

Fractures (non-complex): assessment and management

Fractures: diagnosis, management and follow-up of fractures

NICE Guideline NG38

Appendices A – F

February 2016

Final

*Commissioned by the National Institute for
Health and Care Excellence*

Disclaimer

Healthcare professionals are expected to take NICE clinical guidelines fully into account when exercising their clinical judgement. However, the guidance does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of each patient, in consultation with the patient and, where appropriate, their guardian or carer.

Copyright

National Clinical Guideline Centre, 2016

Funding

National Institute for Health and Care Excellence

Contents

Appendices.....	5
Appendix A: Scope.....	5
Appendix B: Declarations of interest	12
Appendix C: Review protocols	138
Appendix D: Clinical article selection	166
Appendix E: Economic article selection	191
Appendix F: Literature search strategies	192
References.....	250

Appendices

Appendix A: Scope

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

SCOPE

1 Guideline title

Non-complex fractures: diagnosis, management and follow-up of non-complex fractures

1.1 Short title

Non-complex fractures

2 The remit

The Department of Health has asked NICE: 'To produce guidance on the diagnosis, management and follow-up of fractures (excluding head and hip, pelvis, open and spinal).'

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 airway, breathing and ventilation, circulation, haemorrhage and temperature control](#)
- [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 non- complex fractures because of the lack of a standard definition. For the purposes of this guideline, non- complex fractures are defined as any fracture that does not need treatment in tertiary care.
- b) The annual fracture incidence (excluding head and hip) estimates for all ages ranged from 2.1 per 100 people to 3.6 per 100. Lifetime fracture prevalence among men ranged from 20.7% to over 50%, while the range for women was more than 40% to 53.2%. These estimates were derived using different methodologies and populations, which may account for some of the variation in figures.
- c) Fractures are not recorded as the main cause of death, but fractures are recorded as secondary or associated causes of mortality in death certificates. In 2010 there were 4260 recorded deaths for which fracture was an associated or secondary cause of death. There are variations in fracture-related mortality by age and sex.

3.2 *Current practice*

- a) Fractures are initially seen in a variety of settings, including emergency departments, first contact services and primary care.
- b) Diagnosis of suspected fractures will typically involve triage, physical assessment, X-ray or CT scan, or another type of imaging depending on the type of suspected fracture.

- c) Multiple treatment options exist for fractures, both surgical and non-surgical.
- d) There is wide variation in fracture management, associated analgesia and anaesthesia as well as the timing of inpatient surgery within the NHS.
- e) There are variations in type, timing and duration of follow-up, fracture healing and physiotherapy required for each type of fracture and the selected treatment.

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

Adults, young people and children who present with a suspected non-complex fracture.

Appropriate representative injuries will be referred to in the key clinical areas to be addressed, for example scaphoid injuries in acute stage imaging assessment. There may be a different index injury for each area not a single index injury to represent all questions

4.1.2 Groups that will not be covered

Any person with a complex fracture including:

- skull fracture
- hip fracture
- spinal injury
- open fracture.

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) Assessment tools for initial triage
- b) Acute-stage imaging assessment:
 - choice and timing of imaging modality and imaging parameters using:
 - X-ray
 - CT
 - MRI.
 - timing of image reporting.
- c) Initial management and treatment plan
 - pain relief(including opiates and non-opioid analgesics)
 - immobilisation (including splinting)
 - manipulation (including timing and type of anaesthetic)
 - referral (including timing).
- d) Ongoing management (including evaluation, and treatment plan):

Fractures: diagnosis, management and follow-up of fractures – draft scope
4 of 7

- mobilisation (including timing)
- timing of surgery
- e) Follow up clinics
- f) Skills to be present within the multidisciplinary team
- g) Documentation of clinical assessments and management for people with fractures
- h) Information and support needs of patients and their families and carers when appropriate

4.3.2 Clinical issues that will not be covered

- a) Prevention of fractures.
- b) Management and follow-up of dislocations.
- c) Management and follow-up of pathological conditions (such as osteoporosis and arthritis) predisposing to fractures.
- d) Any management and follow-up of fractures once a patient has been referred to a specialist centre.

4.4 Main outcomes

- a) Adverse effects associated with assessment and management.
- b) Functional scales that quantify level of disability.
- c) Health-related quality of life.
- d) Return to normal activities.
- e) Healthcare contacts; duration and continuity.
- f) Morbidity.
- g) Mortality.

- h) Patient-reported outcomes.

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 the final scope.

4.6.2 Timing

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

5 Related NICE guidance

5.1 Published guidance

- [EXOGEN ultrasound bone healing system for long bone fractures with non-union or delayed healing](#). NICE medical technologies guidance 12 (2013).
- [Osteoporosis](#). NICE clinical guideline 146 (2012).
- [Patient experience in adult NHS services](#). NICE clinical guideline 138 (2012).
- [CardioQ-ODM \(oesophageal Doppler monitor\)](#). NICE medical technologies guidance 3 (2011).
- [Hip fracture](#). NICE clinical guideline 124 (2011).

Fractures: diagnosis, management and follow-up of fractures – draft scope
6 of 7

- [Low intensity pulse ultrasound to promote fracture healing](#). NICE interventional procedures 374 (2010).
- [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 TBC 2015.
- Complex fractures. NICE clinical guideline. Publication expected TBC 2015.
- Major trauma. NICE clinical guideline. Publication expected TBC 2015.
- Trauma services. NICE clinical guideline. Publication expected TBC 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](#), 2012

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

Appendix B: Declarations of interest

B.1 Complex fractures

Table 1: Brown, Lynda

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 2: Camps, Cherylene

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 11 March 2015		
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 3: Christmas, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 4: Costa, Matthew

GDG meeting	Declaration of Interests	Action taken
On application	Non-personal pecuniary interest: <ul style="list-style-type: none"> MC is an investigator on University of Warwick held research grants from NIHR, ARUK and x-Bolr Orthopaedics 	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 5: Foster, Judith

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is the chair of the intercollegiate working party drafting standards for imaging in severely injured children, commissioned by the RCR and the SXPR and including members from APEM, BAPS and RCPCH. The standards are due for publication in 2014. 	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 4 September 2014		
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 6: Handley, Bob (co-chair)

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 7: Harrison, Simon

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
17 January 2014		
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 8: Henman, Philip

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 5-6 October 2015		

Table 9: Hough, Jennifer

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal family interest:</p> <ul style="list-style-type: none"> • My father is a registered practising pharmacist working for Bayer Medical Affairs with pharmaceutical industry. He also holds shares in AstraZeneca. <p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> • JF has helped in developing a new major protocol - but this has included more organisation of our department. 	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	<p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> • JH submitted a research protocol on ankle fractures and the ability to hop as a means of assessing for presence of fracture. 	No action taken
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2015		
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 10: Ingram, Mike

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
26 January 2015		
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 11: Lecky, Fiona

GDG meeting	Declaration of Interests	Action taken
On application	Non-personal pecuniary interest: <ul style="list-style-type: none"> FL is chief investigator of Head Injury Transportation straight to Neurosurgery study (HTA funded to previous employer) until 2013. Likely to suggest and bid for NIHR funded study into trauma triage. 	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 12: McFadyen, Iain (co-chair)

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> • IM is a member of the Department of Health Clinical reference group for trauma. 	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 13: McPherson, Simon

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
10 April 2014		
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 14: Morris, Craig

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken

GDG meeting	Declaration of Interests	Action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2015		

Table 15: Morris, Kevin

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth	Did not attend	

GDG meeting	Declaration of Interests	Action taken
GDG meeting 19 May 2015		
Final GDG meeting 5-6 October 2015	Did not attend	

Table 16: Nanchahal, Jagdeep

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> JN undertakes consultancy work for Orthofix and Smith & Nephew, these are educational courses. He also chaired the group on behalf of the British Orthopaedic and Plastic Surgery Association that wrote the 'standards for the management of open fractures of the lower limb' published in 2009. 	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	Personal pecuniary interest: <ul style="list-style-type: none"> JN teaches on courses (soft tissue reconstruction) sponsored by companies that sell orthopaedic implants 	Conflict of interest: Withdrew from recommendation making discussions on combined orthoplastic approach to open fractures.
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
27 January 2015		
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 17: Nayagam, Selvadurai

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> SD is a consultant for Orthofix SRL (medical device and Implant Company), Verona, Italy, who provides medical devices that are used in fracture care. <p>Non-personal pecuniary interest:</p> <ul style="list-style-type: none"> SD holds a fellowship in limb reconstruction supported by Smith and Nephew UK at Royal Liverpool and Broadgreen University Hospital. 	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2014		
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 18: Sampson, Madeleine

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
4 September 2014		
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 19: Silvester, Lucy

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 20: Skinner, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
17 January 2014		
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 21: Slowie, Aidan

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 5-6 October 2015		

Table 22: Snaith, Beverly

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
30 April 2015		
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 23: Stacey, Julia

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 24: Swann, Garry

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
27 January 2015		
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 25: Thornhill, Angela

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	No change in declaration	
Third GDG meeting 10 April 2014	No change in declaration	
Fourth GDG meeting 3 September 2014	No change in declaration	
Fifth GDG meeting 4 September 2014	No change in declaration	
Sixth GDG meeting 22 October 2014	No change in declaration	
Seventh GDG meeting 23 October 2014	No change in declaration	
Eighth GDG meeting 4 December 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 26: Toplis, Laura

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2014		
Eighth GDG meeting 4 December 2014	Did not attend	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	Did not attend	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 27: Wallman, Paul

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
22 October 2014		
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	No change in declaration	
Ninth GDG meeting 26 January 2015	Did not attend	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

B.2 Major trauma

Table 28: Brohi, Karim (Chair)

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> • Sangart Inc (ongoing)- consultancy on early phase clinical trials of oxygen therapeutic • CSL Behring (ongoing)- consultancy on future of bleeding management and coagulation research • Haemonetics (ongoing)- consultancy on coagulation and device development. <p>Non-personal pecuniary interest:</p>	No action taken

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> • Astra-Zeneca- unrestricted grant for coagulation/haemorrhage research • Haemonetics- unrestricted grant for coagulation/haemorrhage research TEM International- support for research devices and consumables (unrestricted).	
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	Personal pecuniary interest: <ul style="list-style-type: none"> • Paid consultancy for Haemonetics Inc (TEG manufacturers) in 2012 Non personal pecuniary interest: <ul style="list-style-type: none"> • Research funding from Haemonetics Inc (TEG 2013) and TEM International (ROTEM 2008) 	Conflict of interest: Withdrew from recommendation making discussions on coagulation testing.
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
13 January 2015		
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 29: Christmas, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 14 October 2014		
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	Did not attend	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 30: Fitzsimmons, Chris

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> CF works on a group under the Royal College of Radiologists and the British Society of Paediatric radiologists to help develop national standards for the radiological imaging of children with major trauma. 	No action taken
Second GDG meeting 21 November 2013	Personal pecuniary interest: <ul style="list-style-type: none"> CF is applying for the post of Clinical lead of the ODN for Major trauma in South Yorkshire region. 	No action taken.
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	Personal pecuniary interest: <ul style="list-style-type: none"> CF has accepted the post of Clinical lead for South Yorkshire Trauma Operational Delivery network, paid at the rate of one programmed activity (PA) per month. 	No action taken.
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting	Personal non-pecuniary interest: <ul style="list-style-type: none"> Appointed to the board of the TARNLet 	No action taken

GDG meeting	Declaration of Interests	Action taken
14 May 2014	committee.	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> Named as co-author on review article that has been accepted in peer-reviewed radiology journal on the subject of 'radiological imaging in the child with major trauma'. 	No action taken
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 31: Foster, Judith

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is the chair of the intercollegiate working party drafting standards for imaging in severely injured children, commissioned by 	No action taken

GDG meeting	Declaration of Interests	Action taken
	the RCR and the SXPR and including members from APEM, BAPS and RCPCH. The standards are due for publication in 2014.	
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> • Co-author of paper reviewing imaging guidelines in the severely injured child. 	No action taken
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	Personal non-pecuniary interest: <ul style="list-style-type: none"> • JF is chair of the intercollegiate working party drafting standards for imaging of the severely injured child – these were published in September 2014. 	No action taken.
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
26 March 2015		
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 32: Griffiths, Nathan

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> Freelance clinical educator – deliver training and education including relevant guidelines on behalf of a third party private training company. This has previously included consultancy on guideline development for two organisations; although not recent. 	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2014		
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 33: Hough, Jennifer

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal family interest:</p> <ul style="list-style-type: none"> My father is a registered practising pharmacist working for Bayer Medical Affairs with pharmaceutical industry. He also holds shares in AstraZeneca. <p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> JF has helped in developing a new major protocol - but this has included more organisation of our department. 	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	Did not attend	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 34: Hughes, Simon

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 35: Ingram, Mike

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	Did not attend	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 36: Jarman, Heather

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> HJ is a member of the Department of Health Clinical reference group for major trauma. 	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2015		
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 37: Kumar, Suresh

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
13 October 2014		
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 38: Lee, Richard

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
15 May 2014		
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	Did not attend	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 39: Lomas, Gabrielle

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> • Director of Trauma Nursing Ltd. 	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 12 March 2014		
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 40: McPherson, Simon

GDG meeting	Declaration of Interests	Action taken
-------------	--------------------------	--------------

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Final GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 5-6 October 2015		

Table 41: Morris, Kevin

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	Did not attend	
Fourteenth	Did not attend	

GDG meeting	Declaration of Interests	Action taken
GDG meeting 25 March 2015		
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 42: Piercy, James

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 43: Sampson, Madeleine

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
31 July 2014		
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	Did not attend	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Personal non-pecuniary interest: <ul style="list-style-type: none"> MS is a panel member of the Royal College of Radiologists guideline group currently reviewing MBUR 8 trauma section (making best use of radiology). 	No action taken
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 44: Skinner, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Personal pecuniary interest: <ul style="list-style-type: none"> • DS has been commissioned to conduct a review (under 3 weeks) of major trauma systems in Manchester. 	No action taken
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 45: Snaith, Beverly

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2013		
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	Did not attend	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2015		

Table 46: Stiff, Graham

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> GS has an honorary contract with South Central Ambulance NHS Foundation Trust Service that enables me to claim expenses for attending and providing support at accident scenes. 	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2015		
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 47: Toplis, Laura

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
14 October 2014		
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 48: Wallman, Paul

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 49: Welch, Nick

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> Member of the British orthopaedic Association's patient liaison group. 	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 13 March 2014		
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 50: Wiltshire, Steve

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
21 November 2013		
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Sixteenth GDG meeting 7 May 2015	No change in declaration	
Final GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
5-6 October 2015		

B.3 Non complex fractures

Table 51: Berry, Kathleen

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
14 May 2015		
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 52: Camps, Cherylene

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth	Did not attend	

GDG meeting	Declaration of Interests	Action taken
GDG meeting 14 May 2015		
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 53: Christmas, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 54: Costa, Matt

GDG meeting	Declaration of Interests	Action taken
On application	Non-personal pecuniary interest: <ul style="list-style-type: none"> MC is an investigator on University of Warwick held research grants from NIHR, ARUK and x-Bolr Orthopaedics. 	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> MC is a potential co-applicant on a grant application looking at the use of 3D imaging in suspected scaphoid fractures 	No action taken
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 12 March 2015		
Thirteenth GDG meeting 13 May 2015	Non-personal pecuniary interest: <ul style="list-style-type: none"> MC employers received a NIHR research grant for the Distal Radius Acute Fracture Fixation Trial 	Conflict of interest: Withdrew from recommendation making discussions on distal radius fractures.
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 55: Foster, Judith

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is the chair of the intercollegiate working party drafting standards for imaging in severely injured children, commissioned by the RCR and the SXPR and including members from APEM, BAPS and RCPCH. The standards are due for publication in 2014. 	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is chair of the intercollegiate working party drafting standards for imaging of the severely injured child, to be published 	No action taken

GDG meeting	Declaration of Interests	Action taken
	September 2014.	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 56: Handley, Bob (co-chair)

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 14 August 2014		
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 57: Hayter, Gillian

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 58: Henman, Philip

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
13 August 2014		
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 59: Hough, Jennifer

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal family interest:</p> <ul style="list-style-type: none"> My father is a registered practising pharmacist working for Bayer Medical Affairs with pharmaceutical industry. He also holds shares in AstraZeneca. <p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> JF has helped in developing a new major protocol - but this has included more organisation of our department. 	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
22 May 2014		
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 60: Houghton, Elizabeth

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 22 May 2014		
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 61: Ingram, Mike

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 62: Jackson, Michael

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
21 May 2014		
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 63: Lecky, Fiona

GDG meeting	Declaration of Interests	Action taken
On application	Non-personal pecuniary interest: <ul style="list-style-type: none"> FL is chief investigator of Head Injury Transportation straight to Neurosurgery study (HTA funded to previous employer) until 2013. Likely to suggest and bid for NIHR funded study into trauma triage. 	No action taken
Second GDG meeting 16 January 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Non-personal pecuniary interest: <ul style="list-style-type: none"> Grant from NHS England to University of Sheffield part pays FL's salary. Grant is to evaluate the cost effectiveness of the new NHS England Regional Trauma networks. 	No action taken
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 64: McFadyen, Iain (co-chair)

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> IM is a member of the Department of Health 	No action taken

GDG meeting	Declaration of Interests	Action taken
	Clinical reference group for trauma.	
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	Personal non-pecuniary interest: <ul style="list-style-type: none"> IM published a paper on the management of distal radius fractures. No funding or grant was received for this study. 	Conflict of interest: Withdrew from recommendation making discussions on distal radius fractures.
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 65: Nanchahal, Jagdeep

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> JN undertakes consultancy work for Orthofix and Smith & Nephew, these are educational courses. He also chaired the group on behalf of the British Orthopaedic and Plastic Surgery Association that wrote the 'standards for the management of open fractures of the lower limb' published in 2009. 	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
GDG meeting 14 May 2015		
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 66: Sampson, Madeleine

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Fourteenth GDG meeting 14 May 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 67: Silvester, Lucy

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
13 May 2015		
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 68: Skinner, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> • DS has been appointed to work on the TARN database. 	No action taken
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 13 May 2015		
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 69: Slowie, Aidan

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 70: Snaith, Beverly

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Personal pecuniary interes: <ul style="list-style-type: none"> • BS was a co-investigator on 'hot reporting' study (Hardy et al 2013) 	Conflict of interest: Withdrew from recommendation making discussions on hot reporting.
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting	No change in declaration	Conflict of interest: Withdrew from recommendation

GDG meeting	Declaration of Interests	Action taken
12 March 2015		making discussions on hot reporting.
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 71: Swann, Garry

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 12 March 2015		
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 72: Toplis, Laura

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 73: Wallman, Paul

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2014		
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

B.4 PET

Table 74: Borthwick, John

PET meeting	Declaration of Interests	Action taken
On application	<p>Non-personal pecuniary interest:</p> <ul style="list-style-type: none"> • JB participated in 3 1 day workshops run by Hollister pharmaceutical company in 2011 on continence products, bowel irrigation systems and intermittent catheterisation products. Fee and travel expenses paid. <p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> • JB is a trustee of Spinal Injuries Association 	No action taken
05 Feb 2013	Did not attend	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	No change in declaration	
17 Jul 2014	Did not attend	
20 Nov 2014	<p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> • JB is a member of the NICE Pressure Ulcers Management quality standard group 	No action taken
05 Feb 2015	No change in declaration	
17 Apr 2015	Did not attend	
Final PET meeting 7 October 2015	No change in declaration	

Table 75: Brohi, Karim

PET meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> • Sangart Inc (ongoing)- consultancy on early 	No action taken

PET meeting	Declaration of Interests	Action taken
	<p>phase clinical trials of oxygen therapeutic</p> <ul style="list-style-type: none"> • CSL Behring (ongoing)- consultancy on future of bleeding management and coagulation research • Haemonetics (ongoing)- consultancy on coagulation and device development. <p>Non-personal pecuniary interest:</p> <ul style="list-style-type: none"> • Astra-Zeneca- unrestricted grant for coagulation/haemorrhage research • Haemonetics- unrestricted grant for coagulation/haemorrhage research • TEM International- support for research devices and consumables (unrestricted). 	
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	Did not attend	
05 Mar 2014	No change in declaration	
17 Jul 2014	No change in declaration	
20 Nov 2014	Did not attend	
05 Feb 2015	No change in declaration	
17 Apr 2015	No change in declaration	
Final PET meeting 7 October 2015	No change in declaration	

Table 76: Brown, Lynda

PET meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	No change in declaration	
17 Jul 2014	No change in declaration	
20 Nov 2014	No change in declaration	
05 Feb 2015	No change in declaration	
17 Apr 2015	No change in declaration	
Final PET meeting 7 October 2015	No change in declaration	

Table 77: Fitzsimmons, Chris

PET meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> • CF works on a group under the Royal College 	No action taken

PET meeting	Declaration of Interests	Action taken
	of Radiologists and the British Society of Paediatric radiologists to help develop national standards for the radiological imaging of children with major trauma.	
05 Feb 2013	Did not attend	
08 Apr 2013	Did not attend	
09 May 2013	Did not attend	
05 Sep 2013	No change in declaration	
05 Mar 2014	No change in declaration	
17 Jul 2014	Did not attend	
20 Nov 2014	No change in declaration	
05 Feb 2015	No change in declaration	
17 Apr 2015	No change in declaration	
Final PET meeting 7 October 2015	No change in declaration	

Table 78: Handley, Bob

PET meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
05 Feb 2013	Personal non-pecuniary interest: <ul style="list-style-type: none"> • AOUK Trustee – charitable educational group with orthopaedic trauma. 	No action taken
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	Did not attend	
17 Jul 2014	Did not attend	
20 Nov 2014	No change in declaration	
05 Feb 2015	No change in declaration	
17 Apr 2015	No change in declaration	
Final PET meeting 7 October 2015	No change in declaration	

Table 79: Hughes, Simon

PET meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
05 Feb 2013	Did not attend	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	Did not attend	
05 Mar 2014	Did not attend	
17 Jul 2014	Did not attend	
20 Nov 2014	Did not attend	

PET meeting	Declaration of Interests	Action taken
05 Feb 2015	Did not attend	
17 Apr 2015	Did not attend	
Final PET meeting 7 October 2015	No change in declaration	

Table 80: Jarman, Heather

PET meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> HJ is a member of the Department of Health Clinical reference group for major trauma. 	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	Did not attend	
17 Jul 2014	No change in declaration	
20 Nov 2014	No change in declaration	
05 Feb 2015	No change in declaration	
17 Apr 2015	No change in declaration	
Final PET meeting 7 October 2015	No change in declaration	

Table 81: Lecky, Fiona

PET meeting	Declaration of Interests	Action taken
On application	Non-personal pecuniary interest: <ul style="list-style-type: none"> FL is chief investigator of Head Injury Transportation straight to Neurosurgery study (HTA funded to previous employer) until 2013. Likely to suggest and bid for NIHR funded study into trauma triage. 	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	No change in declaration	
17 Jul 2014	Did not attend	
20 Nov 2014	Did not attend	
05 Feb 2015	Non-personal pecuniary interest: <ul style="list-style-type: none"> Grant from NHS England to University of Sheffield part pays FL's salary. Grant is to evaluate the cost effectiveness of the new NHS England Regional Trauma networks. 	No action taken
17 Apr 2015	Did not attend	
Final PET meeting	No change in declaration	

PET meeting	Declaration of Interests	Action taken
7 October 2015		

Table 82: Lee, Richard

PET meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	Did not attend	
05 Sep 2013	Did not attend	
05 Mar 2014	Did not attend	
17 Jul 2014	No change in declaration	
20 Nov 2014	No change in declaration	
05 Feb 2015	Did not attend	
17 Apr 2015	Did not attend	
Final PET meeting 7 October 2015	No change in declaration	

Table 83: McFadyen, Iain

PET meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> IM is a member of the Department of Health Clinical reference group for trauma. 	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	Did not attend	
09 May 2013	No change in declaration	
05 Sep 2013	Non-personal pecuniary interest: <ul style="list-style-type: none"> IM has been appointed as co-director of Clinical audit for the Trauma Audit and Research Network (TARN) on a 2 PA/week consultant contract. 	No action taken
05 Mar 2014	No change in declaration	
17 Jul 2014	Did not attend	
20 Nov 2014	Did not attend	
05 Feb 2015	Did not attend	
17 Apr 2015	Did not attend	
Final PET meeting 7 October 2015	No change in declaration	

Table 84: Skinner, David (Chair)

