are often older, poorly mobile at baseline and have multiple co-morbidities. The increased risk of perioperative complications and the effect that the injury has on subsequent mobility can have far-reaching consequences on the recovery and rehabilitation phase. (2) The psychosocial implications of such an injury also cannot be underestimated. The multidisciplinary interplay represents a challenge for acute hospitals in terms of coordinating the pain management, diagnosis, transport, perioperative care, rehabilitation and safe discharge.

This document pertains to the ED management of these patients and is by no means exhaustive. Whilst early diagnosis and pain management are the specific mandates of the ED,

identification of any potential medical and/or anaesthetic complications the patient may encounter need to be identified, documented and communicated to the relevant disciplines.

Implementation of the guidelines will be supported by the dissemination of a template of an integrated care pathway that can be locally customised for use in EDs and acute orthopaedic networks. Given the current state of overcrowding in Irish hospitals, protocol driven fast track admission aided by an integrated care pathway will best ensure these patients receive optimum care.

PARAMETERS

Target audience This guideline is intended for all ED staff managing patients with a suspected hip fracture.

Patient population Patients with a suspected hip fracture presenting to ED.

Exclusion criteria

1. Patients younger than 18 years old.
2. Patients in which high velocity trauma is suspected as the cause of injury.
3. Patients who require immediate medical management which supercedes management of their hip fracture.

AIMS

To improve the safety and quality of ED care for patients with suspected hip fractures by facilitating early diagnosis, providing optimal emergency care and expedited admission to orthopaedic care, in keeping with existing guidelines described by National Institute for Health and Care Excellence (NICE), Scottish Intercollegiate Guidelines Network (SIGN) and the Royal College of Emergency Medicine (RCEM). (3)(4)(5)

GUIDELINE RECOMMENDATIONS FOR THE MANAGEMENT OF THE PATIENTS WITH A SUSPECTED HIP FRACTURE ^{2,3}

1. Patient experience:

- a. All ED staff should endeavor to ensure that patients with suspected hip fracture receive the highest quality ED care. This should be prompt, holistic and safe.
- b. Treatment and care should take account of the patient's needs and preferences and should be communicated clearly with the patient, relatives and carers.

2. ED assessment:

- a. Please refer to checklist for patient with suspected hip fracture in appendix 1
- b. Assessment should include consideration and formal recording of:
 - i) Pain.
 - ii) Core body temperature using low reading thermometer, blood pressure, heart rate, oxygen saturation and respiratory rate.
 - iii) Identify and treat correctable co-morbidities immediately such as
 - a. Anaemia
 - b. Anticoagulation
 - c. Volume depletion
 - d. Electrolyte imbalance
 - e. Uncontrolled diabetes and heart failure
 - f. Correctable cardiac arrhythmia or ischemia
 - g. Acute infection
 - iv) Co-existing medical problems.
 - v) Medications including anticoagulation and antiplatelet therapy.

- vi) Mental state – including any acute deterioration that may arouse suspicion of delirium. A screening tool such as 4AT (Appendix 2) can be used for rapid delirium detection.
- vii) Fluid balance, hydration and nutrition.
- viii) Pressure ulcer risk. A formal pressure area risk assessment is recommended for all patients. Waterlow score (Appendix 3) and Braden scale can be used to estimate pressure sore risk.
- ix) Previous mobility and functional ability.
- x) Social circumstances.

3. Analgesia:

- a. All patients who require analgesia should receive it in a timely manner. Please refer to the IAEM Pain Management Guideline as needed. (6)
- b. IV opiates are often necessary and, if deployed, should be administered by careful titration starting with small doses. ED staff should be aware of potential adverse effects of opiates to which older patients may be more vulnerable. These include respiratory depression, nausea and vomiting. Patients receiving IV opiates should be monitored for these effects.
- c. The recommended analgesia for patients with hip fracture are:
 - i) **Ultrasound-guided nerve block.** All patients with confirmed hip fracture should be consider for nerve block as part of their pain management, unless contraindicated. IAEM clinical guideline for Fascia Iliaca Compartment Block for Proximal Femur Fracture in the ED will be published in late 2018.
 - ii) Paracetamol 1 gram PO, PR or IV every 6 hours, unless contraindicated. In adult < 50 kg, the dosage is 15mg/kg.

- iii) Opiates, such as morphine 0.1-0.2 mg/kg IV, titrating the dose slowly to achieve desired response.
 - iv) Non-steroidal anti-inflammatory drugs (NSAIDs) – caution in older people, due to the gastrointestinal, renal and cardiovascular side effects, as well as drug-drug interaction and effects on other co-morbidities. Avoids NSAIDs in patients with asthma, renal impairment and previous or known peptic ulcer disease.
- d. Adjunctive measures for pain management should be considered for each patient. These include:
- i) Minimal movement of the patient, e.g. if the patient has to be transferred onto an x-ray table from a “trolley”, consider transferring them to a bed with a soft mattress from x-ray if an obvious fracture is identified.
 - ii) Traction is not routinely recommended.
 - iii) Patients should have adequate analgesia upon arrival and re-evaluation within 30 minutes. Pain should be under control before transfer from the ED trolley or prior to ward admission.

