

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

SCOPE

1 Guideline title

Complex fractures: assessment and management of complex fractures

1.1 *Short title*

Complex fractures

2 The remit

The Department of Health has asked NICE: 'To produce guidance on the assessment and management of complex fractures (including pelvic fractures and open fractures of limbs).

NICE is developing 5 pieces of guidance relating to trauma, with expected publication dates in June and October 2015 (to be confirmed). Each piece of guidance will focus on a different aspect of trauma care.

- [Complex fractures: assessment and management of complex fractures \(including pelvic fractures and open fractures of limbs\)](#)
- [Fractures: diagnosis, management and follow up of fractures \(excluding head and hip, pelvis, open and spinal\)](#)
- [Major trauma: assessment and management of major trauma including resuscitation following major blood loss with trauma](#)
- [Spinal injury assessment: assessment and imaging of patients at high risk of spinal injury](#)
- [Trauma services: service delivery of trauma services](#)

NICE has commissioned the National Clinical Guideline Centre (NCGC) to develop the trauma guidance. The fractures, complex fractures, spinal injury assessment and major trauma guidelines will start development approximately

6 months before the development of the trauma service delivery guideline.

3 Clinical need for guidance

3.1 *Epidemiology*

- a) It is difficult to estimate accurately the incidence of complex fractures because of the lack of a standard definition. According to the NHS accident and emergency experimental statistics for 2010/11, there were 757,122 emergency department attendances with dislocation, fracture, joint injury and/or amputation as the primary diagnosis. This figure does not differentiate between fracture types, and is therefore likely to be an overestimate of incident cases of complex fractures. In 2010/11, there were 677,239 referrals from accident and emergency departments to fracture clinics. However, it is not possible to say how many of these fractures would be considered complex.

- b) Fractures are not recorded as the main causes of death but as secondary or associated causes of mortality in death certificates. In 2010 there were 4260 recorded deaths where fracture was an associated or secondary cause of death.

3.2 *Current practice*

- a) Due to the nature of complex fractures, many patients will initially be seen by ambulance staff before being transferred to accident and emergency departments.

- b) The British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS) and the British Orthopaedic Association (BOA) recommend that primary assessments be made in line with Advanced Trauma & Life Support (ATLS) principles, especially in the case of open fractures. BAPRAS/BOA further recommends that

if possible, primary treatment of open fractures in accident and emergency departments should be confined to antibiotic and anti-tetanus prophylaxis as well as temporary fracture stabilisation.

BAPRAS/BOA also recommends that patients with open fractures be referred to multidisciplinary surgical teams, consisting of orthopaedic and plastic surgeons.

- c) Diagnosis of complex fractures will typically involve X-ray and/or CT scan, with angiography for associated vascular injuries.
- d) Multiple treatment options exist for complex fractures, both surgical and non-surgical. The most appropriate treatment will depend on fracture location, type and severity, as well as associated soft tissue injury and patient characteristics. In some cases, optimal treatment will vary depending on the osteoporotic or osteoarthritic status of patients, as well as their suitability for surgery.
- e) The post-treatment phase of complex fracture may be intensive. There are variations in type and timing of follow-up, fracture healing and physiotherapy needed for each type of fracture and the selected treatment.
- f) There may be a need for patients to help with their post-treatment wound care, especially in the instance of external fixators, as pin-site infection can be a complication.

4 The guideline

The guideline development process is described in detail on the NICE website (see section 6, 'Further information').

This scope defines what the guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health.

The areas that will be addressed by the guideline are described in the following sections.

4.1 *Population*

4.1.1 Groups that will be covered

All adults, young people and children who present with a suspected complex fracture.

4.1.2 Groups that will not be covered

Any person with a:

- non-complex fracture
- head and neck fracture
- hip fracture
- spinal injury.

4.2 *Healthcare setting*

All settings in which NHS care is received or commissioned.

4.3 *Clinical management*

4.3.1 Key clinical issues that will be covered

a) Initial triage by pre-hospital care provider:

- need for pain relief
- need for immediate action to preserve limbs
- assessment of immediate destination of patient.

b) Acute-stage clinical assessment:

- need for pain relief
- need for immediate medical intervention (such as antibiotics and anti-tetanus prophylaxis).

- c) Acute stage imaging assessment (including choice and timing of imaging modality and imaging parameters), using:
 - X-ray
 - CT
 - MRI
 - vascular imaging.
- d) Criteria for referral to tertiary centre.
- e) Initial management and treatment plan (such as stabilisation).
- f) Ongoing management and treatment plan (such as external fixation).
- g) Skill levels and training of the assessing clinician.
- h) Documentation for patients with complex fractures.

4.3.2 Clinical issues that will not be covered

- a) Prevention and follow-up of complex fractures.
- b) Management and follow-up of pathological conditions (such as osteoporosis and osteoarthritis).
- c) Management and follow-up of dislocations.

4.4 Main outcomes

- a) Adverse effects associated with assessment and management.
- b) Functional scales that quantify level of disability, such as the Expanded Disability Status Scale (EDSS).
- c) Health-related quality of life.
- d) Duration of contact with a healthcare professional and continuity of contact.

- e) Morbidity.
- f) Mortality.
- g) Patient-reported outcomes.
- h) Place of residence at 90 days.
- i) Length of hospital stay.

4.5 *Economic aspects*

Developers will take into account both clinical and cost effectiveness when making recommendations involving a choice between alternative interventions. A review of the economic evidence will be conducted and analyses will be carried out as appropriate. The preferred unit of effectiveness is the quality-adjusted life year (QALY), and the costs considered will usually be only from an NHS and personal social services (PSS) perspective. Further detail on the methods can be found in 'The guidelines manual' (see 'Further information').

4.6 *Status*

4.6.1 *Scope*

This is a draft scope. The consultation dates are 28th February to 28th March 2013.

4.6.2 *Timing*

The development of the guideline recommendations will begin in June 2013.

5 *Related NICE guidance*

5.1 *Published guidance*

- [Patient experience in adult NHS services](#). NICE clinical guideline 138 (2012).
- [Osteoporosis](#). NICE clinical guideline 146 (2012).

- [Hip fracture](#). NICE clinical guideline 124 (2011).
- [Head injury](#). NICE clinical guideline 56 (2007).
- [Falls](#). NICE clinical guideline 21 (2004).

5.2 *Guidance under development*

NICE is currently developing the following related guidance (details available from the [NICE website](#)):

- Head injury. NICE clinical guideline. Publication expected January 2014.
- Spinal injury assessment. NICE clinical guideline. Publication expected May 2015
- Fractures. NICE clinical guideline. Publication expected June 2015.
- Major trauma. NICE clinical guideline. Publication expected June 2015.
- Trauma services. NICE clinical guideline. Publication expected October 2015.

6 Further information

Information on the guideline development process is provided in the following documents, available from the NICE website:

- [How NICE clinical guidelines are developed: an overview for stakeholders the public and the NHS](#)
- [The guidelines manual](#).

Information on the progress of the guideline will also be available from the [NICE website](#).