PET meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	

PET meeting	Declaration of Interests	Action taken
05 Sep 2013	Did not attend	
05 Mar 2014	No change in declaration	
17 Jul 2014	No change in declaration	
20 Nov 2014	No change in declaration	
05 Feb 2015	No change in declaration	
17 Apr 2015	No change in declaration	
Final PET meeting 7 October 2015	No change in declaration	

Table 85: Stiff, Graham

PET meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> GS has an honorary contract with South Central Ambulance NHS Foundation Trust Service that enables me to claim expenses for attending and providing support at accident scenes. 	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	No change in declaration	
17 Jul 2014	No change in declaration	
20 Nov 2014	No change in declaration	
05 Feb 2015	No change in declaration	
17 Apr 2015	Did not attend	
Final PET meeting 7 October 2015	No change in declaration	

Table 86: Todd, Nick

PET meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
05 Feb 2013	Did not attend	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	Did not attend	
17 Jul 2014	Personal pecuniary interest: <ul style="list-style-type: none"> NT has been approached by a journal editor to write an editorial once the SIA guideline is published. 	No action taken
20 Nov 2014	Did not attend	
05 Feb 2015	Did not attend	
17 Apr 2015	No change in declaration	

PET meeting	Declaration of Interests	Action taken
Final PET meeting 7 October 2015	No change in declaration	

B.5 Service Delivery

Table 87: Basu, Bhaskar

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 88: Bennett, Stephen

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> • SB is a lay advisor to College of Emergency Medicine and a public reviewer for NIHR. 	No action taken
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 89: Brohi, Karim

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> • Sangart Inc (ongoing)- consultancy on early phase clinical trials of oxygen therapeutic • CSL Behring (ongoing)- consultancy on future of bleeding management and coagulation research • Haemonetics (ongoing)- consultancy on 	No action taken

GDG meeting	Declaration of Interests	Action taken
	<p>coagulation and device development.</p> <p>Non-personal pecuniary interest:</p> <ul style="list-style-type: none"> • Astra-Zeneca- unrestricted grant for coagulation/haemorrhage research • Haemonetics- unrestricted grant for coagulation/haemorrhage research • TEM International- support for research devices and consumables (unrestricted) 	
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 90: Charters, Alan

GDG meeting	Declaration of Interests	Action taken
-------------	--------------------------	--------------

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> AC is co-editor for the Oxford handbook of emergency nursing. <p>Non-personal pecuniary interest:</p> <ul style="list-style-type: none"> AC is co-editor for the APLS and PHPLS manual and is a trustee of ALSG. 	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	Did not attend	
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 91: Christmas, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken

GDG meeting	Declaration of Interests	Action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	Did not attend	
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 92: Fitzsimmons, Chris

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> CF works on a group under the Royal College of Radiologists and the British Society of Paediatric radiologists to help develop national standards for the radiological imaging of children with major trauma. 	No action taken
Second GDG meeting 16 July 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 93: Gupta, Pawan

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	Did not attend	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 94: Handley, Bob

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 95: Hoffman, Karen

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> • KH is completing a PhD in rehabilitation of people with traumatic injuries. 	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2015		
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 96: Ingram, Mike

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	Did not attend	
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 97: Jarman, Heather

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> HJ is a member of the Department of Health Clinical reference group for major trauma. 	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 98: Lecky, Fiona

GDG meeting	Declaration of Interests	Action taken
On application	Non-personal pecuniary interest: <ul style="list-style-type: none"> FL is chief investigator of Head Injury Transportation straight to Neurosurgery study (HTA funded to previous employer) until 2013. Likely to suggest and bid for NIHR funded study into trauma triage. 	No action taken
Second GDG meeting 16 July 2014	Personal pecuniary interest: <ul style="list-style-type: none"> TARN NHS trusts reimburse FL's employer 20% of her salary FP7 center BI grant reimburses FL's employer 5% of her salary NIHR CRN reimburses FL's employer 10% of her salary 	No action taken
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	Did not attend	
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	Non personal-pecuniary interest: <ul style="list-style-type: none"> Grant from NHS England to University of Sheffield part pays FL's salary – grant is to evaluate cost effectiveness of the new NHS England regional trauma networks 	Conflict of interest: Withdrew from recommendation making discussions on audit.
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 99: Lee, Richard

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 100: McFadyen, Iain

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> IM is a member of the Department of Health Clinical reference group for trauma 	No action taken
Second GDG meeting 16 July 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	Conflict of interest: Withdrew from recommendation making discussions on audit.
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 101: Skinner, David (Chair)

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	Did not attend	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 102: Stiff, Graham

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> GS has an honorary contract with South Central Ambulance NHS Foundation Trust Service that enables me to claim expenses for attending and providing support at accident scenes. 	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2014		
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	Did not attend	
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 103: Toplis, Laura

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Eighth GDG meeting 25 February 2015	Did not attend	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 104: Weaver, Anne

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 105: Whitehead, John

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 5-6 October 2015		

Table 106: Young, Keith

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

B.6 Spinal injuries

Table 107: Berry, Kathleen

GDG meeting	Declaration of Interests	Action taken
-------------	--------------------------	--------------

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	Did not attend	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	Did not attend	
Sixth GDG meeting 17 October 2013	Did not attend	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 108: Bostock, Jennifer

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 109: Buckley, Julie

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	<p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> The unit where JB works has recently updated their guidelines. They are available on the website ('Wessex Neuro ICU Guidelines 2013 www.neuroicu.org.uk/). She fed back comments for the spinal sections that were incorporated into the document; she is also in the process of writing a review of the literature and a case study using non-invasive ventilation for acute spinal injury management. 	No action taken
Third GDG meeting 19 August 2013	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	Did not attend	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 110: Burden, Daniel

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> • DB is an employee of SIA. 	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2013		
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 111: Camps, Cherylene

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	Personal pecuniary interest: <ul style="list-style-type: none"> • CC was one of the guest speakers at the N Spine Conference in Nottingham on 7 September 2013 and gave a presentation on her role pre-hospital 'from roadside to final destination via ED', no payment was received. 	No action taken
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 2 December 2013		
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 112: Chiverton, Neil

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
5 March 2014		
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 113: Christmas, David

GDG meeting	Declaration of Interests	Action taken
On application	Did not attend	No action taken
Second GDG meeting 16 July 2013	Did not attend	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	Did not attend	
Sixth GDG meeting 17 October 2013	Did not attend	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	Did not attend	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 114: El Masri(y), Wagih

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> • WEM is one of the global advisors to Hollister urinary appliances firm. 	No action taken
Second GDG meeting 16 July 2013	Did not attend	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
October 2015		

Table 115: Foster, Judith

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is the chair of the intercollegiate working party drafting standards for imaging in severely injured children, commissioned by the RCR and the SXPR and including members from APEM, BAPS and RCPCH. The standards are due for publication in 2014. 	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	Did not attend	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	Personal non-pecuniary interest: <ul style="list-style-type: none"> The intercollegiate working party draft standards for imaging of the severely injured child were published in September 2014. 	No action taken
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 116: Gardner, Brian

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	Personal non-pecuniary interest: <ul style="list-style-type: none"> • BG retired from the NHS in June 2011, but remains registered to treat spinal cord injured patients. He is still in an honorary contract with Stoke Mandeville and attends research meetings and clinical audit meetings in the Spinal Unit. 	No action taken
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	Non-personal pecuniary interest: <ul style="list-style-type: none"> • BG is the co-author of a study on early relocation of dislocated spines. 	Conflict of interest: Withdrew from recommendation making discussions.
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 117: Harrison, Paul

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> • PH is clinical consultant to Nexus DMS Ltd, manufacturer of 'Legacy' complex care 	No action taken

GDG meeting	Declaration of Interests	Action taken
	<p>mechanical turning bed.</p> <ul style="list-style-type: none"> PH is a committee member of Multidisciplinary Association of Spinal Cord Injury Professionals (MASCIP) and honorary vice president of Spinal Injuries Association (2012-2015). 	
Second GDG meeting 16 July 2013	<p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> PH is an advisor in a group led by Matthew Cooke (Warwick University, NHS Emergency Care Leader) evaluating new design formats for head and neck immobiliser. So far involvement is videoconference to view prototype for trialling. 	No action taken.
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 118: Hill, Debbie

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	Did not attend	
Sixth GDG meeting 17 October 2013	Did not attend	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 119: Hudson, Anthony

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
19 August 2013		
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 Apr 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 120: Ingram, Michael

GDG meeting	Declaration of Interests	Action taken
On application	Did not attend	No action taken
Second GDG meeting 16 July 2013	Did not attend	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2013		
Sixth GDG meeting 17 October 2013	Did not attend	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	Did not attend	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 121: Morris, Craig

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	<p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> • CM has undertaken 2 reviews of the imaging modalities for screening unconscious ICU patients including direct comparisons of radiography, CT, MRI and dynamic fluoroscopy. He has published on the use of spinal precaution and immobilisation on ICU including a call to abandon collar use on ICU. • CM has also co-authored the Intensive care society guidelines on spinal injuries and is currently liaising with Chris Moran to look at intergrating BOAST and ICS guidance. 	No action taken
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
16 October 2013		
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 122: Morris, Kevin

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	Did not attend.	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	Did not attend	

GDG meeting	Declaration of Interests	Action taken
Eighth GDG meeting 3 December 2013	Did not attend	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 123: Sampson, Madeleine

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	Did not attend.	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 124: Skinner, David (Chair)

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	Did not attend	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 16 April 2015		
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 125: Smallwood, Steve

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	Did not attend	

Table 126: Todd, Nick

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	Did not attend	
Third GDG meeting 19 August 2013	Did not attend	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	Did not attend	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	No change in declaration	
Final GDG meeting 5-6 October 2015	No change in declaration	

Table 127: Toplis, Laura

GDG meeting	Declaration of Interests	Action taken
On application	Did not attend	No action taken
Second GDG meeting 16 July 2013	Did not attend	
Third GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
19 August 2013		
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	Did not attend	
Sixth GDG meeting 17 October 2013	Did not attend	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	Did not attend	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	
Final GDG meeting 5-6 October 2015	Did not attend	

Appendix C: Review protocols

C.1 Initial pain management and immobilisation

C.1.1 Initial pharmacological pain management

Table 128: Review protocol for pain

Review question: What is the most effective initial acute pharmacological management to alleviate pain in patients with a suspected long bone fracture (tibia and fibula, humerus, radius and ulna, or unspecified) in acute care settings?	
Aim: To find the optimum pain management strategy in patients with non-complex fractures in hospital.	
Population	Children, young people and adults with a suspected long bone fracture following traumatic incident.
Intervention	<p>Oral:</p> <ul style="list-style-type: none"> Opioids codeine tramadol morphine Paracetamol NSAIDs <p>Rectal:</p> <ul style="list-style-type: none"> NSAIDs <p>Inhaled:</p> <ul style="list-style-type: none"> Nitrous oxide (entonox) <p>Intranasal:</p> <ul style="list-style-type: none"> Opioids diamorphine and fentanyl <p>Intravenous:</p> <ul style="list-style-type: none"> Paracetamol NSAIDs Opioids (morphine)
Comparison	A comparison of the above (include any combination, either between or within classes)
Outcomes	<p>Critical:</p> <ul style="list-style-type: none"> Pain (1 hour) Pain (4-6 hours) Health related quality of life Missed diagnosis of compartment syndrome Delayed bone healing Local infection Nerve and vascular damage Respiratory depression (<6 hours) Local anaesthetic toxicity Nausea and vomiting (<6 hours) Admission solely for recovery from pharmacological agent <p>Important:</p> <ul style="list-style-type: none"> Need for rescue analgesia

Review question: What is the most effective initial acute pharmacological management to alleviate pain in patients with a suspected long bone fracture (tibia and fibula, humerus, radius and ulna, or unspecified) in acute care settings?	
	Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	Pain relief administered by pre-hospital provider Hip fractures in adults Femur/nerve blocks
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs
The review strategy	Stratification from outset Age: children (0-15 years); young people and adults (16 and over). Sub-groups if between-study heterogeneity exists Age (children): neonate (<28 days); infant (to 1 year); child (1-15 years) Age (adult): 16- 65 years; > 65 years. Pain level : moderate; severe; very severe Fracture site: tibia and fibula; humerus; radius and ulna; unspecified long bone fracture Prior meds: people already on pain relief from pre-hospital; not on pain relief from pre-hospital Within-study confounders to consider (if cohorts used) Not applicable as RCTs

C.1.2 Paediatric nerve blocks femoral fractures

Table 129: Review protocol for paediatric nerve blocks femoral fractures

Review question: What is the most clinically and cost effective nerve block for the initial management in patients with a suspected femoral fracture in acute care settings (pre-hospital and ED)?	
Aim: To assess optimum of femoral nerve block (FNB) or fascia iliaca compartment block (FICB) for initial pain management of children and young people with fractures of the femur (thigh bone) in acute care settings.	
Population	Children and young people with a suspected femoral fracture following traumatic incident.
Intervention	Femoral nerve block (FNB)* Fascia iliaca compartment block* * With or without standard analgesia
Comparison	Standard analgesia (oral, intranasal or parenteral: intramuscular or intravenous)
Outcomes	Critical: Pain (1 hour) Pain (4-6 hours) Health related quality of life Missed/Delayed diagnosis of compartment syndrome Femoral injury

Review question: What is the most clinically and cost effective nerve block for the initial management in patients with a suspected femoral fracture in acute care settings (pre-hospital and ED)?	
	<p>Delayed bone healing Haematoma Local infection Nerve and vascular damage Respiratory depression (<6 hours) Nausea and vomiting (<6 hours) Admission solely for recovery from pharmacological agent including cardiac depression, arrhythmia</p> <p>Important: Need for rescue analgesia</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered</p>
Exclusion	Hip fractures in adults
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs</p>
The review strategy	<p>Sub-groups if between-study heterogeneity exists Age (children): neonate (<28 days); infant (to 1 year); child (1-15 years) Pain level : moderate; severe; very severe Prior meds: people already on pain relief from pre-hospital; not on pain relief from pre-hospital Within-study confounders to consider (if cohorts used) Not applicable as RCTs</p>

C.2 Acute stage assessment and diagnostic imaging

C.2.1 Selecting patients for imaging - clinical prediction rules for knee fractures

Table 130: Review protocol knee clinical prediction rules

Review question: Are validated clinical prediction rules clinically and cost effective at predicting suspected knee fractures?	
Aim: To determine the value of clinical prediction rules in assessment of suspected knee fractures.	
Population	Children, young people and adults with a suspected knee fracture following a traumatic incident
Intervention	Validated clinical prediction tool e.g. Ottawa knee rules
Comparison	Clinical examination
Outcomes	<p>Critical: pain/discomfort return to health-care provider returning to normal activity</p>

Review question: Are validated clinical prediction rules clinically and cost effective at predicting suspected knee fractures?	
	<p>Health related quality of life Missed diagnosis (false negative rate) and misdiagnosis (false positive rate) unnecessary radiation</p> <p>Important: Patient satisfaction</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	People with sensory neuropathy
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs</p>
The review strategy	<p>Stratification from outset age: children (0-15 years); young people and adults (16 and over).</p> <p>Sub-groups if between-study heterogeneity exists None specified by GDG</p> <p>Within-study confounders to consider (if cohorts used) NA</p>

Table 131: Diagnostic accuracy if no RCTS

Review question: Are validated clinical prediction rules accurate at predicting suspected knee fractures?	
Aim: To determine the accuracy of clinical prediction rules in assessment of suspected knee fractures.	
Population	Children, young people and adults with a suspected knee fracture following a traumatic incident
Index test	Validated clinical prediction tool e.g. Ottawa knee rules
Reference test	X ray
Outcomes	Sensitivity specificity
Exclusion	People with sensory neuropathy
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs</p>
The review strategy	Diagnostic meta-analysis if >5 studies. Otherwise narrative summary of results

C.2.2 Selecting patients for imaging - clinical prediction rules for ankle fractures

Table 132: Review protocol ankle clinical prediction rules

Review question: Are validated clinical prediction rules clinically and cost effective at predicting suspected ankle fractures?	
Aim: To determine the value of clinical prediction rules in assessment of suspected ankle fractures.	
Population	Children, young people and adults with a suspected ankle fracture following a traumatic incident
Intervention	Validated clinical prediction tool e.g. Ottawa ankle rule
Comparison	Clinical examination
Outcomes	<p>Critical:</p> <p>pain/discomfort return to health-care provider returning to normal activity Health related quality of life Missed diagnosis (false negative rate) and misdiagnosis (false positive rate) unnecessary radiation</p> <p>Important:</p> <p>Patient satisfaction</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	People with sensory neuropathy
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCTs or Systematic reviews of RCTs.</p>
The review strategy	<p>Stratification from outset age: children (0-15 years); young people and adults (16 and over).</p> <p>Sub-groups if between-study heterogeneity exists None specified by GDG</p> <p>Within-study confounders to consider (if cohorts used) NA</p>

Table 133: Diagnostic accuracy only if no RCTs

Review question: Are validated clinical prediction rules accurate at predicting suspected ankle fractures?	
Aim: To determine the accuracy of clinical prediction rules in assessment of suspected knee fractures.	
Population	Children, young people and adults with a suspected ankle fracture following a traumatic incident
Index test	Validated clinical prediction tool e.g. Ottawa ankle rules
Reference test	X ray

Review question: Are validated clinical prediction rules accurate at predicting suspected ankle fractures?	
Outcomes	Sensitivity specificity
Exclusion	People with sensory neuropathy
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs
The review strategy	Diagnostic meta-analysis if >5 studies. Otherwise narrative summary of results

C.2.3 Imaging of scaphoid

Table 134: Review protocol for imaging of scaphoid (diagnostic RCT)

Review question: What is the most clinically and cost effective imaging strategy for patients with clinically suspected scaphoid fracture?	
Aim: To determine the optimal imaging strategy for patients with suspected scaphoid.	
Population	Children, young people and adults with a suspected scaphoid fracture.
Intervention	Early CT Early MRI X-ray (subsequent treatment would include immobilisation in removable splint or plaster cast and/or surgery for displaced fractures)
Comparison	Compared to each other (subsequent treatment would include immobilisation in removable splint or plaster cast and/or surgery for displaced fractures)
Outcomes	Critical: Time in plaster cast/number of outpatient visits Health related quality of life pain/discomfort return to normal activities psychological wellbeing Missed injury Non-union/malunion Avascular necrosis Post-traumatic arthritis Additional radiation exposure Important: Grip strength Range of motion Population size and directness: No limitations on sample size

Review question: What is the most clinically and cost effective imaging strategy for patients with clinically suspected scaphoid fracture?	
	Studies with indirect populations will not be considered.
Exclusion	None identified.
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs
The review strategy	Stratification from outset age: children (0-17 years); young people and adults (18 and over). Sub-groups if between-study heterogeneity exists children: younger child (<10 years); older child / young person (12 years and older) Timing of imaging: immediate; early Within-study confounders to consider (if cohorts used) NA

Table 135: Review protocol for imaging of scaphoid (diagnostic accuracy)

Review question	What is the diagnostic accuracy of imaging strategies for a suspected scaphoid fracture?
Objectives	To determine the diagnostic accuracy of i) early CT/ MDCT or ii) X-ray for people with suspected scaphoid fracture.
Population	Children, young people and adults with a suspected scaphoid fracture following a traumatic incident.
Index test	CT/ MDCT X-ray
Reference test	MRI
Outcomes	Diagnostic accuracy (sensitivity, specificity, positive predictive value, negative predictive value) of tests to identify the presence of a scaphoid fracture. Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with a major trauma resulting from burns
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: diagnostic accuracy studies
Review strategy	Stratify by age: younger child (<10 years), older child/ young person (12 years and older), adults (18 and over) Appraisal of methodological quality: The methodological quality of each study will be assessed using QUADAS 2, NICE checklists and GRADE.

C.2.4 Hot reporting

Table 136: Review protocol for hot reporting

Review question: Is the use of definitive hot reporting of X-rays clinically and cost effective for use in patients with suspected fractures?	
Aim: To find the optimum timing and extent of image reporting in suspected fracture.	
Population	Children, young people and adults with a suspected fracture, having experienced a traumatic incident.
Intervention	Definitive report during hospital attendance Definitive report by radiographer Definitive report by radiologist
Comparison	No definitive report during hospital attendance No radiology report
Outcomes	Critical: Health related quality of life pain/discomfort return to normal activities psychological wellbeing Missed fractures Change in management plan Patient recalled Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	None identified.
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved, before and after studies
The review strategy	Stratification from outset age: children (0-17 years); young people and adults (18 and over). Sub-groups if between-study heterogeneity exists Age (children only): infants (< 1 year); younger child (1-12 years); older child / young person (12 years and older) skill level/seniority of clinicians Within-study confounders to consider (if cohorts used) None specified by GDG

C.3 Management and treatment plan in the emergency department

C.3.1 Timing of reduction and imaging guidance – distal radius fractures

Table 137: Review protocol for distal radius surgery timing

Review question: What is the maximum safe delay in surgical management of fractures of the distal radius before outcome is compromised?	
Aim: To determine the optimal timing of surgery for distal radial fractures. At present no requirement of hospital to re-admit a patient once you've been sent home from ED. Can take ages, and currently no guidance on a safe time limit.	
Population	Children, young people and adults that require surgery following a distal radial fracture, after experiencing a traumatic incident.
Intervention	≥14 days post injury 8-13 days post injury >48 hours to ≤7 days post injury Within 48 hours
Comparison	Comparison of the above
Outcomes	<p>Critical:</p> <p>Health related quality of life Need for re-operation PROMS Wound infection Anaesthetic complications Growth plate arrest (French lit)</p> <p>Important:</p> <p>Pain/discomfort Return to normal activities Psychological wellbeing</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	Pathological fractures
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts
The review strategy	<p>Stratification from outset age: children (1-17 years); young people and adults (18 and over).</p> <p>Sub-groups if between-study heterogeneity exists Age (children): child (1-15 years); young people(16-17 years) Age (adults): 18- 50 years and > 50 years. Admission time: out of hours; within normal working hours (8am-5pm Monday to Friday) Treatment: open acute red; closed acute red; osteotomy</p> <p>Within-study confounders to consider (if cohorts used)</p>

Review question: What is the maximum safe delay in surgical management of fractures of the distal radius before outcome is compromised?