4. ED patient care should include:

- a. Use soft or pressure-reducing surfaces to protect heel and sacrum from pressure damage. Regular positioning is part of good care to reduce pressure sores.
- b. Keeping the patient warm.
- c. Optimisation of patient physiology including oxygenation, fluid balance, electrolyte status etc.

5. Imaging:

- a. X-ray of the hip should be performed rapidly.

- b. Protocols should be in place to enable all preoperative imaging (e.g. chest x-rays if indicated) to be completed at the time of initial x-ray to minimise patient transport/transfers and delays within the ED. (8)(9)
 - c. A normal x-ray does not exclude a hip fracture. Where there is doubt regarding the radiological diagnosis or the patient is unable to mobilise or weight bear on the affected leg without pain, further imaging should be advised. Magnetic resonance imaging (MRI) is the modality of choice where there is doubt regarding diagnosis but as it is often not routinely available within 24 hours, CT is an acceptable alternative.
6. In patients with a confirmed hip fracture, please refer to the management flowchart in

Figure 1:

- a. Transfer patient to allocated space in the ED.
 - b. Recheck response to analgesia within 30 minutes.
 - c. If not already performed, an ultrasound-guided **nerve block** should be performed by trained personnel.
 - d. Warfarin reversal if indicated (see Appendix 5).
 - e. Take blood for the following tests: Full blood count, renal and bone profile, Group and Hold and INR (if indicated). Other blood tests as indicated by individual circumstances.
 - f. Commenced IV fluid early. Start 1 litre of 0.9% saline solution over 12 hours. Exercise caution in patients on fluid restriction, or patients with symptoms of heart failure.
7. Admission to acute orthopaedic care
- a. All patients with a hip fracture should be admitted to a specialist orthopaedic ward without avoidable delays. Delayed admission has been shown to correlate with increased hospital stay. A target time of 2 hours from ED arrival is

recommended but **all patients should be admitted within 4 hours of arrival at the ED to which they first presented.** ED assessment and patient transfer to the ward should be completed within this timeframe. (2)

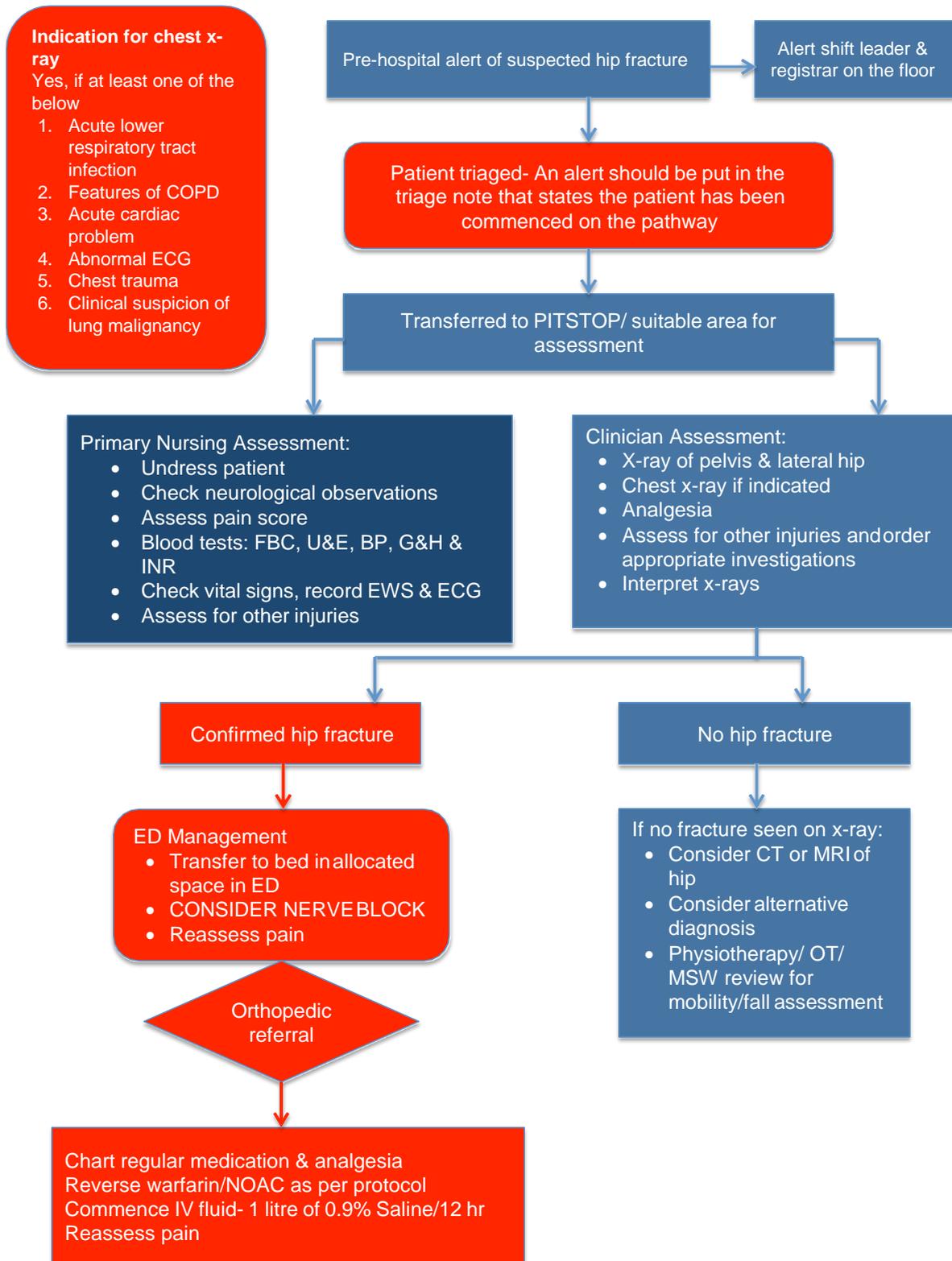
- b. Ward admission should not be delayed for completion of non-urgent clinical investigations in the ED, other than initial x-rays. However, ED clinicians should ensure appropriate communication/handover across the ED/ward interface. (3)
- c. All hospital groups should have protocols in place to ensure the timely admission of patients to specialist orthopaedic wards if they present to EDs at acute hospitals that do not have on-site specialist orthopaedic services.