Age, treatment

C.3.2 Reduction anaesthesia – distal radius fractures

Table 138: Review protocol for radial reduction anaesthesia

What type of anaesthetic is the most clinically and cost effective for closed reduction of dorsally displaced distal radius fractures without neurovascular compromise in the emergency department?	
Aim: To determine the optimal anaesthetic during reduction of dorsally displaced distal radial fractures.	
Population	Adults with a dorsally displaced distal radius fracture (without neurovascular compromise) due to a traumatic incident.
Intervention	Anaesthetic Technique: Haematoma block Intravenous regional anaesthesia Regional nerve block (including brachial plexus block) Conscious sedation Haematoma block with conscious sedation Haematoma block with Entonox Entonox
Comparison	Compared with each other or no anaesthetic (between categories only)
Outcomes	Critical: Health related quality of life Pain Need for re-operation Patient-reported function PRWE, DASH Death Laryngospasm/Respiratory depression Nausea/vomiting Cardiac arrhythmias Nerve damage Infection Hallucinations/emergent phenomena Important: Return to normal activities Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	Patients requiring open reduction Pathological fractures Neurovascular compromise Volar distal radius fractures
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved.
The review strategy	Stratification from outset

What type of anaesthetic is the most clinically and cost effective for closed reduction of dorsally displaced distal radius fractures without neurovascular compromise in the emergency department?	
	<p>None (all are adults)</p> <p>Sub-groups if between-study heterogeneity exists Age: age<50 years; >50 years Timing: no delay; delay Image intensifier: present; not present</p> <p>Within-study confounders to consider (if cohorts used) Age Timing Use of image intensifier</p> <p>Contact: Matt</p>

Table 139: Review protocol for radial reduction anaesthesia

What are the rates of serious adverse events for selected anaesthetic techniques used in the emergency department?	
Aim: To determine the rate of serious adverse events associated with anaesthetic techniques used for the reduction of radial fractures in the emergency department	
Population	Adults undergoing relevant anaesthetic technique in the emergency department without supervision from an anaesthetist
Intervention	<p>Anaesthetic Technique:</p> <p>Haematoma block</p> <p>Intravenous regional anaesthesia</p> <p>Regional nerve block (including brachial plexus block)</p> <p>Conscious sedation - midazolam, fentanyl, ketamine, opiates</p> <p>Haematoma block with sedation</p> <p>Haematoma block with Entonox</p>
Comparison	Any suitable control group, or no comparison required if case series
Outcomes	<p>Critical</p> <p>Death</p> <p>Quality of life</p> <p>Cardiac arrest</p> <p>Laryngospasm / respiratory depression</p> <p>Cardiac arrhythmias</p> <p>Nerve damage</p> <p>Aspiration of gastric contents</p> <p>Compromised airway/respiration</p> <p>Methaemoglobinaemia</p> <p>Convulsions</p> <p>Other serious adverse event</p> <p>Population size and directness: Sample size must be over or equal to 400 patients to be included Indirect populations Anaesthesia directed by surgeons without anaesthetist supervision will be included as indirect evidence</p>

What are the rates of serious adverse events for selected anaesthetic techniques used in the emergency department?	
	Studies including children will be included as indirect evidence
Exclusion	None
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews or cohort studies or case series.
The review strategy	Stratification from outset None (all are adults)

C.3.3 Treatment of Torus fractures

Table 140: Review protocol for torus fractures

Review question: What is the most clinically and cost effective management strategy for children with torus fractures of the forearm?	
Aim: To find the optimum management strategy for children with torus fractures of the forearm	
Population	Children and young people experiencing a torus fracture following a traumatic incident.
Intervention	Rigid non removable cast (fibreglass, plaster of paris) Softcast Removable splint Bandaging
Comparison	No immobilisation A comparison of above
Outcomes	Critical: pain/discomfort, Patient experience return to normal activities, Health related quality of life Skin problems Re-fracture Important: Number of outpatient visits Cast changes Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	patients with green stick fracture
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved.
The review strategy	Stratification from outset

Review question: What is the most clinically and cost effective management strategy for children with torus fractures of the forearm?	
	<p>None</p> <p>Sub-groups if between-study heterogeneity exists Age: 0-1/1-15/16-17 Contact: Kathleen and Philip</p> <p>Within-study confounders to consider (if cohorts used) None specified by GDG</p>

C.3.4 Referral for ongoing management from the emergency department

Table 141: Review protocol: referral pathway decision-makers

Review question	Who are the most clinically and cost effective referral pathway decision makers for patients with non complex fractures?
Guideline condition and its definition	Non-complex fractures
Objectives	To find the personnel who can make the most clinically and cost effective decisions on referral
Review population	People who have been discharged from ED (i.e. not admitted to hospital) after first attendance with suspected NCF (initial imaging has happened) who require a management plan
	Adults (18 years old and over) Children (0-17 years old)
	Line of therapy not an inclusion criterion
Interventions and comparators: generic/class; specific/drug (All interventions will be compared with each other, unless otherwise stated)	<p>Decision-makers; Consultant orthopod</p> <p>Decision-makers; ED consultant</p> <p>Decision-makers; Registrar</p> <p>Decision-makers; Junior doctor or SHO</p> <p>Decision-makers; Nurse</p> <p>Decision-makers; Extended practitioner</p> <p>Decision-makers; Physiotherapist</p> <p>Decision-makers; Consultant orthopod locum</p> <p>Decision-makers; ED consultant locum</p> <p>Decision-makers; Registrar locum</p> <p>Decision-makers; Junior doctor or SHO locum</p> <p>Decision-makers; Nurse locum</p> <p>Decision-makers; Extended practitioner locum</p> <p>Decision-makers; Physiotherapist locum</p>
Outcomes	<p>Critical</p> <ul style="list-style-type: none"> - Time to definitive management plan - Unnecessary attendance at a clinic - Patients recalled for change of management - Number of referrals to a specialist clinic - Number of different types of attendances - Indicator of patient satisfaction (including quality of life) - Other measure of efficiency of management plan process
Study design	<p>Systematic Review</p> <p>RCT</p> <p>Non-randomised comparative study</p> <p>Before and after study</p>

Review question	Who are the most clinically and cost effective referral pathway decision makers for patients with non complex fractures?
Unit of randomisation	Patient
Crossover study	Not permitted
Minimum duration of study	Not defined
Population stratification	Children (0-17 years old) Adults (18 years old and over)
Reasons for stratification	Adults and children require different treatments and respond differently
Sensitivity/other analysis	Cohort studies will be considered if insufficient RCT evidence is found No within study confounders were specified by the GDG
Subgroup analyses if there is heterogeneity	- Diagnosis (Confirmed; Suspected); Management plan formulation is complicated when diagnosis is not confirmed
Search criteria	Databases: Medline, Embase, The Cochrane Library Date limits for search: none Language: English

Table 142: Review protocol: virtual clinics versus face to face clinics

Review question: What is the clinical and cost effectiveness of referral virtual fracture clinics compared to face to face fracture clinics for patients with NCF?	
Aim: To evaluate the best approach between virtual and face to face clinics	
Population	People who have been discharged home from ED (i.e. not admitted to hospital) after first attendance with suspected NCF (initial imaging has happened) whom require a management plan.
Intervention	Virtual decision Face to face meeting
Comparison	To each other
Outcomes	Accuracy of achieving appropriate management plan (assume that OT formulated management plan is gold standard): Proxy outcomes are: Number of recalled patients requiring change of management Number of different types of attendances (i.e. to show number of times management plan not formulated). Unnecessary attendance at a clinic (i.e. Discharge after one attendance without any further physical management undertaken.) Time to definitive management plan (i.e. in person attendance at a fracture clinic vs no attendance needed?) Number of referrals to a specialist clinic? Indicator of patient satisfaction (inc.QoL) Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	None identified.
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved, before and after studies
The review strategy	Stratification from outset age: children (0-17 years); young people and adults (18 and over).

Review question: What is the clinical and cost effectiveness of referral virtual fracture clinics compared to face to face fracture clinics for patients with NCF?	
	<p>Sub-groups if between-study heterogeneity exists</p> <p>Subgroup by:</p> <p>suspected/confirmed diagnosis</p> <p>Within-study confounders to consider (if cohorts used)</p> <p>None specified by GDG</p>

Table 143: Review protocol: Referral destinations (Specialist clinics versus general fracture clinics)

Review question: What is the clinical and cost effectiveness of different referral destinations for patients with NCF?	
Aim: To find the optimum referral destinations for people with NCF	
Population	People who have been discharged home from ED (i.e. not admitted to hospital) after first attendance with suspected NCF (initial imaging has happened) whom require a management plan.
Intervention	General fracture clinic Specialist clinic
Comparison	Each other
Outcomes	<p>Accuracy of achieving appropriate management plan (assume that OT formulated management plan is gold standard): Proxy outcomes are:</p> <p>Number of recalled patients requiring change of management</p> <p>Number of different types of attendances (i.e. to show number of times management plan not formulated).</p> <p>Unnecessary attendance at a clinic (i.e. Discharge after one attendance without any further physical management undertaken.)</p> <p>Time to definitive management plan (i.e. in person attendance at a fracture clinic vs no attendance needed?)</p> <p>Number of referrals to a specialist clinic?</p> <p>Indicator of patient satisfaction (inc.QoL)</p> <p>Population size and directness:</p> <p>No limitations on sample size</p> <p>Studies with indirect populations will not be considered.</p>
Exclusion	None identified.
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved, before and after studies</p>
The review strategy	<p>Stratification from outset</p> <p>age: children (0-17 years); young people and adults (18 and over).</p> <p>Sub-groups if between-study heterogeneity exists</p> <p>Subgroup by:</p> <p>suspected/confirmed diagnosis</p> <p>Within-study confounders to consider (if cohorts used)</p> <p>None specified by GDG</p>

C.4 On-going management

C.4.1 Non surgical management of unimalleolar ankle fractures

Table 144: Review protocol stable ankle fracture mobilisation

Review question: What is the most clinically and cost effective mobilization strategy in patients with stable ankle fractures?	
Aim: To find the optimal mobilization strategy in patients with stable ankle fractures.	
Population	Children, young people and adults experiencing a stable ankle fracture following a traumatic incident.
Intervention	Immediate unrestricted weight bearing (weight bearing as tolerated)
Comparison	Delayed unrestricted weight-bearing (partial weight bearing, touch weight bearing, non-weight bearing, protected weight bearing)
Outcomes	<p>Critical:</p> <p>Health related quality of life Patient reported outcomes (OMAS, AAOFAS, DRI) return to normal activities Displacement Need for operative treatment Non-union/Malunion DVT/PE at 3 months</p> <p>Important:</p> <p>Number of hospital/out-patient attendances Length of hospital stay, length till return to normal residence/ step down</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	None
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCTs or Systematic reviews of RCTs: cohorts if no RCTs</p>
The review strategy	<p>Stratification from outset</p> <p>Age: skeletally immature [children (1-15 years)]; skeletally mature [young people and adults (16 and over)].</p> <p>Sub-groups if between-study heterogeneity exists</p> <p>Age (adults): 18- 65 years and > 65 years.</p> <p>Intervention for fracture: removable or non-removable splint/cast</p> <p>Timings of the delays: 0-3 weeks and 3-6 weeks</p> <p>DVT prophylaxis (linked to outcome)</p> <p>Within-study confounders to consider (if cohorts used)</p> <p>Age, fracture intervention, DVT prophylaxis (linked to outcome)</p>

C.4.2 Timing of surgery – ankle fractures

Table 145: Review protocol timing of ankle surgery

Review question: What is the most clinically and cost effective timing of surgical treatment of ankle fractures?	
Aim: To determine the optimal timing of surgery for ankle fractures.	
Population	Children, young people and adults experiencing a traumatic incident.
Intervention	<ul style="list-style-type: none"> ≥14 days post injury 8-13 days post injury 2-7 days post injury 24- 48 hours post injury ≤ 24 hours post injury
Comparison	Comparison of the above
Outcomes	<p>Critical:</p> <ul style="list-style-type: none"> pain/discomfort return to normal activities psychological wellbeing Inpatient length of stay Health related quality of life Skin breakdown Wound infection VTE <p>Important:</p> <ul style="list-style-type: none"> Physiotherapy appointments <p>Population size and directness:</p> <ul style="list-style-type: none"> No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	None identified.
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved.</p>
The review strategy	<p>Stratification from outset</p> <p>age: children (0-16 years); young people and adults (17 and over).</p> <p>Sub-groups if between-study heterogeneity exists</p> <p>Admission time: Admission out of hours; admission within normal working hours (8am-5pm Monday to Friday)</p> <p>Within-study confounders to consider (if cohorts used)</p> <p>None specified by GDG</p>

C.4.3 Ankle imaging

Table 146: Review protocol ankle imaging

Review question: Is the use of CT scanning in addition to initial plain film x-ray clinically and cost effective for planning surgical treatment of unstable/displaced ankle fractures?	
Aim: To determine whether prior CT improves the effectiveness of ankle fracture surgery once a plain film X-ray has already been performed	
Population	Children, young people and adults with ankle fractures following a traumatic incident, in whom surgery is undertaken.
Intervention	CT scanning
Comparison	No CT scanning
Outcomes	<p>Critical:</p> <ul style="list-style-type: none"> Health related quality of life pain/discomfort return to normal activities psychological wellbeing <p>Unnecessary imaging</p> <p>Need for revision surgery</p> <p>Functional outcomes</p> <p>Important:</p> <p>Radiological outcomes – satisfactory fracture reduction</p> <p>Population size and directness:</p> <ul style="list-style-type: none"> No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	None identified.
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCTs or Systematic reviews of RCTs</p>
The review strategy	<p>Stratification from outset</p> <p>age: children (0-16 years); young people and adults (17 and over).</p> <p>Sub-groups if between-study heterogeneity exists</p> <p>Age (children only): 0-9; 10-16 years</p> <p>Type of fracture: displaced; non-displaced</p> <p>Within-study confounders to consider (if cohorts used)</p> <p>NA</p>

C.4.4 Timing of surgery – distal radius fractures

Table 147: Review protocol for radius reduction timing imaging

Is the reduction through manipulation of a dorsally displaced distal radius fracture without neurovascular compromise influenced by timing and/or the use of an image intensifier?	
Aim: To determine the efficacy of reduction through manipulation of dorsally displaced distal radial fractures, and to determine optimum parameters of treatment in terms of image intensifier use and timing.	
Population	Adults with a dorsally displaced distal radius fracture (without neurovascular

Is the reduction through manipulation of a dorsally displaced distal radius fracture without neurovascular compromise influenced by timing and/or the use of an image intensifier?	
	compromise) due to a traumatic incident.
Intervention	Reduction through manipulation with image intensifier on day of injury Reduction through manipulation without image intensifier on day of injury Reduction through manipulation with image intensifier after day of injury Reduction through manipulation without image intensifier after day of injury
Comparison	Each other
Outcomes	Critical: Health related quality of life Need for re-manipulation Need for surgical fixation Patient-reported function PRWE, DASH Important: pain/discomfort return to normal activities Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	Patients requiring open reduction Pathological fractures Neurovascular compromise Volar distal radius fractures
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved. If no mention of image intensification assume not used
The review strategy	Stratification from outset None (all are adults) Sub-groups if between-study heterogeneity exists Age: age<50 years; >50 years Anaesthetic: haematoma block; IV regional; regional nerve block; conscious sedation; not used Within-study confounders to consider (if cohorts used) Age Anaesthetic type

C.4.5 Definitive treatment - distal radial fractures

Table 148: Review protocol for definitive treatment of distal radial fractures

Review question: What is the most clinically and cost effective definitive treatment for dorsally displaced fractures of the distal radius?
Aim: To determine the optimal definitive treatment strategy for dorsally displaced fractures of the distal radius.

Review question: What is the most clinically and cost effective definitive treatment for dorsally displaced fractures of the distal radius?	
Population	Children, young people and adults experiencing a dorsally displaced fractures of the distal radius (without neurovascular compromise).
Intervention	Closed reduction and plaster cast immobilisation Closed reduction and external fixation Closed reduction and percutaneous wiring Open reduction and internal fixation (ORIF) No treatment
Comparison	A comparison of the above
Outcomes	<p>Critical:</p> <p>Health related quality of life pain/discomfort return to normal activities psychological wellbeing Hand and wrist function Pin-site infection Post traumatic osteoarthritis Complex regional pain syndrome</p> <p>Important:</p> <p>Need for revision surgery Need for further surgery (e.g. removal of metalwork) Number of attendances/bed days Radiological anatomical measures</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs
The review strategy	<p>Stratification from outset Age: children (0-16 years); young people and adults (17 and over).</p> <p>Sub-groups if between-study heterogeneity exists Age (for children); child (1-10 years),;young people(11-16 years) Age (for adults): 16- 50 years; 50-70 years; >70 years Location: Intra-articular (excluding distal radio-ulnar joint); extra-articular</p> <p>Anaesthetic for conservative: haematoma block; IV regional; regional nerve block; conscious sedation</p> <p>Image intensification for closed reduction: yes/no</p> <p>Within-study confounders to consider (if cohorts used) Age, location</p>

Review question: What is the most clinically and cost effective definitive treatment for dorsally displaced fractures of the distal radius?	
	<p>Analysis</p> <p>Scales assessing functioning as a continuous outcome will be analysed together. If a paper reports the DASH scale as well as the MAYO and/or PRWE scales, then the MAYO and/or PRWE scales will be extracted only. This is based on GDG feedback that the DASH scale may have less sensitivity to change in wrist functioning.</p> <p>Functional scales using categorical outcomes will be analysed together. Where functional outcomes are reported as poor, fair, good, and excellent, the scales will be analysed as the proportion of patients with a poor or fair outcome versus the proportion of patients with a good or excellent outcome.</p> <p>Time points. The GDG decided on a minimum time point of 6-weeks post-intervention to assess all outcomes. With the exception of osteo-arthritis, which should be assessed at a longer time point, clinical outcomes will be assessed between 6-12 weeks. There is no maximum time point for assessing radiological outcomes.</p>

C.4.6 Definitive treatment- humerus fractures

Table 149: Review protocol for humerus fractures definitive treatment

Review question: What is the most clinically and cost effective definitive treatment for displaced low energy fractures of the proximal humerus?	
Aim: To find the optimal definitive treatment for low energy fractures of the proximal humerus	
Population	Adults experiencing a traumatic incident resulting in a fracture of the proximal humerus.
Intervention	<p>Conservative: Immobilisation in arm sling</p> <p>Operative: Open reduction and plating Intramedullary nailing Hemiarthroplasty Reverse (geometry) shoulder replacement</p>
Comparison	To each other (across and within conservative and operative groups)
Outcomes	<p>Critical: Mortality at 1 & 12 months Health related quality of life functional score (DASH/Constant) Infection Avascular necrosis Need for further /operative treatment Nerve damage</p> <p>Important: Return to normal activities</p>

Review question: What is the most clinically and cost effective definitive treatment for displaced low energy fractures of the proximal humerus?	
	Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	Non trauma related fragility fractures
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; Cohorts if no RCTs found Date limits: none
The review strategy	Stratification from outset None Sub-groups if between-study heterogeneity exists Age (for adults): 18- 50 years; >50 years Severity: Neer classification I - IV Additions: with/without bone cement augmentation Within-study confounders to consider (if cohorts used) Age; severity of fracture (Neer)

C.4.7 Definitive treatment – paediatric femoral fractures

Table 150: Review protocol for definitive treatment of paediatric femoral fractures

Review question: What is the most clinically and cost effective treatment for paediatric femoral shaft fractures?	
Aim: To determine the optimal definitive treatment for paediatric femoral shaft (diaphysis) fractures (displaced only).	
Population	Children experiencing a femoral shaft fracture following a traumatic incident.
Intervention	Conservative treatment: -Pavlik harness (fabric splint) -Bryant’s traction (tape applied to leg and weight to apply traction) -Hip spica casting (plaster down waist and leg) -Gallows traction Surgical treatment: -elastic intramedullary nailing Standard intramedullary nailing -External fixation -traditional open plate fixation Minimally invasive plate fixation
Comparison	With each other (both between and within the conservative and surgical categories)
Outcomes	Critical: Health related quality of life Number of follow-up/revision surgeries? PODCI-POSNA score Mortality

Review question: What is the most clinically and cost effective treatment for paediatric femoral shaft fractures?	
	<p>Neurovascular damage Deformity/limb length discrepancy Non-union/malunion Vascular compromise Avascular necrosis (femoral head)</p> <p>Important: pain/discomfort return to normal activities duration hospital stay psychological wellbeing</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	<p>Pathological fractures (metabolic bone disease/tumour/connective tissue disorder) Complex needs children (neurological aetiology)</p>
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs</p>
The review strategy	<p>Stratification from outset Age: neonate (<28 days); others >28 days to 17 years OR (ideally, and respectively) Weight (kg): <5; >5</p> <p>Sub-groups if between-study heterogeneity exists Age: (for non neonates only) infant (to 1 year); child (1-6 years); child (7-15 years) young people (16-17 years) OR (ideally, and respectively) Weight (kg): 6-10; 11-20; 21-50; >50</p> <p>Within-study confounders to consider (if cohorts used) Severity; age; type of fracture</p>

C.4.8 Post operative mobilisation- distal femoral fractures

Table 151: Review protocol for distal femoral fracture mobilisation

Review question: What is the most clinically and cost effective weight-bearing strategy in patients with operatively treated fractures of the distal femur?	
Aim: To find the optimal mobilisation strategy in patients with operatively treated distal femoral fractures	
Population	Children, young people and adults experiencing a fracture of the distal femur in a traumatic incident.
Intervention	Immediate unrestricted weight bearing (weight bearing as tolerated)
Comparison	Delayed unrestricted weight-bearing (partial weight bearing, touch weight bearing, non-weight bearing, protected weight bearing)

Review question: What is the most clinically and cost effective weight-bearing strategy in patients with operatively treated fractures of the distal femur?	
Outcomes	<p>Critical:</p> <p>Mortality at 30 days Mortality at 1 year Health related quality of life Return to pre-injury mobility status/ normal activity Displacement of fracture (angular deformity) Re-operation (non-union and malunion) DVT/PE within 3 months Chest infections UTIs</p> <p>Important:</p> <p>Hospital bed days</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs</p>
The review strategy	<p>Stratification from outset Age: skeletally immature [children (1-15 years)]; skeletally mature [young people and adults (16 and over)].</p> <p>Sub-groups if between-study heterogeneity exists Age (adults): 18- 65 years and > 65 years. timings of the delays: ie 0-2 weeks; 2-6weeks; 6-12 weeks, >12weeks etc</p> <p>type of operative treatment: intramedullary fixation, plate and screw fixation and replacement surgery</p> <p>Within-study confounders to consider (if cohorts used) Age Type of operative treatment</p>

C.4.9 Post op mobilisation – ankle fractures

Table 152: Review protocol post op ankle fractures mobilisation

Review question: What is the most clinically and cost effective mobilisation strategy in post-operative patients following internal fixation of ankle fracture?	
Aim: To find the optimal mobilisation strategy for patients following surgical fixation of an ankle fracture.	
Population	Children, young people and adults experiencing a traumatic incident.
Intervention	Immediate unrestricted weight bearing (weight bearing as tolerated)
Comparison	Delayed unrestricted weight-bearing (partial weight bearing, touch weight bearing, non-weight bearing, protected weight bearing)

Review question: What is the most clinically and cost effective mobilisation strategy in post-operative patients following internal fixation of ankle fracture?	
Outcomes	<p>Critical:</p> <ul style="list-style-type: none"> Health related quality of life Patient reported outcomes (OMAS, AAOFAS, DRI) Return to normal activities Displacement Need for re-operation Non-union/Malunion DVT/PE at 3 months Wound infection <p>Important:</p> <ul style="list-style-type: none"> Number of hospital/out-patient attendances Length of hospital stay Time until return to normal residence/ step down <p>Population size and directness:</p> <ul style="list-style-type: none"> No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	Hind-foot nail/ primary fusion.
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCTs or Systematic reviews of RCTs</p>
The review strategy	<p>Stratification from outset</p> <p>Age: skeletally immature [children (1-15 years)]; skeletally mature [young people and adults (16 and over)].</p> <p>Sub-groups if between-study heterogeneity exists</p> <p>Age (adults): 18- 65 years and > 65 years.</p> <p>Surgical intervention for fracture: removable or non-removable splint/cast</p> <p>Timings of the delays: 0-3 weeks and 3-6 weeks</p> <p>DVT prophylaxis (linked to outcome)</p> <p>Within-study confounders to consider (if cohorts used)</p> <p>Age, surgical fracture intervention, DVT prophylaxis (linked to outcome)</p>

C.5 Documentation, information and support

C.5.1 Documentation

Table 153: Review protocol for documentation

Review question: In patients with non-complex fractures does documentation recording safeguarding, comorbidities, falls risk and fracture classification alongside standard diagnosis documentation improve outcomes compared to standard diagnosis documentation alone?
<p>Aim:</p> <ul style="list-style-type: none"> Improving communication between clinicians, and therefore: Reducing risk of further injury

Review question: In patients with non-complex fractures does documentation recording safeguarding, comorbidities, falls risk and fracture classification alongside standard diagnosis documentation improve outcomes compared to standard diagnosis documentation alone?	
Reducing complications	
Population	Children, young people and adults experiencing a traumatic incident leading to a non-complex fracture.
Intervention	Documentation recording one or more of safeguarding*, comorbidities**, falls risk and fracture classification alongside standard diagnosis. *Safeguarding includes non-accidental injury, domestic abuse and elder abuse. **comorbidities to include substance abuse, alcohol dependence, smoking etc.
Comparison	Standard diagnosis documentation. This will normally include the diagnosis (i.e. #NOF), with other information NOT including one or more of safeguarding, comorbidities, falls risk or fracture classification.
Outcomes	Critical: Mortality (short and long term) Health related quality of life (short and long term) Future fractures Additional treatments / unplanned surgery Important: return to normal activities Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	None
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; prospective cohorts if no RCTs retrieved.
The review strategy	Stratification from outset None Sub-groups if between-study heterogeneity exists Age: neonate (<28 days); infant (to 1 year); child (1-15 years); young people(16-17 years); 18- 65 years; > 65 years Fracture site: upper limb / lower limb Within-study confounders to consider (if cohorts used) Age, fracture site

C.5.2 Information and support

Table 154: Review protocol for information and support

Review question: What information and support do people with non-complex fractures and their families and carers require?	
Aim:	To know what information people with non-complex fractures and their families require
Setting	NHS – primary and secondary care
Population	People with non-complex fractures after trauma
Intervention (phenomenon of interest)	Information
Comparison	Not applicable – this will be a qualitative review
Evaluation	Thoughts and feelings of respondents about the information they require will be collated
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: Qualitative
The review strategy	Thematic analysis Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.
Analysis	Stratify by age: children (0-17 years), adults (18 and over)

C.6 Health Economic review protocol

Table 155: Health economic review protocol

Review question	All questions – health economic evidence
Objectives	To identify economic evaluations relevant to the review questions set out above.
Criteria	<ul style="list-style-type: none"> • Populations, interventions and comparators must be as specified in the individual review protocols above. • Studies must be of a relevant economic study design (cost–utility analysis, cost–benefit analysis, cost-effectiveness analysis, cost–consequence analysis, comparative cost analysis). • Studies must not be an abstract only, a letter, editorial or commentary, or a review of economic evaluation. Unpublished reports will not be considered unless submitted as part of a call for evidence. • Studies must be in English. • Studies must not be published before 1999.
Search strategy	An economic study search will be undertaken using population-specific terms and an economic study filter – see Appendix F.
Review strategy	<p>Each study fulfilling the criteria above will be assessed for applicability and methodological limitations using the NICE economic evaluation checklist which can be found in Appendix H of the NICE guidelines manual (2014).²</p> <p>Inclusion and exclusion criteria</p> <ul style="list-style-type: none"> • If a study is rated as both ‘Directly applicable’ and with ‘Minor limitations’ then it will be included in the guideline. An economic evidence table will be completed and it will be included in the economic evidence profile. • If a study is rated as either ‘Not applicable’ or with ‘Very serious limitations’ then it will usually be excluded from the guideline. If it is excluded then an

economic evidence table will not be completed and it will not be included in the economic evidence profile.