8. A collaborative approach with all services and specialties is recommended to optimise the quality and efficiency of care for patients with suspected hip fracture. These include *inter alia* the National Ambulance Service (NAS), general practitioners, hospital bed management, orthopaedic and orthogeriatric services, medical specialties services providing preoperative consultation, anaesthesia, diagnostic imaging, laboratory and transfusion medicine, physiotherapy and medical social worker staff. (3)

9. Measuring and improving the quality of care:

- a. The management of patients with suspected hip fracture should be included in ED/Emergency care network clinical audit programmes and any evidence of suboptimal performance addressed.
- b. EDs should contribute to the monitoring of relevant hip fracture key performance indicators (KPIs) published by the Irish Hip Fracture Database.
- c. All relevant ED staff should receive appropriate training in the management of patients with suspected hip fracture according to these guidelines.

Figure 1: Flowchart for Patients with Suspected Hip Fracture



KEY PERFORMANCE INDICATORS

Each stage in the patient journey can be audited and compared to nationally agreed upon standards and hence provides a good insight into the overall quality of care provided in hospitals. These are informed by the IAEM pain management guidelines, the RCEM clinical standards for Emergency Departments (August 2014), RCEM clinical audits and the Blue Book by the British Orthopaedic Association. (6)(5)(2)

- Pain managed as per IAEM pain management guideline
 - All patients have pain assessment at triage within 15 minutes of ED arrival
 - Patients with severe pain (pain score of 7-10) should receive analgesia within 30 minutes of ED arrival. Target - 90% compliance rate.
 - Patients with severe or moderate pain should have the effectiveness of analgesia re-evaluated within 30 minutes of receiving the first dose of analgesia. Target - 90% compliance rate. (6)
- Access to imaging:
 - Patients with suspected hip fracture should have x-ray within 60 minutes of arrival. Target - 90% compliance rate.
- Access to orthopaedic care:
 - Patients with confirmed hip fracture should be referred within 120 min of arrival, with the referral time documented in the notes. Target – 75% compliance rate.
- Patients with confirmed hip fracture should be admitted to a specialist orthopaedic ward within 4 hours of arrival at an ED.
- For an example from the RCEM previous audit, please follow this link www.rcem.ac.uk/docs/previous%20audits/CEM5698-executive-summary.pdf

The Care of Patients with Fragility Fractures (The “Blue book” - published in 2017 by the British Orthopaedic Association and British Geriatric Society), set up six standards for hip fracture care.

(5)

- All patients with hip fracture should be admitted to an acute orthopaedic ward within 4 hours of presentation.
- All patients with hip fracture who are medically fit should have surgery within 48 hours of admission, and during normal working hours.
- All patients with hip fracture should be assessed and cared for with a view to minimising their risk of developing a pressure ulcer.
- All patients presenting with a fragility fracture should be managed on an orthopaedic ward with routine access to acute orthogeriatric medical support from the time of admission.
- All patients presenting with fragility fracture should be assessed to determine their need for antiresorptive therapy to prevent future osteoporotic fractures.
- All patients presenting with a fragility fracture following a fall should be offered multidisciplinary assessment and intervention to prevent future falls.

COMPANION DOCUMENTS

[Appendix 1: Checklist for patients with suspected hip fracture](#)

[Appendix 2: 4AT, a screening tool for cognitive impairment and delirium](#)

[Appendix 3: Waterlow score](#)

[Appendix 4: RCEM standards for neck of femur fracture management and pain relief](#)

[Appendix 5: Warfarin reversal for patients with confirmed hip fracture](#)

[Link to references/ evidentiary table](#)

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