- If a study is rated as 'Partially applicable', with 'Potentially serious limitations' or both then there is discretion over whether it should be included.

Where there is discretion

The health economist will make a decision based on the relative applicability and quality of the available evidence for that question, in discussion with the GDG if required. The ultimate aim is to include studies that are helpful for decision-making in the context of the guideline and the current NHS setting. If several studies are considered of sufficiently high applicability and methodological quality that they could all be included, then the health economist, in discussion with the GDG if required, may decide to include only the most applicable studies and to selectively exclude the remaining studies. All studies excluded on the basis of applicability or methodological limitations will be listed with explanation as excluded economic studies in Appendix L.

The health economist will be guided by the following hierarchies.

Setting:

- UK NHS
- OECD countries with predominantly public health insurance systems (for example, France, Germany, Sweden)
- OECD countries with predominantly private health insurance systems (for example, USA, Switzerland)
- non-OECD settings (always 'Not applicable').

Economic study type:

- cost–utility analysis
- other type of full economic evaluation (cost–benefit analysis, cost–effectiveness analysis, cost–consequence analysis)
- comparative cost analysis
- non-comparative cost analyses including cost-of-illness studies (always 'Not applicable').

Year of analysis:

- The more recent the study, the more applicable it is.

Quality and relevance of effectiveness data used in the economic analysis:

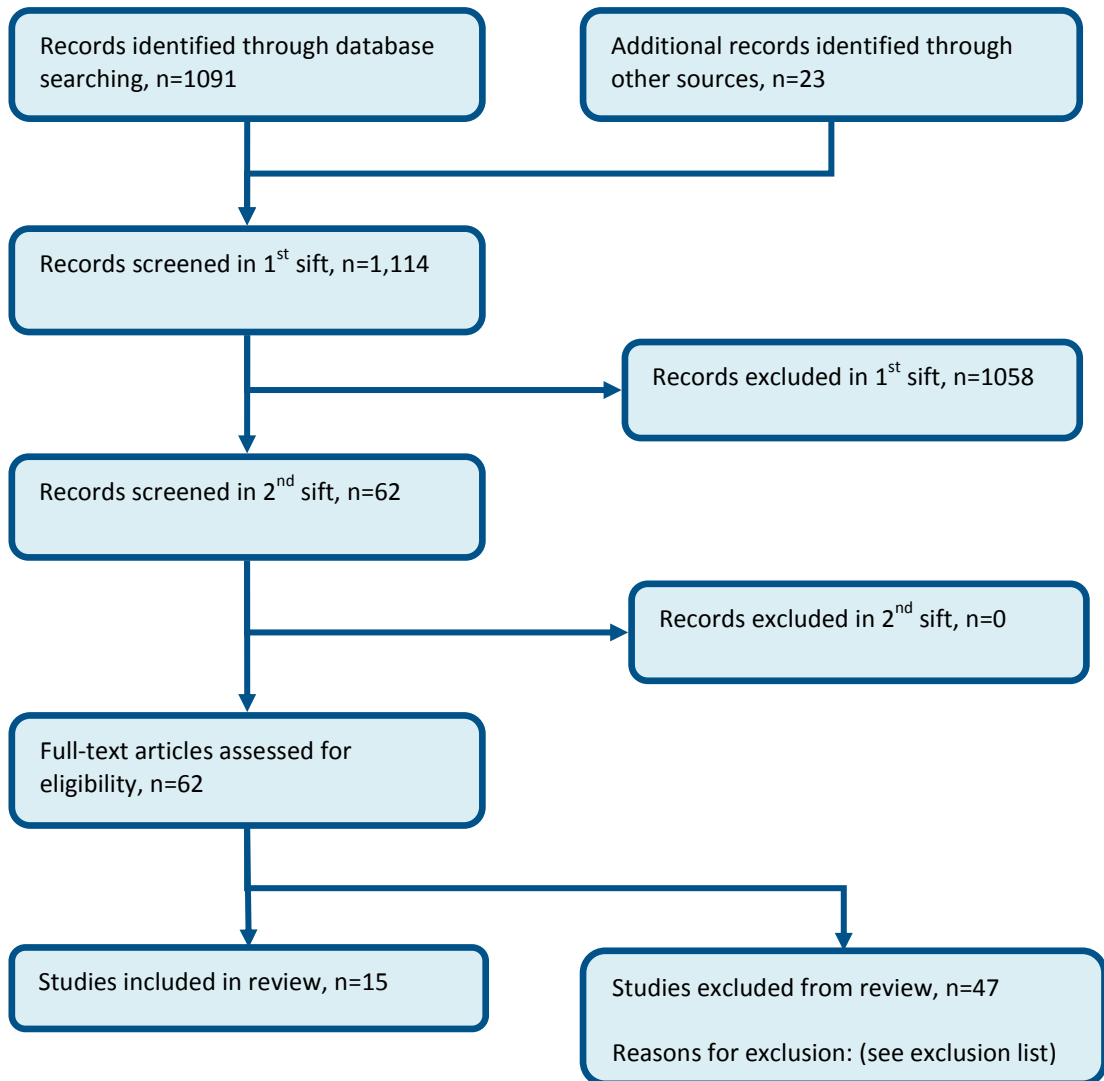
- The more closely the effectiveness data used in the economic analysis matches with the outcomes of the studies included in the clinical review the more useful the analysis will be for decision-making in the guideline.

Appendix D: Clinical article selection

D.1 Initial pain management and immobilisation

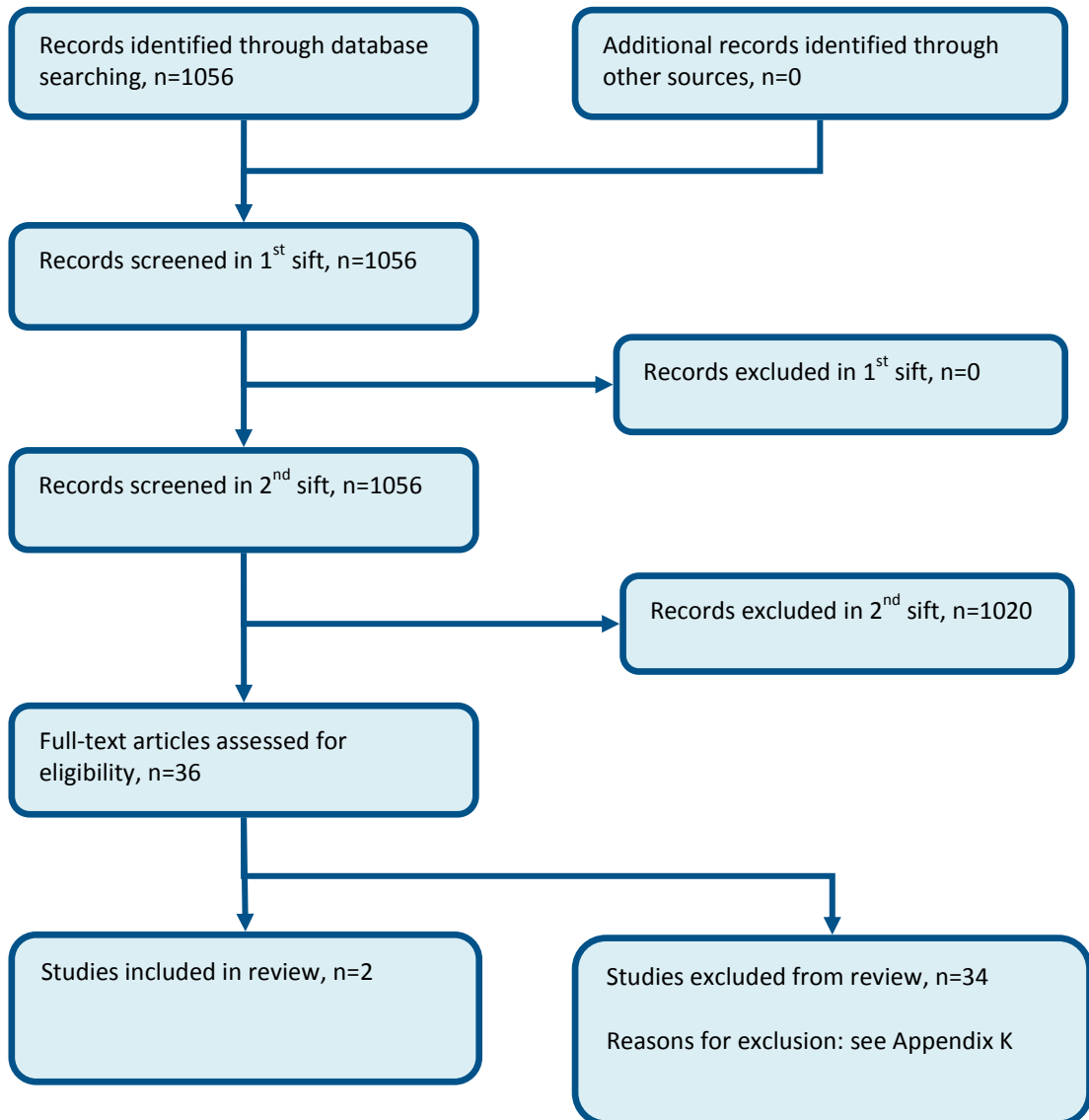
D.1.1 Initial pharmacological pain management

Figure 1: Flow chart of clinical article selection for the review of pain



D.1.2 Paediatric nerve blocks femoral fractures

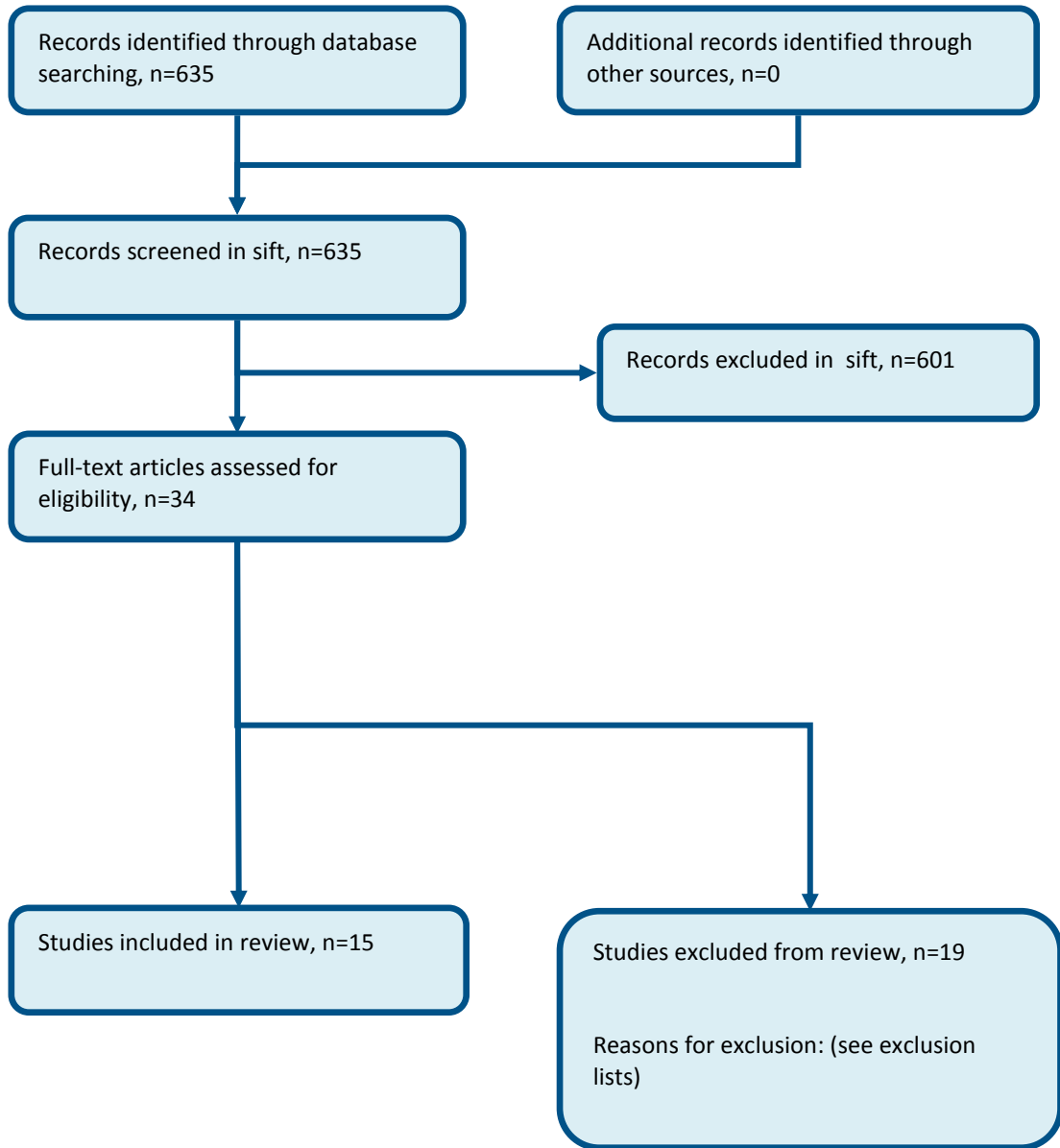
Figure 2: Flow chart of clinical article selection for the review of What is the most clinically and cost effective nerve block for the initial management in patients with a suspected femoral fracture in acute care settings (pre-hospital and ED) ?



D.2 Acute stage assessment and diagnostic imaging

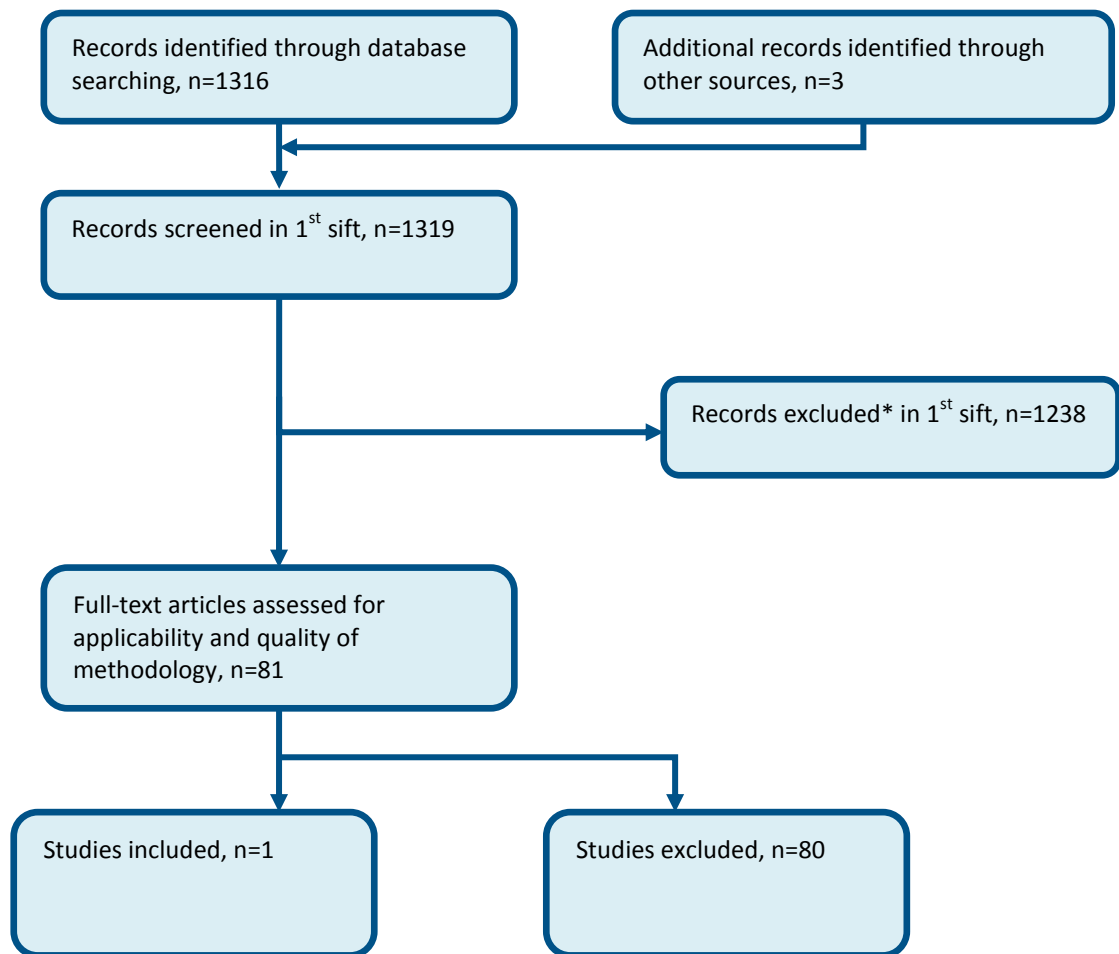
D.2.1 Selecting patients for imaging - clinical prediction rules for knee fractures

Figure 3: Flow chart of clinical article selection for the review of knee fracture prediction rules



D.2.2 Selecting patients for imaging- clinical prediction rules for ankle fractures

Figure 4: Flow chart of clinical article selection for the review of ankle assessment tools



*Non-relevant population, intervention, comparison, design or setting; non-English language

D.2.3 Imaging of scaphoid

Figure 5: Flow chart of clinical article selection for the review of the management of a suspected scaphoid fracture – RCTs

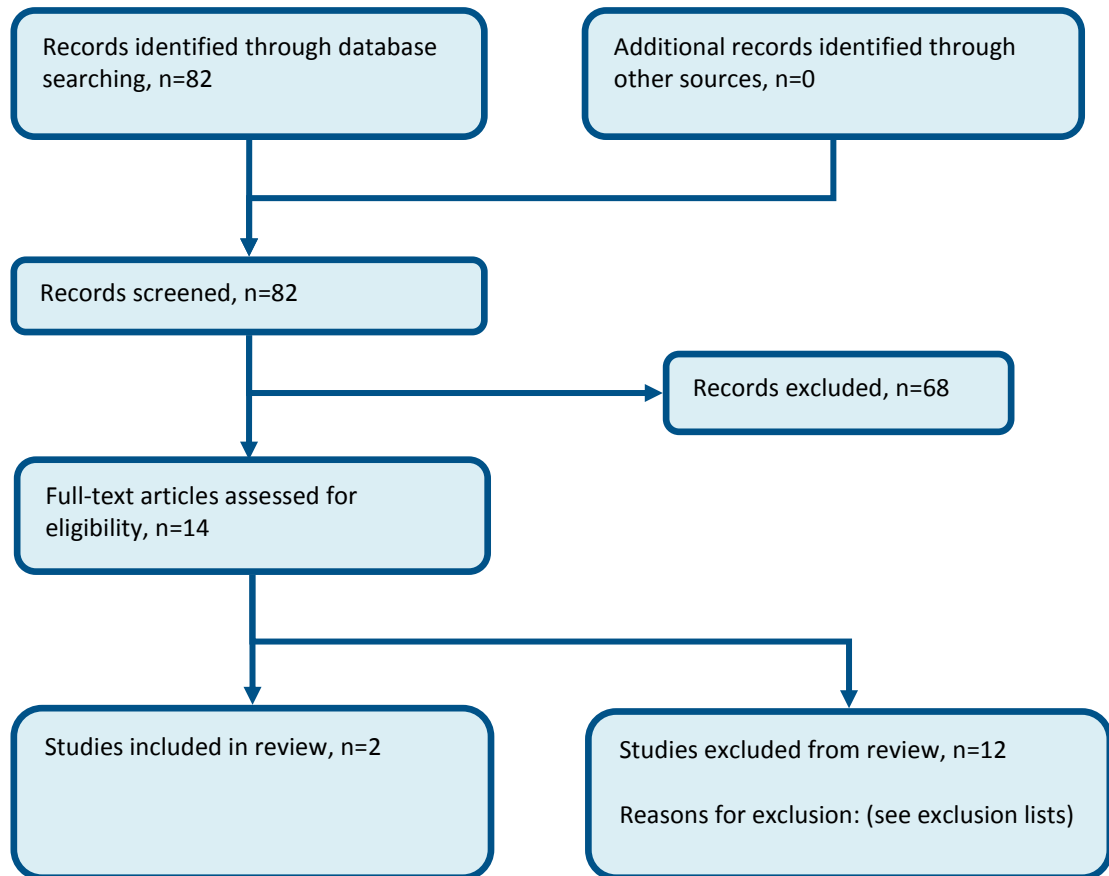
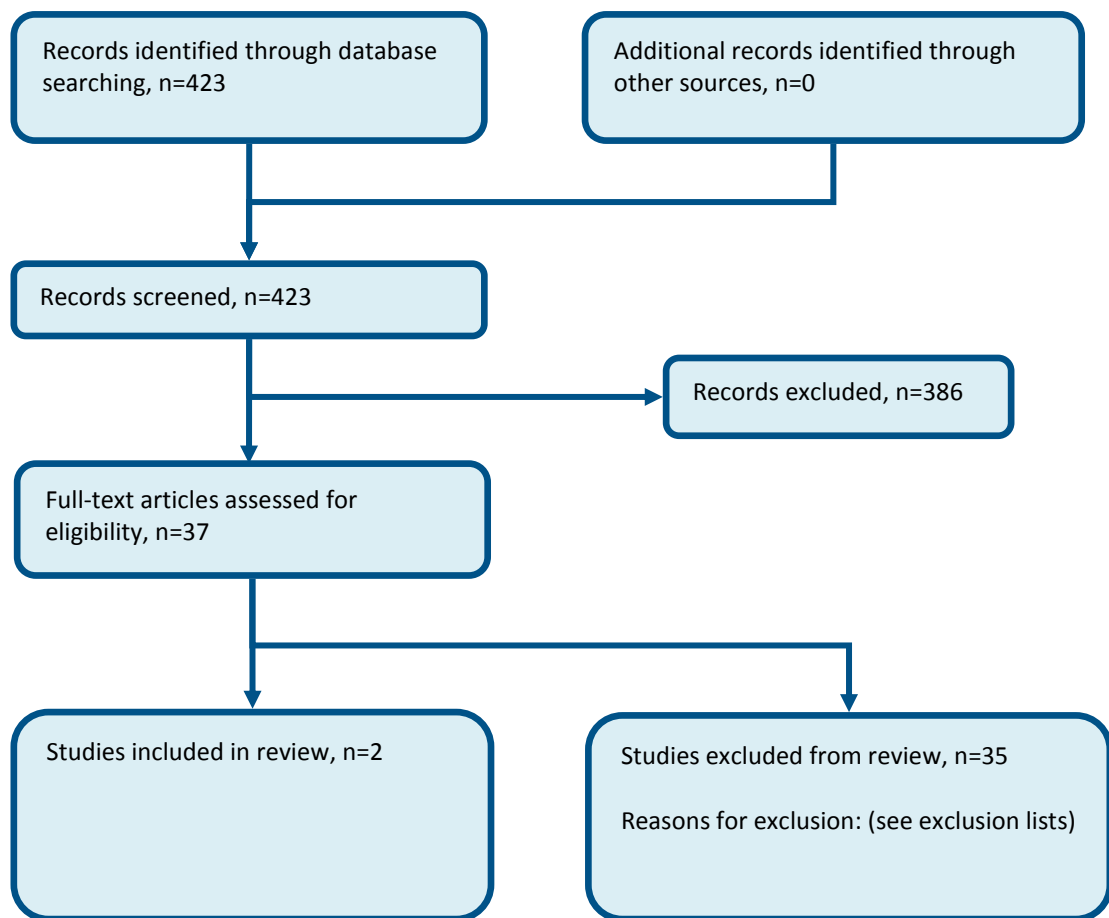
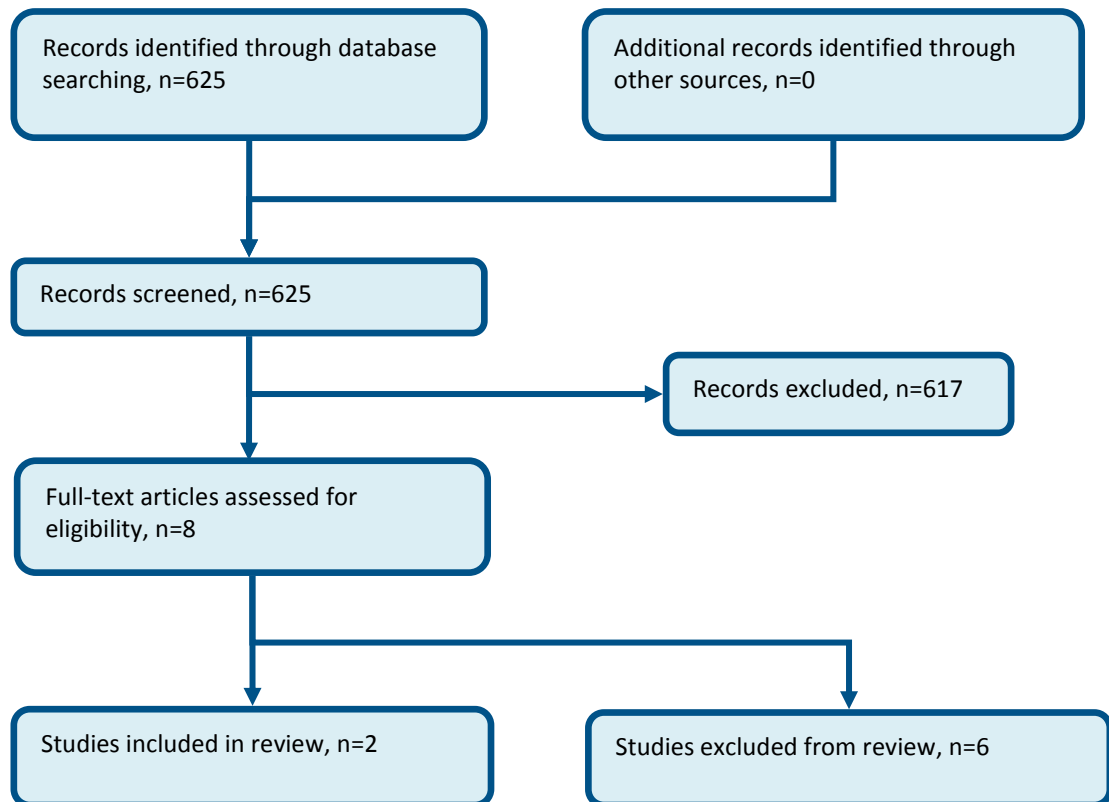


Figure 6: Flow chart of clinical article selection for the review of the management of a suspected scaphoid fracture – diagnostic accuracy



D.2.4 Hot reporting

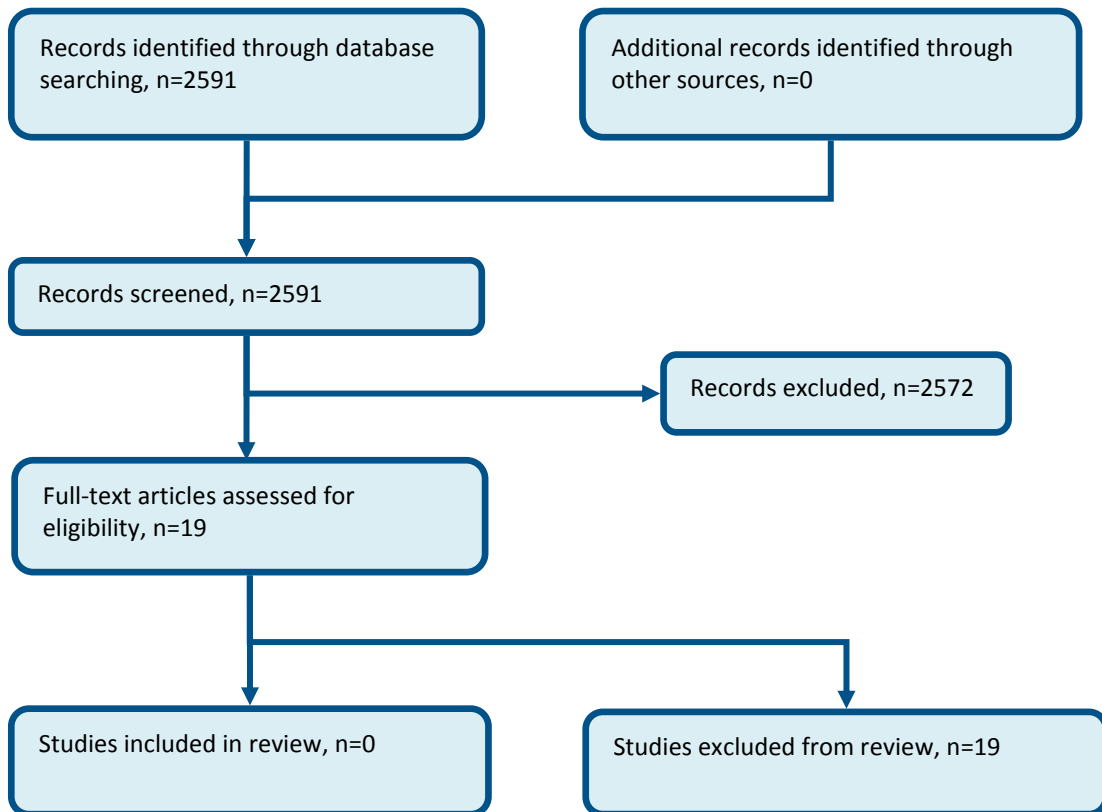
Figure 7: Flow chart of clinical article selection for the review of hot reporting



D.3 Management and treatment plan in the emergency department

D.3.1 Timing of reduction and imaging guidance – distal radius fractures

Figure 8: Flow chart of clinical article selection for the review of timing and image-guidance of closed reductions of distal radius fractures



D.3.2 Reduction anaesthesia – distal radius fractures

Figure 9: Flow chart of clinical article selection for the clinical effectiveness review of anaesthetic for reduction of distal radius fractures

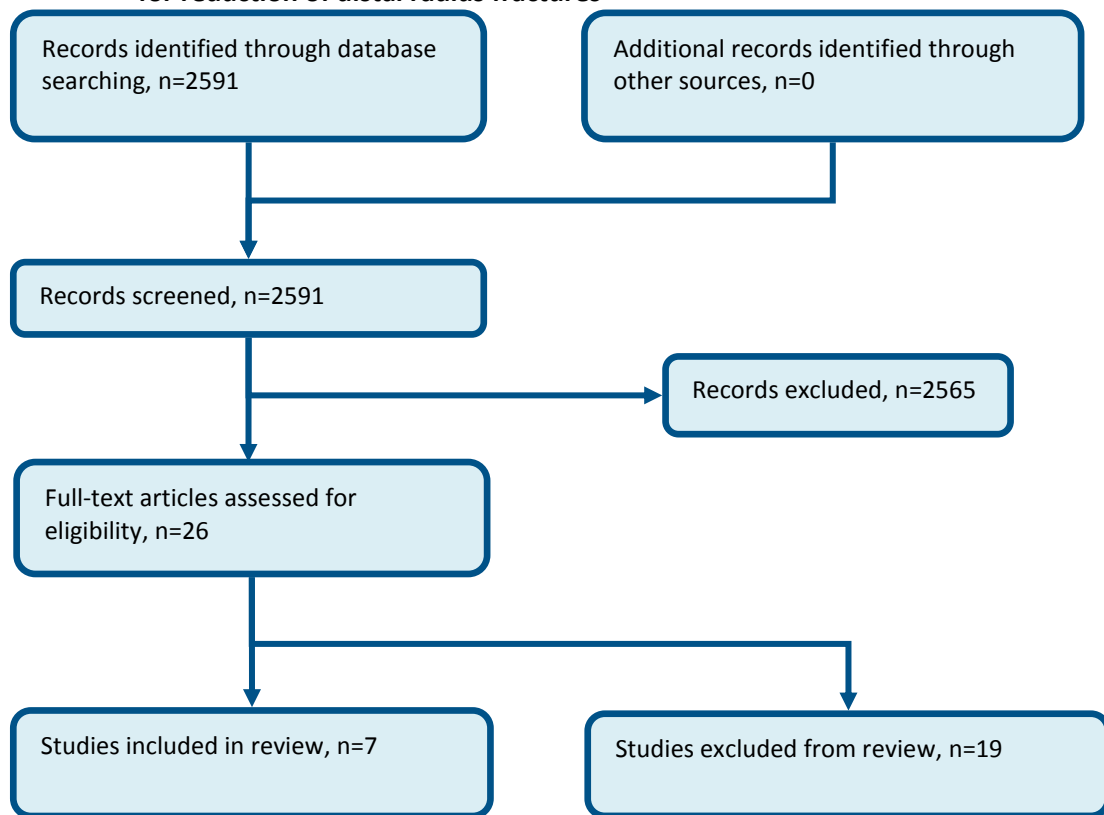
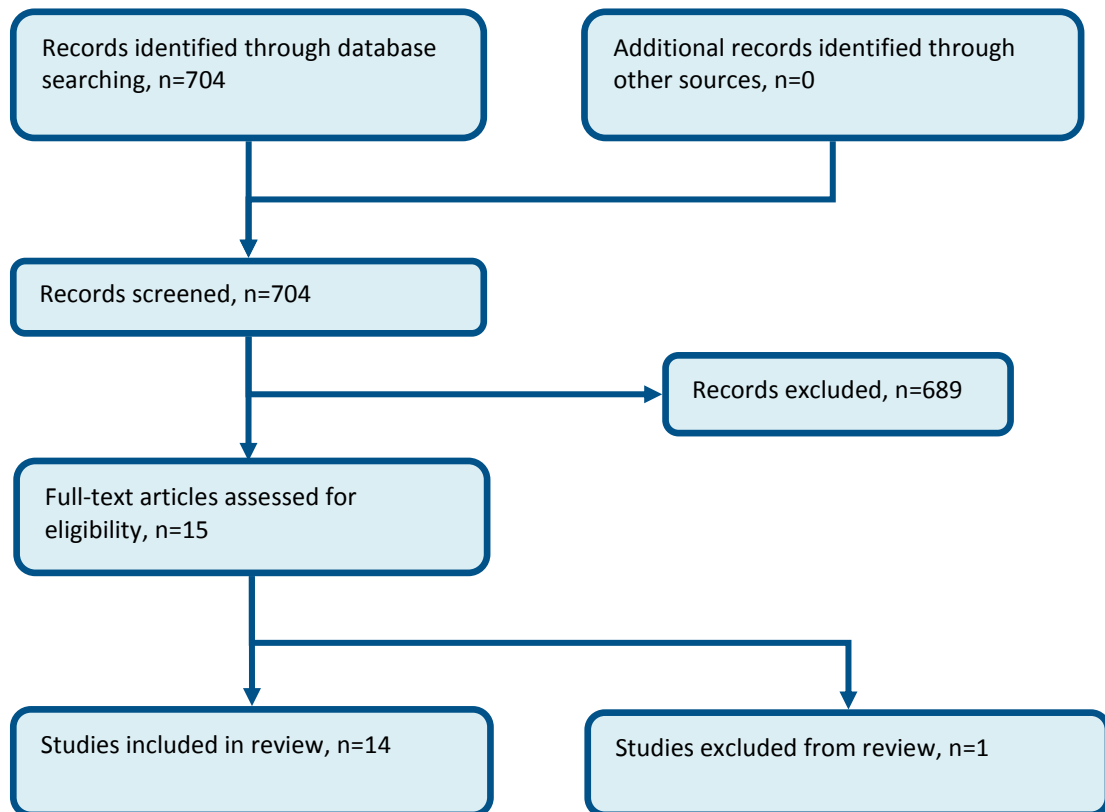
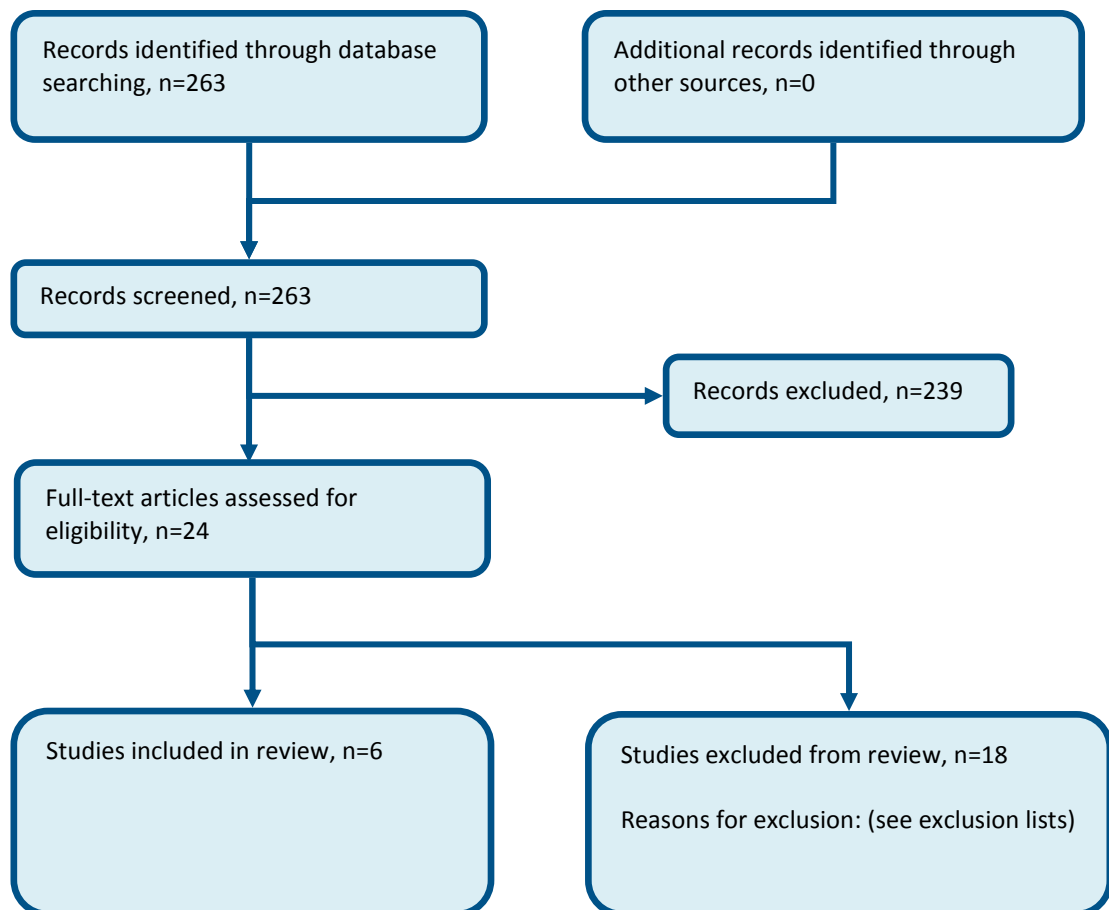


Figure 10: Flow chart of clinical article selection for the adverse events review of anaesthetic for reduction of distal radius fractures



D.3.3 Treatment of torus fractures

Figure 11: Flow chart of clinical article selection for the review of treatment of torus fractures



D.3.4 Referral for on-going management from the emergency department

Figure 12: Flow chart of clinical article selection for the review of referral pathway decision-makers

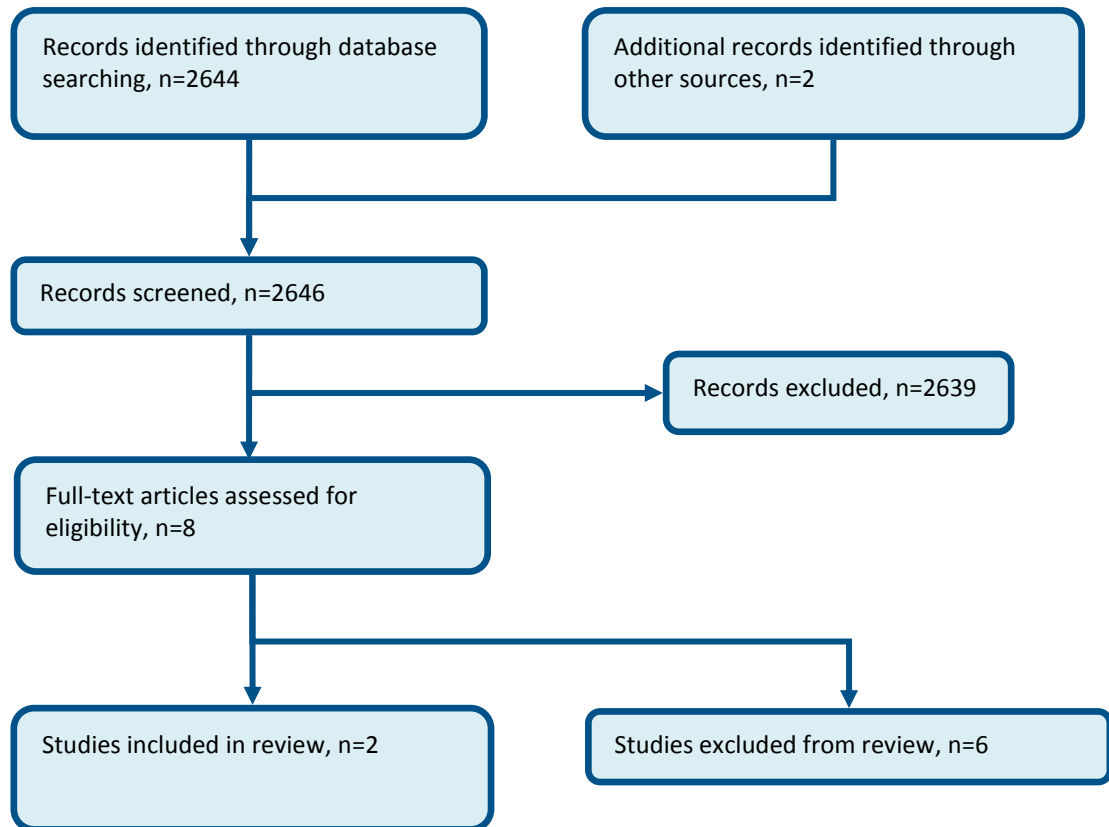


Figure 13: Flow chart of clinical article selection for the review of referral to virtual clinics versus face to face clinics

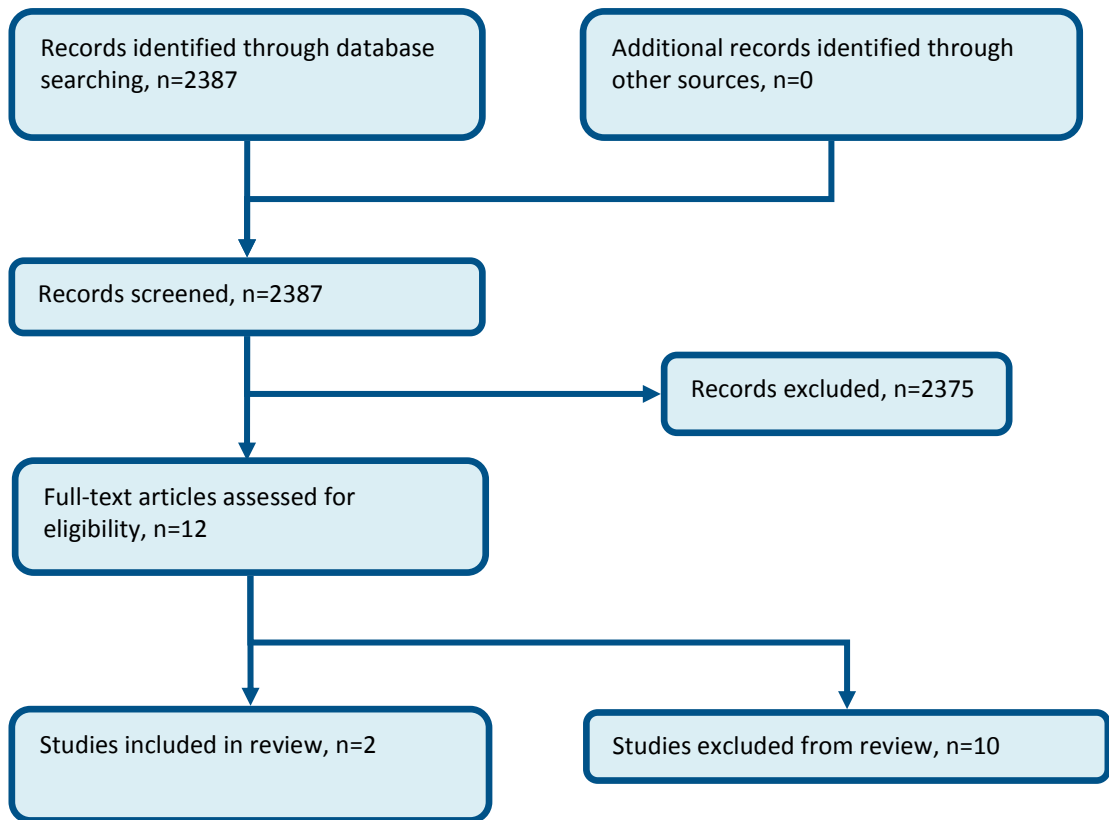
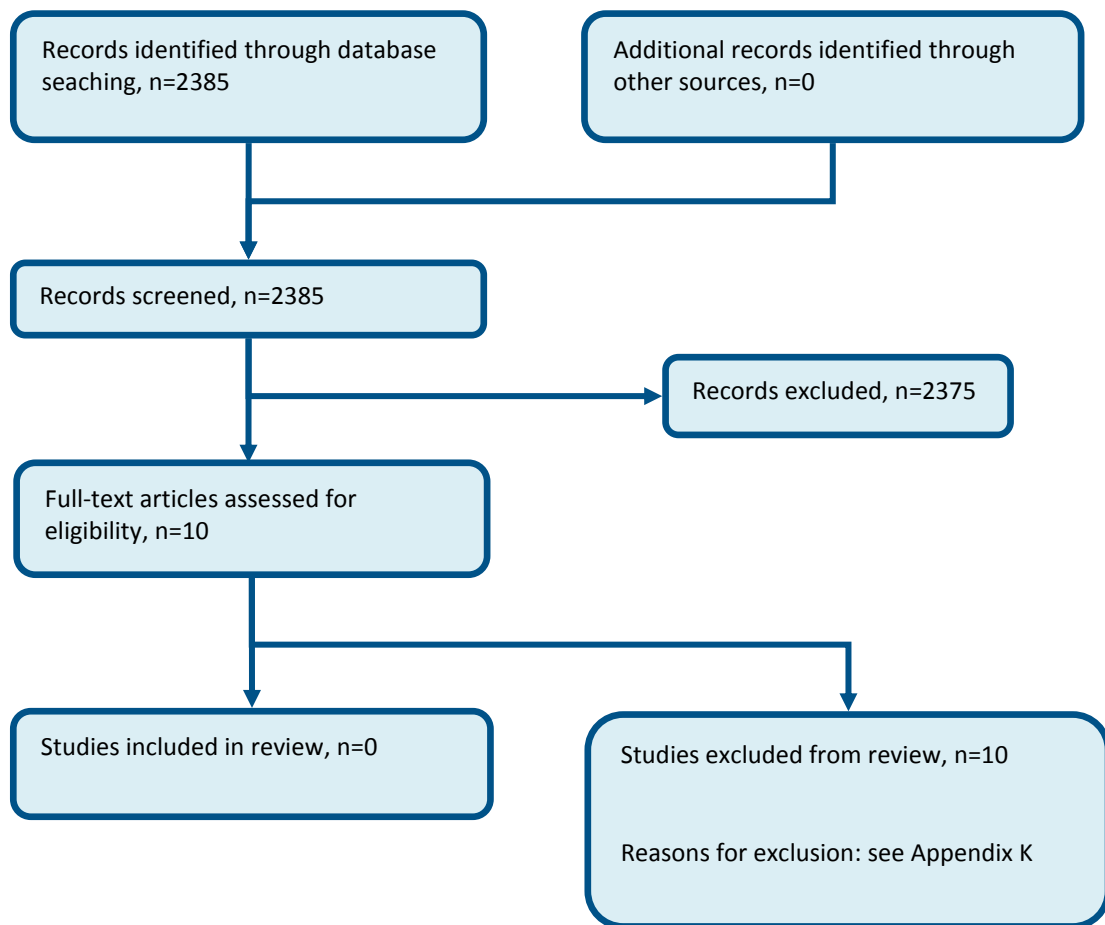


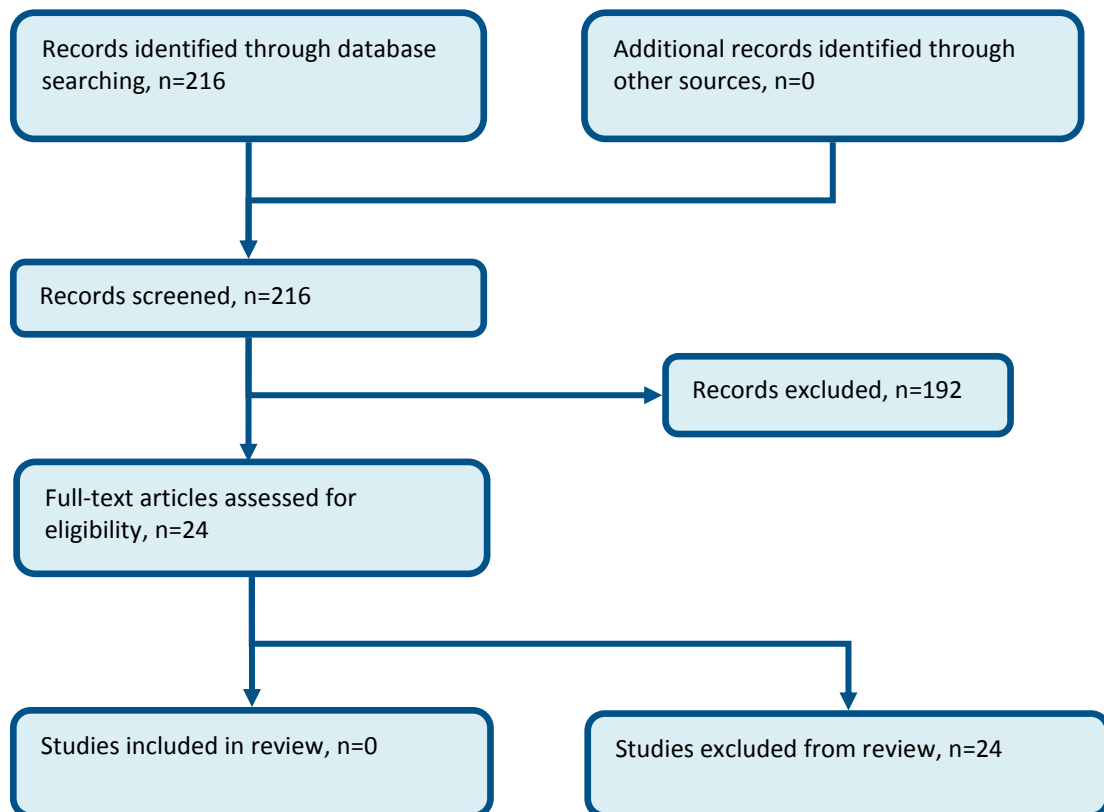
Figure 14: Flow chart of clinical article selection for the review: Referral destinations (Specialist clinics versus general fracture clinics)



D.4 On-going management

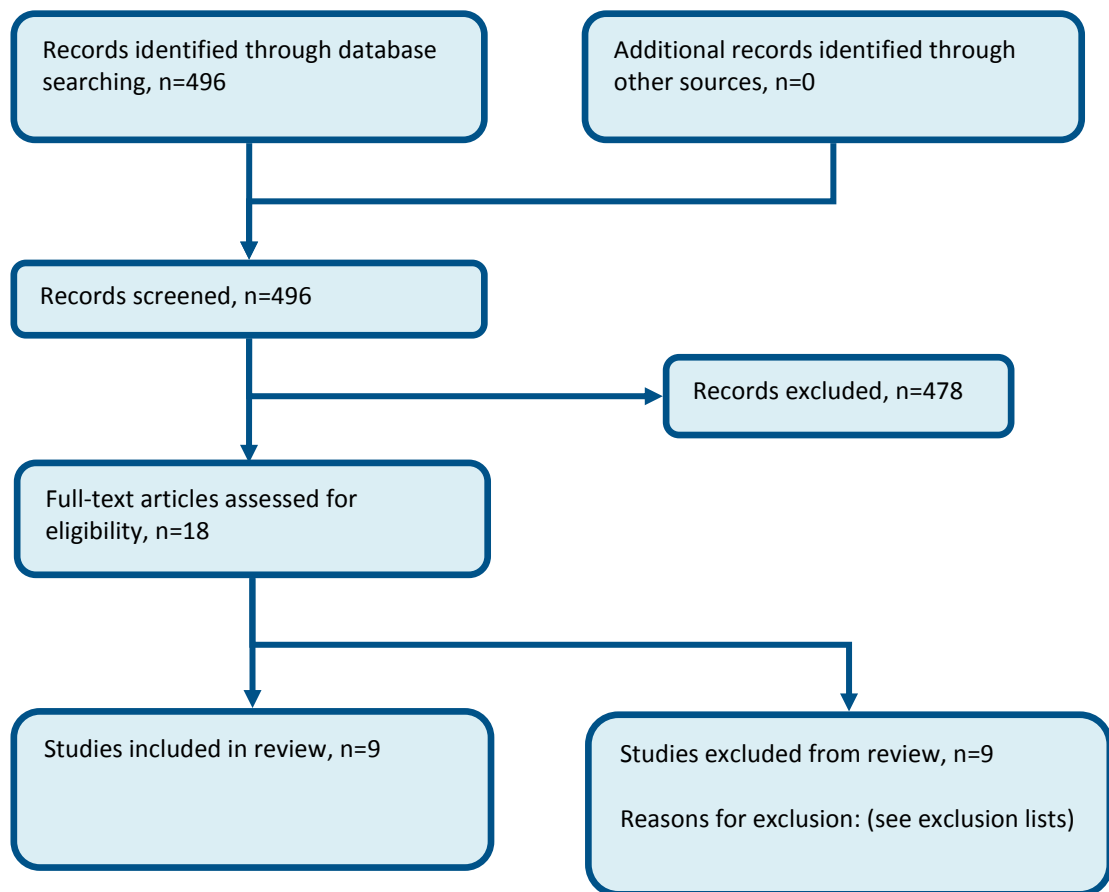
D.4.1 Non-surgical management of unimalleolar ankle fractures

Figure 15: Flow chart of clinical article selection for the review of stable ankle fracture mobilisation



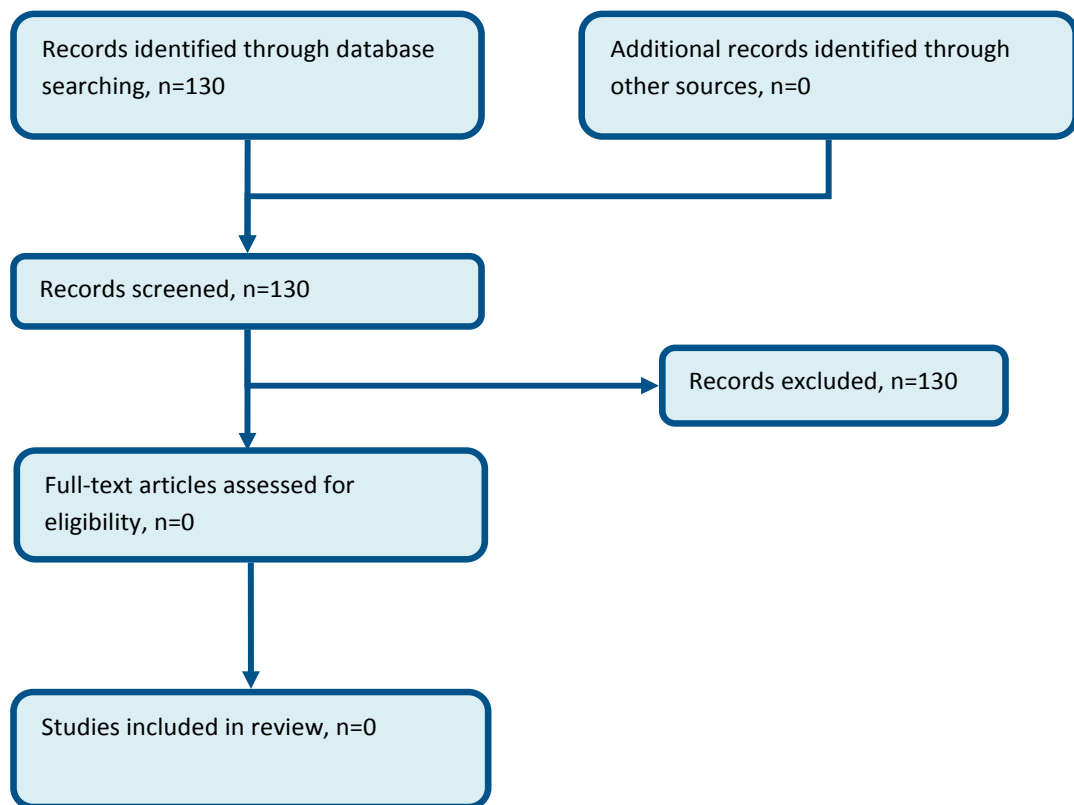
D.4.2 Timing of surgery – ankle fractures

Figure 16: Flow chart of clinical article selection for the review of timing of ankle surgery



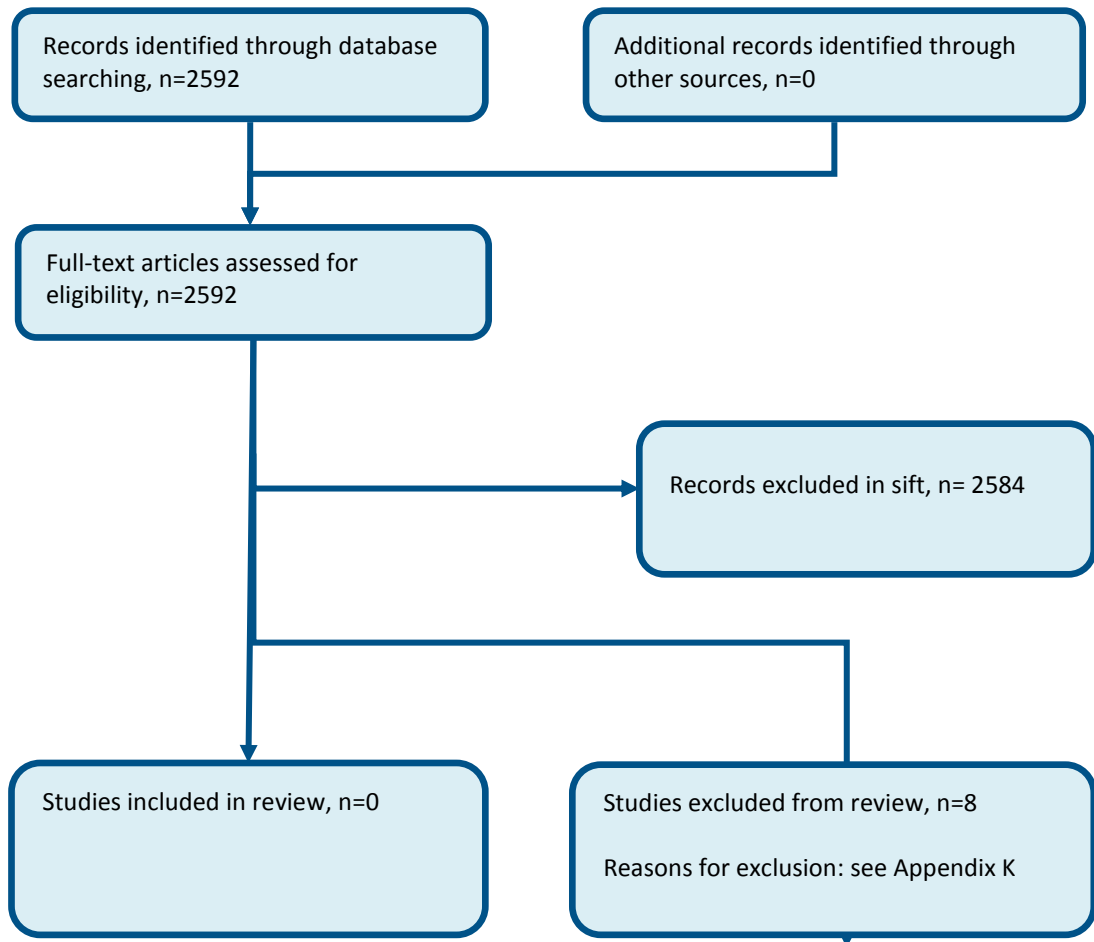
D.4.3 Ankle imaging

Figure 17: Flow chart of clinical article selection for the review of imaging for ankle surgery



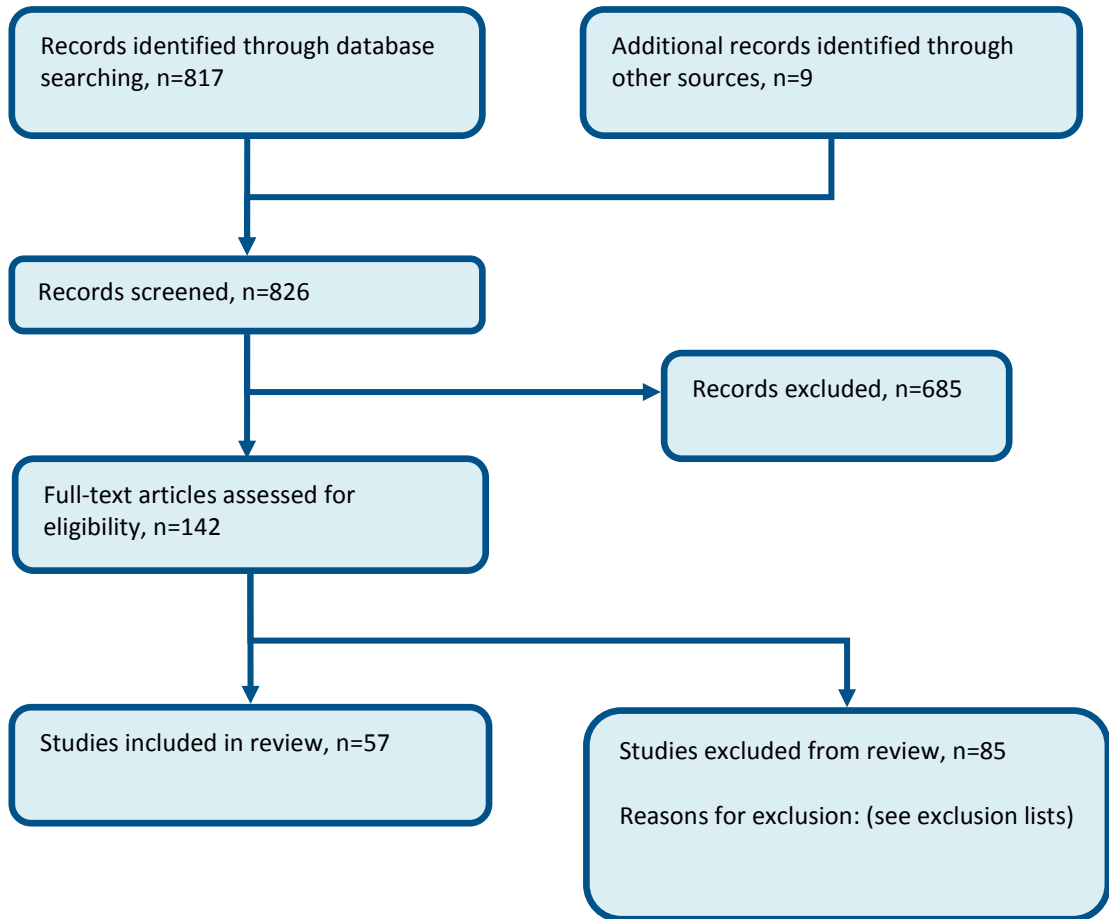
D.4.4 Timing of surgery – distal radius fractures

Figure 18: Flow chart of clinical article selection for the review of distal radius surgery timing



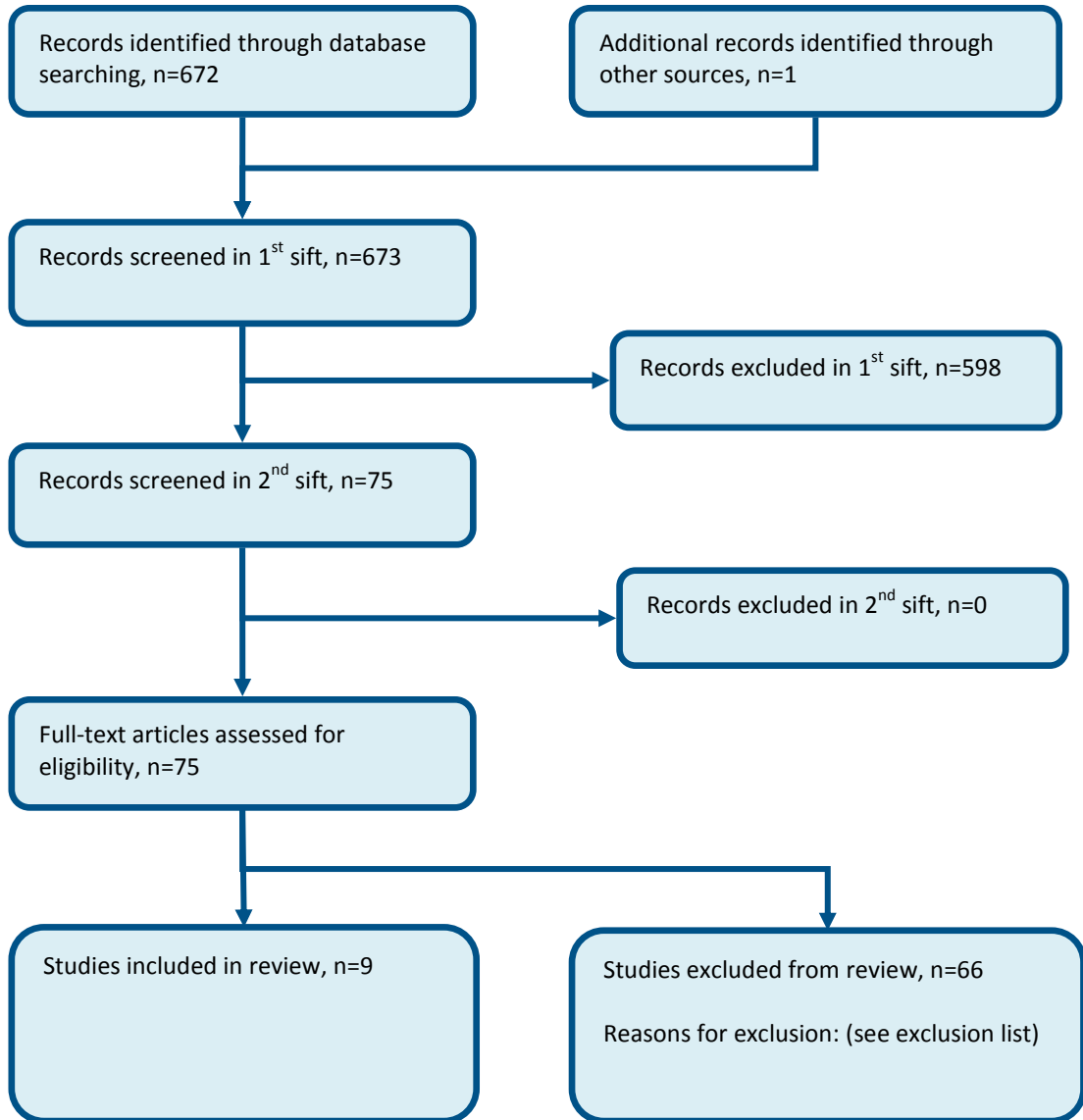
D.4.5 Definitive treatment – distal radius fractures

Figure 19: Flow chart of clinical article selection for the review of definitive treatment of dorsally displaced radial fractures



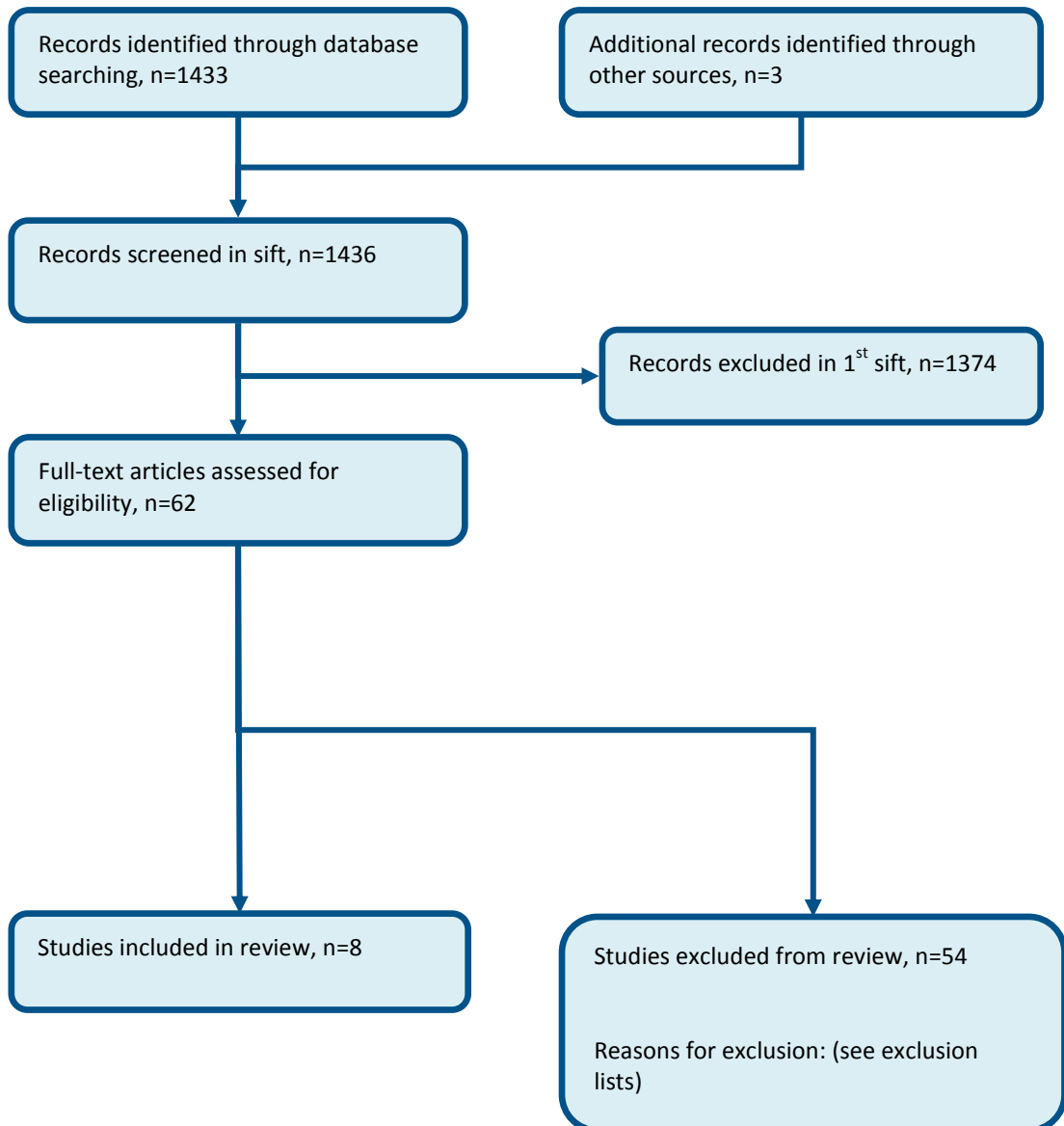
D.4.6 Definitive treatment of humerus fractures

Figure 20: Flow chart of clinical article selection for the review of ‘What is the most clinically and cost effective definitive treatment for displaced low energy fractures of the proximal humerus?’



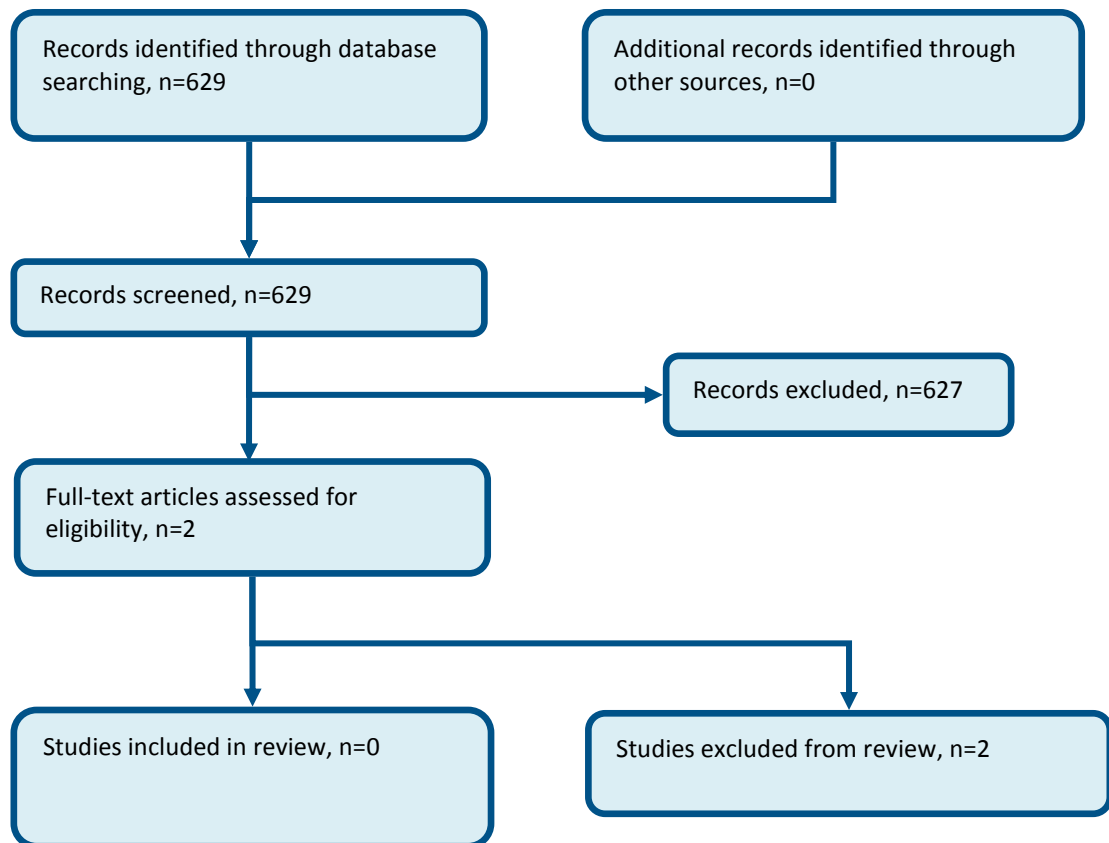
D.4.7 Definitive treatment – paediatric femoral fractures

Figure 21: Flow chart of clinical article selection for the review of treatments for paediatric femoral fractures



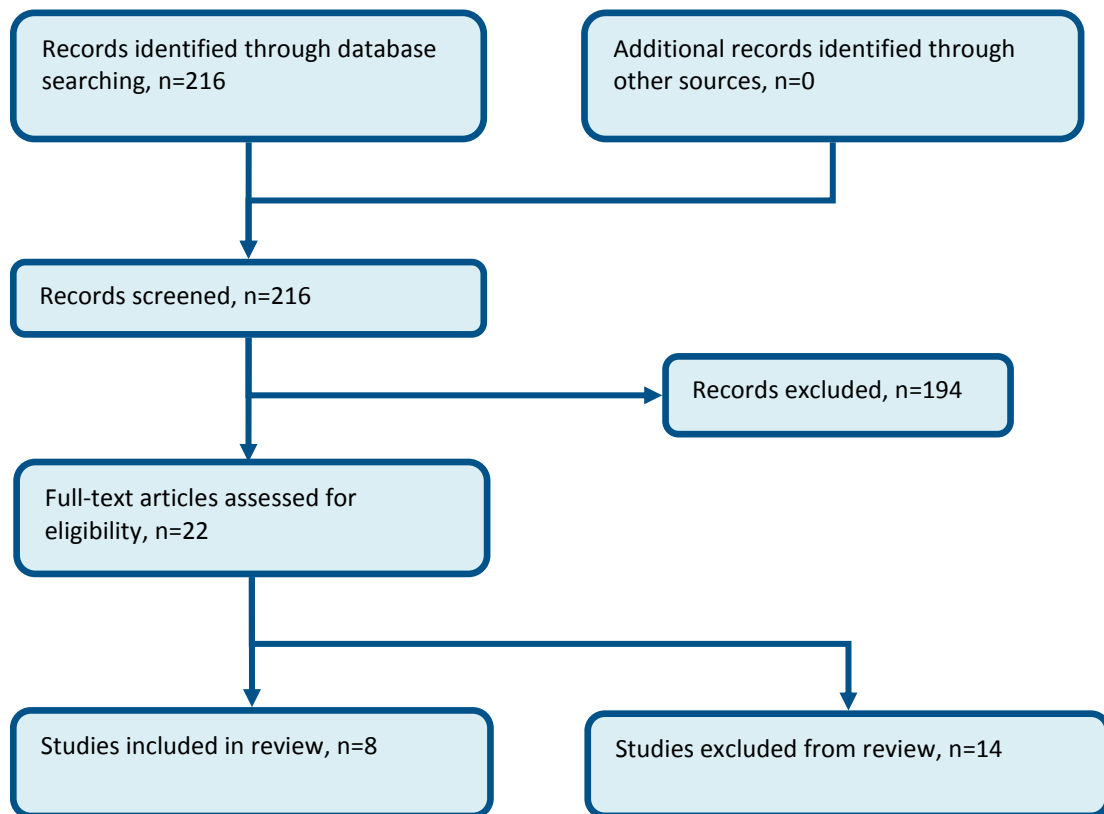
D.4.8 Post operative mobilisation – distal femoral fractures

Figure 22: Flow chart of clinical article selection for the review of mobilisation after distal femoral fracture



D.4.9 Post operative mobilisation – ankle fractures

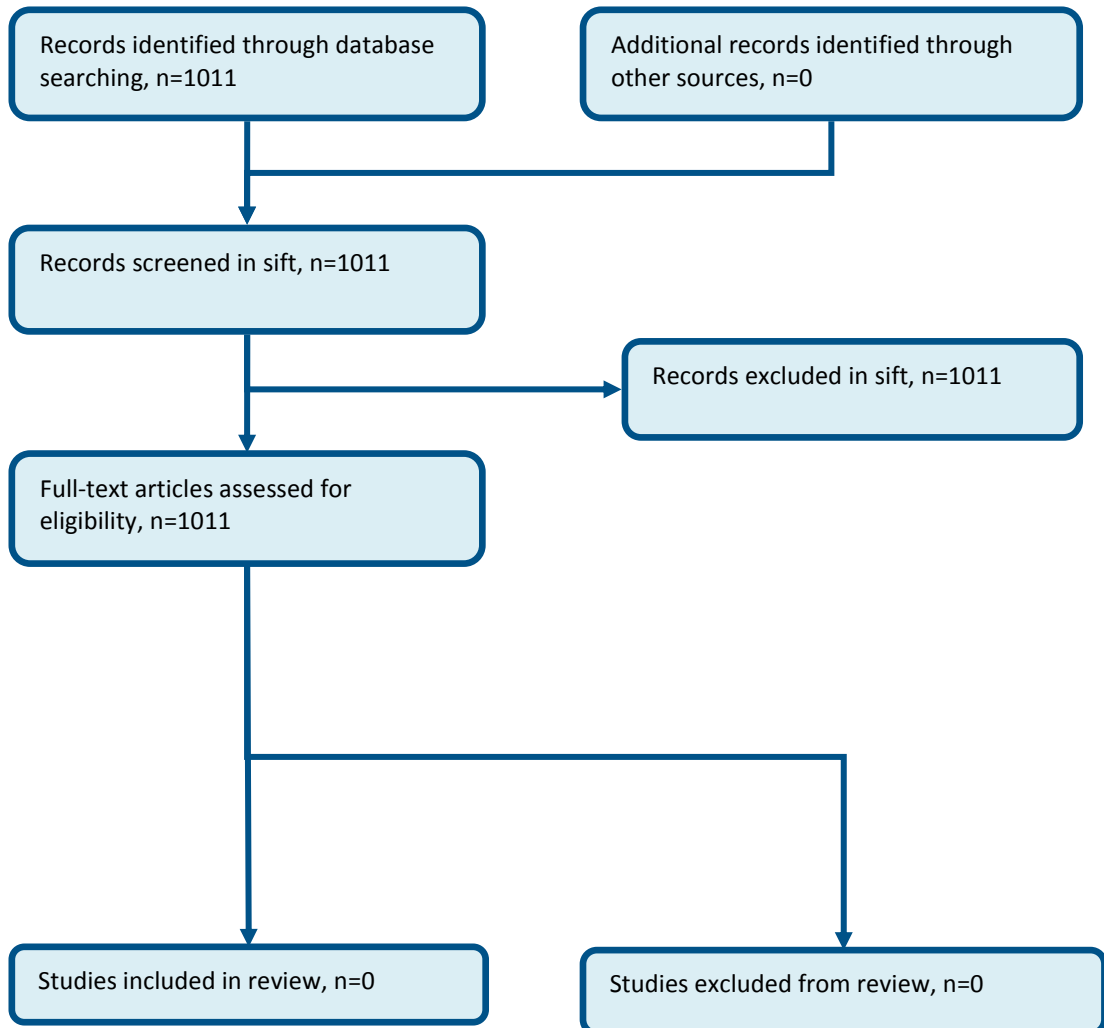
Figure 23: Flow chart of clinical article selection for the review of post-operative ankle fracture mobilisation



D.5 Documentation, information and support

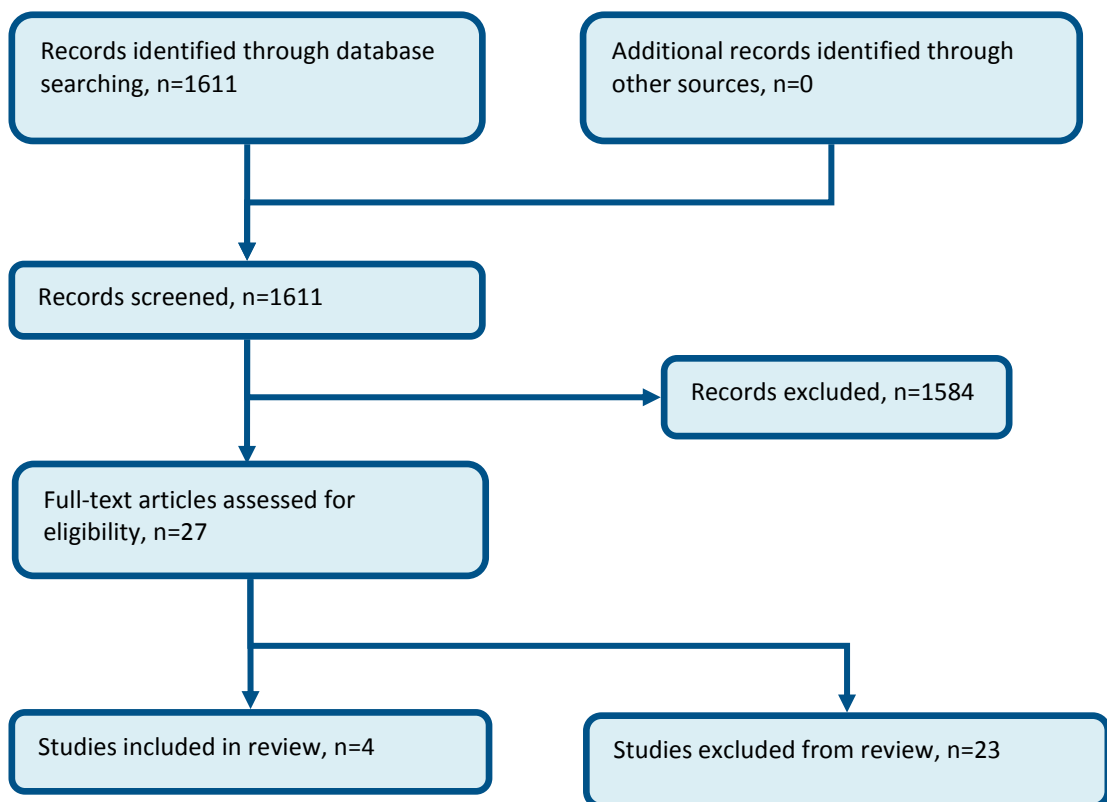
D.5.1 Documentation

Figure 24: Flow chart of clinical article selection for the review of documentation



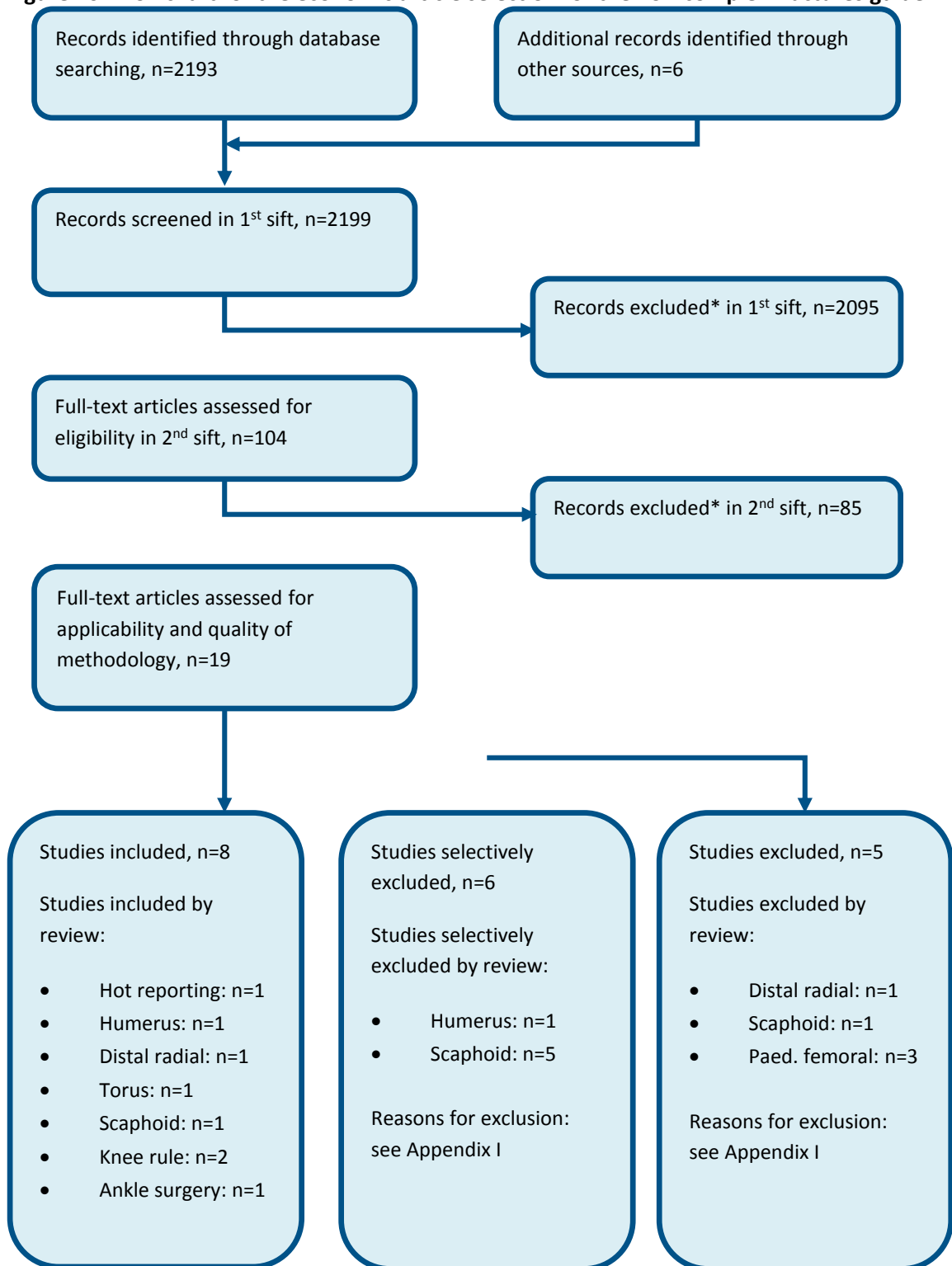
D.5.2 Information and support

Figure 25: Flow chart of clinical article selection for the review of information and support



Appendix E: Economic article selection

Figure 26: Flowchart for the economic article selection for the non-complex fractures guideline



* Non-relevant population, intervention, comparison, design or setting; non-English language

Appendix F: Literature search strategies

F.1 Contents

Introduction	Search methodology
Section F.2	Standard population search strategy
Section F.3	Study filter terms
F.3.1	Systematic reviews (SR)
F.3.2	Randomised controlled trials (RCT)
F.3.3	Observational studies (OBS)
F.3.4	Diagnostic test accuracy studies (DIAG)
F.3.5	Prediction rules / prognostic studies (PROG)
F.3.4	Qualitative studies (QUAL)
F.3.7	Health economic studies (HE)
F.3.8	Quality of life studies (QoL)
F.3.9	Health economic modelling studies (MOD)
F.3.10	Excluded study designs and publication types
Section 0	Searches for specific questions with intervention and population
F.4.1	Documentation
F.4.2	Pain
F.4.3	Information and support
F.4.4	Hot reporting
F.4.5	Multidisciplinary teams
F.4.6	Clinics
F.4.7	Humerus fractures - treatment
F.4.8	Distal radius fractures - reduction and timing of surgery
F.4.9	Adverse events associated with naesthesia in the emergency department
F.4.10	Torus fractures - treatment
F.4.11	Scaphoid fractures - imaging
F.4.12	Paediatric femoral fractures - treatment
F.4.13	Distal femoral fractures – mobilisation
F.4.14	Knee fractures - clinical predictions rules
F.4.15	Ankle fractures - clinical prediction rules
F.4.16	Ankle fractures - imaging
F.4.17	Ankle fractures - mobilisation
F.4.18	Timing of ankle surgery
Section 0	Health economics searches
F.5.1	Health economic reviews
F.5.2	Health economic reviews – supplementary search
F.5.3	Quality of life reviews
F.5.4	Hot reporting

Introduction	Search methodology
F.5.5	Pain management
Section Error! eference source not found.	References

Search strategies used for the non-complex fractures guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.¹ All searches were run up to **either 8th or 9th April 2015** unless otherwise stated. Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.

Table 156: Database date parameters

Database	Dates searched
Medline	1946 up to either 8 th or 9 th April 2015
Embase	1980 up to either 8 th or 9 th April 2015
The Cochrane Library	Cochrane Reviews to 2015 Issue 4 of 12 CENTRAL to 2015 Issue 3 of 12 DARE, HTA and NHSEED to 2015 Issue 1 of 4
CINAHL	1960 up to either 8 th or 9 th April 2015

Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane Library (Wiley). Additional searches were run in CINAHL (EBSCO) for question F.4.3

Searches for **intervention and diagnostic studies** were usually constructed using a PICO format where population (P) terms were combined with Intervention (I) and sometimes Comparison (C) terms. An intervention can be a drug, a procedure or a diagnostic test. Outcomes (O) are rarely used in search strategies for interventions. Search filters were also added to the search where appropriate.

Searches for **prognostic studies** were usually constructed combining population terms with prognostic variable terms and sometimes outcomes. Search filters were added to the search where appropriate.

Searches for the **health economic reviews** were run in Medline (OVID), Embase (OVID), the NHS Economic Evaluations Database (NHS EED), the Health Technology Assessment (HTA) database and the Health Economic Evaluation Database (HEED). NHS EED and HTA databases were hosted by the Centre for Research and Dissemination (CRD). Searches in NHS EED and HEED were constructed using population terms only. The Health Economic Evaluation Database (HEED) ceased production in 2014 with access ceasing in January 2015. For the final dates of HEED searches, please see individual economic questions. For Medline and Embase an economic filter (instead of a study type filter) was added to the same clinical search strategy.

F.2 Population search strategies

There is no standard population search strategy for this guideline. Population search terms are included with the intervention terms in section 0

F.3 Study filter search terms

F.3.1 Systematic review (SR) search terms

Medline search terms

1.	meta-analysis/
2.	meta-analysis as topic/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
5.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7.	(search* adj4 literature).ab.
8.	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9.	cochrane.jw.
10.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
11.	or/1-10

Embase search terms

1.	systematic review/
2.	meta-analysis/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic or evidence) adj3 (review* or overview*)).ti,ab.
5.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7.	(search* adj4 literature).ab.
8.	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9.	((pool* or combined) adj2 (data or trials or studies or results)).ab.
10.	cochrane.jw.
11.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
12.	or/1-11

F.3.2 Randomised controlled trials (RCTs) search terms

Medline search terms

1.	randomized controlled trial.pt.
2.	controlled clinical trial.pt.
3.	randomi#ed.ab.
4.	placebo.ab.
5.	randomly.ab.
6.	clinical trials as topic.sh.
7.	trial.ti.
8.	or/1-7

Embase search terms

1.	random*.ti,ab.
2.	factorial*.ti,ab.

3.	(crossover* or cross over*).ti,ab.
4.	((doubl* or singl*) adj blind*).ti,ab.
5.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
6.	crossover procedure/
7.	double blind procedure/
8.	single blind procedure/
9.	randomized controlled trial/
10.	or/1-9

F.3.3 Observational studies (OBS) search terms

Medline search terms

1.	epidemiologic studies/
2.	exp case control studies/
3.	exp cohort studies/
4.	cross-sectional studies/
5.	case control.ti,ab.
6.	(cohort adj (study or studies or analys*)).ti,ab.
7.	((follow up or observational or uncontrolled or non randomi#ed or nonrandomi#ed or epidemiologic*) adj (study or studies)).ti,ab.
8.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort*)).ti,ab.
9.	or/1-8

Embase search terms

1.	clinical study/
2.	exp case control study/
3.	family study/
4.	longitudinal study/
5.	retrospective study/
6.	prospective study/
7.	cross-sectional study/
8.	cohort analysis/
9.	follow-up/
10.	cohort*.ti,ab.
11.	9 and 10
12.	case control.ti,ab.
13.	(cohort adj (study or studies or analys*)).ti,ab.
14.	((follow up or observational or uncontrolled or non randomi#ed or nonrandomi#ed or epidemiologic*) adj (study or studies)).ti,ab.
15.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort*)).ti,ab.
16.	or/1-8,11-15

F.3.4 Diagnostic test accuracy studies (DIAG) search terms

Medline search terms

1.	exp "sensitivity and specificity"/
----	------------------------------------

2.	(sensitivity or specificity).ti,ab.
3.	((pre test or pretest or post test) adj probability).ti,ab.
4.	(predictive value* or PPV or NPV).ti,ab.
5.	likelihood ratio*.ti,ab.
6.	likelihood function/
7.	(ROC curve* or AUC).ti,ab.
8.	(diagnos* adj2 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
9.	gold standard.ab.
10.	or/1-9

Embase search terms

1.	exp "sensitivity and specificity"/
2.	(sensitivity or specificity).ti,ab.
3.	((pre test or pretest or post test) adj probability).ti,ab.
4.	(predictive value* or PPV or NPV).ti,ab.
5.	likelihood ratio*.ti,ab.
6.	(ROC curve* or AUC).ti,ab.
7.	(diagnos* adj2 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
8.	diagnostic accuracy/
9.	diagnostic test accuracy study/
10.	gold standard.ab.
11.	or/1-10

F.3.5 Prediction rules/prognostic studies (PRED-RULE) search terms

Medline search terms

1.	predict.ti.
2.	(validat* or rule*).ti,ab.
3.	(predict* and (outcome* or risk* or model*)).ti,ab.
4.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)).ti,ab.
5.	decision*.ti,ab. and Logistic models/
6.	(decision* and (model* or clinical*)).ti,ab.
7.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)).ti,ab.
8.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable).ti,ab.
9.	ROC curve/
10.	or/1-9

Embase search terms

1.	predict.ti.
2.	(validat* or rule*).ti,ab.
3.	(predict* and (outcome* or risk* or model*)).ti,ab.
4.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)).ti,ab.

5.	decision*.ti,ab. and statistical model/
6.	(decision* and (model* or clinical*)):ti,ab.
7.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)):ti,ab.
8.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or auc or calibration or indices or algorithm or multivariable).ti,ab.
9.	receiver operating characteristic/
10.	or/1-9

Cochrane search terms

#1.	predict:ti
#2.	(validat* or rule*):ti,ab
#3.	(predict* and (outcome* or risk* or model*)):ti,ab
#4.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)):ti,ab
#5.	decision*:ti,ab
#6.	MeSH descriptor: [logistic models] explode all trees
#7.	(decision* and (model* or clinical*)):ti,ab
#8.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)):ti,ab
#9.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable):ti,ab
#10.	MeSH descriptor: [roc curve] explode all trees
#11.	{or #1-#10}

F.3.6 Qualitative studies (QUAL) search terms

Medline search terms

1.	qualitative research/ or narration/ or exp interviews as topic/ or exp questionnaires/ or health care surveys/
2.	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*).ti,ab.
3.	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic or phenomenolog* or grounded theory or constant compar* or (thematic* adj3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*).ti,ab.
4.	or/1-3

Embase search terms

1.	health survey/ or exp questionnaire/ or exp interview/ or qualitative research/ or narrative/
2.	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*).ti,ab.
3.	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic or phenomenolog* or grounded theory or constant compar* or (thematic* adj3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*).ti,ab.
4.	or/1-3

CINAHL search terms

1.	(MH "qualitative studies+")
----	-----------------------------

2.	(MH "qualitative validity+")
3.	(MH "interviews+") or (MH "focus groups") or (MH "surveys") or (MH "questionnaires+")
4.	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*)
5.	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic or phenomenolog* or grounded theory or constant compar* or (thematic* adj3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*)
6.	S1 or S2 or S3 or S4 or S5

F.3.7 Health economics search terms

Medline search terms

1.	economics/
2.	value of life/
3.	exp "costs and cost analysis"/
4.	exp economics, hospital/
5.	exp economics, medical/
6.	economics, nursing/
7.	economics, pharmaceutical/
8.	exp "fees and charges"/
9.	exp budgets/
10.	budget*.ti,ab.
11.	cost*.ti.
12.	(economic* or pharmaco?economic*).ti.
13.	(price* or pricing*).ti,ab.
14.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
15.	(financ* or fee or fees).ti,ab.
16.	(value adj2 (money or monetary)).ti,ab.
17.	or/1-16

Embase search terms

1.	health economics/
2.	exp economic evaluation/
3.	exp health care cost/
4.	exp fee/
5.	budget/
6.	funding/
7.	budget*.ti,ab.
8.	cost*.ti.
9.	(economic* or pharmaco?economic*).ti.
10.	(price* or pricing*).ti,ab.
11.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
12.	(financ* or fee or fees).ti,ab.
13.	(value adj2 (money or monetary)).ti,ab.
14.	or/1-13

F.3.8 Quality of life search terms

Medline search terms

1.	quality-adjusted life years/
2.	sickness impact profile/
3.	(quality adj2 (wellbeing or well-being)).ti,ab.
4.	sickness impact profile.ti,ab.
5.	disability adjusted life.ti,ab.
6.	(qal* or qtime* or qwb* or daly*).ti,ab.
7.	(euroqol* or eq5d* or eq 5d*).ti,ab.
8.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
9.	(health utility* or utility score* or disutilit*).ti,ab.
10.	(hui or hui1 or hui2 or hui3).ti,ab.
11.	health* year* equivalent*.ti,ab.
12.	(hye or hyes).ti,ab.
13.	rosser.ti,ab.
14.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
15.	(sf36 or sf 36 or short form 36 or shortform 36 or shortform36).ti,ab.
16.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
17.	(sf12 or sf 12 or short form 12 or shortform 12 or shortform12).ti,ab.
18.	(sf8 or sf 8 or short form 8 or shortform 8 or shortform8).ti,ab.
19.	(sf6 or sf 6 or short form 6 or shortform 6 or shortform6).ti,ab.
20.	or/1-19

Embase search terms

1.	quality adjusted life year/
2.	"quality of life index"/
3.	short form 12/ or short form 20/ or short form 36/ or short form 8/
4.	sickness impact profile/
5.	(quality adj2 (wellbeing or well-being)).ti,ab.
6.	sickness impact profile.ti,ab.
7.	disability adjusted life.ti,ab.
8.	(qal* or qtime* or qwb* or daly*).ti,ab.
9.	(euroqol* or eq5d* or eq 5d*).ti,ab.
10.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
11.	(health utility* or utility score* or disutilit*).ti,ab.
12.	(hui or hui1 or hui2 or hui3).ti,ab.
13.	health* year* equivalent*.ti,ab.
14.	(hye or hyes).ti,ab.
15.	rosser.ti,ab.
16.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
17.	(sf36 or sf 36 or short form 36 or shortform 36 or shortform36).ti,ab.
18.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
19.	(sf12 or sf 12 or short form 12 or shortform 12 or shortform12).ti,ab.
20.	(sf8 or sf 8 or short form 8 or shortform 8 or shortform8).ti,ab.
21.	(sf6 or sf 6 or short form 6 or shortform 6 or shortform6).ti,ab.

22.	or/1-21
-----	---------

F.3.9 Health economic modelling (MOD) search terms

Medline search terms

1.	exp models, economic/
2.	*models, theoretical/
3.	*models, organizational/
4.	markov chains/
5.	monte carlo method/
6.	exp decision theory/
7.	(markov* or monte carlo).ti,ab.
8.	econom* model*.ti,ab.
9.	(decision* adj2 (tree* or analy* or model*)).ti,ab.
10.	or/1-9

Embase search terms

1.	statistical model/
2.	exp economic aspect/
3.	1 and 2
4.	*theoretical model/
5.	*nonbiological model/
6.	stochastic model/
7.	decision theory/
8.	decision tree/
9.	monte carlo method/
10.	(markov* or monte carlo).ti,ab.
11.	econom* model*.ti,ab.
12.	(decision* adj2 (tree* or analy* or model*)).ti,ab.
13.	or/3-12

F.3.10 Excluded study designs and publication types

The following study designs and publication types were removed from retrieved results using the NOT operator.

Medline search terms

1.	letter/
2.	editorial/
3.	news/
4.	exp historical article/
5.	anecdotes as topic/
6.	comment/
7.	case report/
8.	(letter or comment*).ti.
9.	or/1-8
10.	randomized controlled trial/ or random*.ti,ab.
11.	9 not 10

12.	animals/ not humans/
13.	exp animals, laboratory/
14.	exp animal experimentation/
15.	exp models, animal/
16.	exp rodentia/
17.	(rat or rats or mouse or mice).ti.
18.	or/11-17

Embase search terms

1.	letter.pt. or letter/
2.	note.pt.
3.	editorial.pt.
4.	case report/ or case study/
5.	(letter or comment*).ti.
6.	or/1-5
7.	randomized controlled trial/ or random*.ti,ab.
8.	6 not 7
9.	animal/ not human/
10.	nonhuman/
11.	exp animal experiment/
12.	exp experimental animal/
13.	animal model/
14.	exp rodent/
15.	(rat or rats or mouse or mice).ti.
16.	or/8-15

Cinahl search terms

S1.	(MH "case studies") or pt anecdote or pt audiovisual or pt bibliography or pt biography or pt book or pt book review or pt brief item or pt cartoon or pt commentary or pt computer program or pt editorial or pt games or pt glossary or pt historical material or pt interview or pt letter or pt listservs or pt masters thesis or pt obituary or pt pamphlet or pt pamphlet chapter or pt pictorial or pt poetry or pt proceedings or pt "questions and answers" or pt response or pt software or pt teaching materials or pt website
-----	---

F.4 Searches for specific questions

F.4.1 Documentation

1. In patients with non-complex fractures does documentation recording safeguarding, comorbidities, falls risk and fracture classification alongside standard diagnosis documentation improve outcomes compared to with standard diagnosis documentation alone?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Fractures	Documentation of safeguarding, comorbidities, falls risk and fracture	n/a	n/a	See Error! reference source not found. English only

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
	classification alongside standard diagnosis.			Exclusion filter applied in Medline and Embase

Medline search terms

1.	exp fractures, bone/
2.	fracture*.ti,ab.
3.	or/1-2
4.	documentation/
5.	medical records/ or medical record linkage/ or medical records, problem-oriented/ or medical records systems, computerized/ or electronic health records/
6.	"Forms and Records Control"/
7.	nursing records/
8.	(document* or record* or note*).ti.
9.	((document* or record* or note*) adj3 (medical or patient*)).ab.
10.	or/4-9
11.	exp domestic violence/
12.	((domestic or partner* or famil* or spous* or husband* or wife* or wive*) adj3 (violen* or abuse* or maltreat* or mistreat*)).ti,ab.
13.	((aged or elder* or child*) adj3 (violen* or abuse* or neglect* or maltreat* or mistreat*)).ti,ab.
14.	exp substance-related disorders/
15.	((substance or drug* or tobacco) adj2 (use* or misuse* or using or abuse* or disorder* or dependen* or addict*)).ti,ab.
16.	(alcoholism or alcoholic).ti,ab.
17.	(alcohol adj2 (use* or misuse* or using or abuse* or disorder* or dependen* or addict*)).ti,ab.
18.	exp smoking/
19.	(smoke* or smoking).ti,ab.
20.	(vulnerable adj2 (adult* or elder* or child* or infant* or bab* or toddler* or people or person*)).ti,ab.
21.	(safeguard* or non-accident*).ti,ab.
22.	comorbidity/
23.	(comorbid* or co-morbid*).ti,ab.
24.	(fracture adj2 (grade* or class* or score*)).ti,ab.
25.	gustilo.ti,ab.
26.	exp fracture, bone/cl
27.	(risk* adj2 fall*).ti,ab.
28.	or/11-27
29.	accidental falls/
30.	risk/ or risk assessment/ or risk factors/
31.	29 and 30
32.	28 or 31
33.	3 and 10 and 32

Embase search terms

1.	exp fracture/
2.	fracture*.ti,ab.
3.	or/1-2
4.	*documentation/ or *medical documentation/ or *medical record/ or *electronic medical record/
5.	(document* or record* or note*).ti.
6.	((document* or record* or note*) adj3 (medical or patient*)).ab.
7.	or/4-6
8.	*domestic violence/ or *battered woman/ or *child abuse/ or *elder abuse/ or *family violence/ or *partner violence/
9.	((domestic or partner* or famil* or spous* or husband* or wife* or wife*) adj3 (violen* or abuse* or maltreat* or mistreat*)).ti,ab.
10.	((aged or elder* or child*) adj3 (violen* or abuse* or neglect* or maltreat* or mistreat*)).ti,ab.
11.	*substance abuse/
12.	((substance or drug* or tobacco) adj2 (use* or misuse* or using or abuse* or disorder* or dependen* or addict*)).ti,ab.
13.	exp *alcohol abuse/
14.	(alcoholism or alcoholic).ti,ab.
15.	(alcohol adj2 (use* or misuse* or using or abuse* or disorder* or dependen* or addict*)).ti,ab.
16.	*tobacco dependence/
17.	exp *smoking/
18.	(smoke* or smoking).ti,ab.
19.	(safeguard* or non-accident*).ti,ab.
20.	(vulnerable adj2 (adult* or elder* or child* or infant* or bab* or toddler* or people or person*)).ti,ab.
21.	*comorbidity/
22.	(comorbid* or co-morbid*).ti,ab.
23.	(risk* adj2 fall*).ti,ab.
24.	(fracture adj2 (grade* or class* or score*)).ti,ab.
25.	exp *classification/
26.	gustilo.ti,ab.
27.	or/8-26
28.	falling/
29.	*risk/ or *risk assessment/ or *risk factor/
30.	28 and 29
31.	27 or 30
32.	3 and 7 and 31

Cochrane search terms

#1.	MeSH descriptor: [fractures, bone] explode all trees
#2.	fracture*.ti,ab
#3.	{or #1-#2}
#4.	MeSH descriptor: [documentation] this term only
#5.	MeSH descriptor: [medical records] this term only
#6.	MeSH descriptor: [medical record linkage] this term only
#7.	MeSH descriptor: [medical records, problem-oriented] this term only
#8.	MeSH descriptor: [medical records systems, computerized] this term only

#9.	MeSH descriptor: [electronic health records] this term only
#10.	MeSH descriptor: [forms and records control] this term only
#11.	MeSH descriptor: [nursing records] this term only
#12.	(document* or record* or note*):ti
#13.	((document* or record* or note*) near/3 (medical or patient*)):ab
#14.	{or #4-#13}
#15.	MeSH descriptor: [domestic violence] explode all trees
#16.	((domestic or partner* or famil* or spous* or husband* or wife* or wive*) near/3 (violen* or abuse* or maltreat* or mistreat*)):ti,ab
#17.	((aged or elder* or child*) near/3 (violen* or abuse* or neglect* or maltreat* or mistreat*)):ti,ab
#18.	MeSH descriptor: [substance-related disorders] explode all trees
#19.	((substance or drug* or tobacco) near/2 (use* or misuse* or using or abuse* or disorder* or dependen* or addict*)):ti,ab
#20.	(alcoholism or alcoholic):ti,ab
#21.	(alcohol near/2 (use* or misuse* or using or abuse* or disorder* or dependen* or addict*)) .ti,ab
#22.	MeSH descriptor: [smoking] explode all trees
#23.	(smoke* or smoking):ti,ab
#24.	(vulnerable near/2 (adult* or elder* or child* or infant* or bab* or toddler* or people or person*)) .ti,ab
#25.	(safeguard* or non-accident*):ti,ab
#26.	MeSH descriptor: [comorbidity] this term only
#27.	(comorbid* or co-morbid*):ti,ab
#28.	(fracture near/2 (grade* or class* or score*)):ti,ab
#29.	gustilo:ti,ab
#30.	risk* near/2 fall*:ti,ab
#31.	{or #15-#30}
#32.	MeSH descriptor: [accidental falls] this term only
#33.	MeSH descriptor: [risk] this term only
#34.	MeSH descriptor: [risk assessment] this term only
#35.	MeSH descriptor: [risk factors] this term only
#36.	{or #33-#35}
#37.	#32 and #36
#38.	#31 or #37
#39.	#3 and #14 and #38

F.4.2 Pain

Searches for the following two questions were run as one search:

2. What is the most effective initial acute pharmacological management to alleviate pain in patients with a suspected long bone fracture (tibia and fibula, humerus, radius and ulna, or unspecified) in acute care settings?
3. What is the most clinically and cost effective nerve block for the initial management to alleviate pain in children and young people with a suspected femoral fracture in acute care settings?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Long bone fractures	Pharmacological pain management OR Nerve blocks	n/a	The following filters were used in Medline and Embase only: RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	"wounds and injuries"/
2.	exp arm injuries/ or leg injuries/ or ankle injuries/ or foot injuries/ or exp knee injuries/
3.	fractures, bone/ or ankle fractures/ or humeral fractures/ or exp radius fractures/ or shoulder fractures/ or tibial fractures/ or exp ulna fractures/
4.	((long bone* or longbone* or limb or limbs or arm or arms or forearm* or leg or legs) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
5.	((humerus or humeral or humeri or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
6.	((radius or radii or ulnae or ulna or elbow* or forearm* or wrist* or colles or colles' or raikar*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
7.	((tibia or tibiae or tibias or shin* or shank*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
8.	((fibula or fibulae or calf*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
9.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
10.	or/1-9
11.	femoral fractures/
12.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
13.	or/11 or12
14.	exp fractures, bone/
15.	femur/ or fibula/ or tibia/ or humerus/ or radius/ or ulna/ or wrist/ or elbow/ or shoulder/ or forearm/ or upper extremity/ or ankle/ or knee/ or leg/ or lower extremity/ or extremities/
16.	14 and 15
17.	10 or 13 or 16
18.	exp analgesics, opioid/
19.	exp opiate alkaloids/
20.	(opioid* or opiate*).ti,ab.
21.	nitrous oxide/
22.	(nitrous oxide or nitronox or entonox or equanox or "gas and air" or laughing gas).ti,ab.
23.	benzazepines/ or exp benzodiazepines/
24.	(benzodiazepine* or benzazepine*).ti,ab.
25.	(diazepam or dialar or diazemuls or rimapam or lorazepam or ativan or midazolam or hypnovel or temazepam).ti,ab.
26.	(morphine or oramorph or sevredol or minijet or cyclimorph or filnarine or morphgesic or

	continus or zomorph or mxl or morphia or duramorph).ti,ab.
27.	ketamine/
28.	(ketamine or ketalar or calipsol or ketanest or ketaset or calypso or kalipsol).ti,ab.
29.	lidocaine/
30.	(lidocaine or xylocaine or lignocaine or dalcaine or octocaine or xylesthesin or xylocaine or xylocitin or xyloneural or minijet).ti,ab.
31.	exp nerve block/
32.	(analg* or (pain* adj3 relie*) or ((nerve* or neural*) adj3 block*)).ti,ab.
33.	exp codeine/ or morphine/
34.	tramadol/
35.	heroin/
36.	(diamorphine or heroin or diamorf or diacetylmorphine or diagesil or tramadol or codeine).ti,ab.
37.	acetaminophen/
38.	(paracetamol or panadol or perfalgan or acetaminophen or tylenol or acamol or co-codamol or codipar or kapake or solpadol or tyles).ti,ab.
39.	fentanyl/
40.	(fentanyl or durogesic or sublimaze or instanyl or pecfent or actiq or abstral or effentora or fentora or matrifen or haldid or onsolis or lazanda).ti,ab.
41.	exp anti-inflammatory agents, non-steroidal/
42.	nsaid*.ti,ab.
43.	((non?steroidal or non-steroidal) adj2 (anti?inflammatory or anti-inflammatory or antinflammatory)).ti,ab.
44.	(aceclofenac or acemetacin or celecoxib or dexibuprofen or dexketoprofen or diclofenac or etodolac or etoricoxib or fenbufen or fenoprofen or flurbiprofen or ibuprofen or indometacin or ketoprofen or mefenamic acid or meloxicam or nabumetone or naproxen or piroxicam or sulindac or tenoxicam or tiaprofenic acid or tolfenamic acid or clotam rapid).ti,ab.
45.	(preservex or emflex or celebrex or seractil or keral or voltarol or dyloject or diclomax or motifene or arthrotec or eltopan or lodine or arcoxia or fenopron or froben or brufen or fenbid or orudis or oruvail or axorid or ponstan or mobic or relifex or naprosyn or synflex or vimovo or napratec or brexidol or feldene or sulindac or mobiflex or surgam).ti,ab.
46.	or/18-45
47.	17 and 46

Embase search terms

1.	*bone injury/
2.	exp *limb injury/
3.	*fracture/
4.	exp *arm fracture/ or *leg fracture/ or *ankle fracture/ or *distal tibia fracture/ or *fibula fracture/ or *knee fracture/ or *patella fracture/ or *proximal tibia fracture/ or *tibia fracture/ or *tibia shaft fracture/ or *joint fracture/
5.	((long bone* or longbone* or limb or limbs or arm or arms or forearm* or leg or legs) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
6.	((humerus or humeral or humeri or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
7.	((radius or radii or ulnae or ulna or elbow* or forearm* or colles or colles' or raikar*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
8.	((tibia or tibiae or tibias or shin* or shank*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.

9.	((fibula or fibulae or calf*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
10.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
11.	or/1-10
12.	exp *femur fracture/
13.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)).ti,ab.
14.	12or 13
15.	exp *fracture/
16.	*femur/ or *fibula/ or *tibia/ or *humerus/ or *radius/ or *ulna/ or *limb/ or *arm/ or *forearm/ or *elbow/ or *wrist/ or *leg/ or *lower leg/ or *knee/ or *ankle/
17.	15 and 16
18.	11 or 14 or 17
19.	exp *narcotic analgesic agent/
20.	*opiate/
21.	(opioid* or opiate*).ti,ab.
22.	*nitrous oxide/
23.	nitrous oxide plus oxygen/
24.	(nitrous oxide or nitronox or entonox or equanox or "gas and air" or laughing gas).ti,ab.
25.	exp *benzodiazepine derivative/ or *benzazepine derivative/
26.	*diazepam/ or *lorazepam/ or *midazolam/ or *temazepam/
27.	(diazepam or dialar or diazemuls or rimapam or lorazepam or ativan or midazolam or hypnovel or temazepam).ti,ab.
28.	(morphine or oramorph or sevredol or minijet or cyclimorph or filnarine or morphgesic or continus or zomorph or mxl or morphia or duramorph).ti,ab.
29.	*ketamine/
30.	(ketamine or ketalar or calipsol or ketanest or ketaset or calypso or kalipsol).ti,ab.
31.	*lidocaine/
32.	(lidocaine or xylocaine or lignocaine or dalcaine or octocaine or xylesthesin or xylocaine or xylocitin or xyloneural or minijet).ti,ab.
33.	exp *nerve block/
34.	(analg* or (pain* adj3 relie*) or ((nerve* or neural*) adj3 block*)).ti,ab.
35.	exp *codeine/ or *morphine/ or *tramadol/ or *diamorphine/
36.	(diamorphine or heroin or diamorf or diacetylmorphine or diagesil or codeine or tramadol).ti,ab.
37.	*paracetamol/
38.	(paracetamol or panadol or perfalgan or acetaminophen or tylenol or acamol or co-codamol or codipar or kapake or solpadol or tylex).ti,ab.
39.	*fentanyl/
40.	(fentanyl or durogesic or sublimaze or instanyl or pecfent or actiq or abstral or effentora or fentora or matrifen or haldid or onsolis or lazanda).ti,ab.
41.	exp *nonsteroid antiinflammatory agent/
42.	nsaid*.ti,ab.
43.	((non?steroidal or non-steroidal) adj2 (anti?inflammatory or anti-inflammatory or antinflammatory)).ti,ab.
44.	*aceclofenac/ or *acemetacin/ or *celecoxib/ or *dexibuprofen/ or *dexketoprofen/ or

	*diclofenac/ or *etodolac/ or *etoricoxib/ or *fenbufen/ or *fenoprofen/ or *flurbiprofen/ or *ibuprofen/ or *indometacin/ or *ketoprofen/ or *mefenamic acid/ or *meloxicam/ or *nabumetone/ or *naproxen/ or *piroxicam/ or *sulindac/ or *tenoxicam/ or *tiaprofenic acid/ or *tolfenamic acid/
45.	(aceclofenac or acetaminophen or celecoxib or dexibuprofen or dexketoprofen or diclofenac or etodolac or etoricoxib or fenbufen or fenoprofen or flurbiprofen or ibuprofen or indometacin or ketoprofen or mefenamic acid or meloxicam or nabumetone or naproxen or piroxicam or sulindac or tenoxicam or tiaprofenic acid or tolfenamic acid or tramadol).ti,ab.
46.	(preservex or emflex or celebrex or seractil or keral or voltarol or dyloject or diclomax or motifene or arthrotec or eltopan or lodine or arcoxia or fenopron or froben or brufen or fenbid or orudis or oruvail or axorid or ponstan or mobic or relifex or naprosyn or synflex or vimovo or napratec or brexidol or feldene or sulindac or mobiflex or surgam).ti,ab.
47.	or/19-46
48.	18 and 47

Cochrane search terms

#1.	MeSH descriptor: [wounds and injuries] this term only
#2.	MeSH descriptor: [arm injuries] explode all trees
#3.	MeSH descriptor: [leg injuries] this term only
#4.	MeSH descriptor: [ankle injuries] this term only
#5.	MeSH descriptor: [foot injuries] this term only
#6.	MeSH descriptor: [knee injuries] explode all trees
#7.	MeSH descriptor: [fractures, bone] this term only
#8.	MeSH descriptor: [tibial fractures] this term only
#9.	MeSH descriptor: [ankle fractures] this term only
#10.	MeSH descriptor: [humeral fractures] this term only
#11.	MeSH descriptor: [radius fractures] explode all trees
#12.	MeSH descriptor: [shoulder fractures] this term only
#13.	MeSH descriptor: [ulna fractures] explode all trees
#14.	((long bone* or longbone* or limb or limbs arm or arms or forearm* or leg or legs) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#15.	((humerus or humeral or humeri or shoulder*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#16.	((radius or radii or ulnae or ulna or elbow* or forearm* or colles or colles' or raikar*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#17.	((tibia or tibiae or tibias or shin* or shank*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#18.	((fibula or fibulae or calf*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#19.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#20.	{or #1-#19}
#21.	MeSH descriptor: [femoral fractures] this term only
#22.	((femur* or femora* or thigh*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)) .ti,ab.
#23.	#21 or #22
#24.	#20 or #23
#25.	MeSH descriptor: [analgesics, opioid] explode all trees

#26.	MeSH descriptor: [opiate alkaloids] explode all trees
#27.	(opiod* or opiate*) .ti,ab.
#28.	MeSH descriptor: [nitrous oxide] explode all trees
#29.	(nitrous oxide or nitronox or entonox or equanox or "gas and air" or laughing gas):ti,ab
#30.	MeSH descriptor: [benzazepines] this term only
#31.	MeSH descriptor: [benzodiazepines] explode all trees
#32.	(benzodiazepine* or benzazepine*):ti,ab
#33.	(diazepam or dialar or diazemuls or rimapam or lorazepam or ativan or midazolam or hypnovel or temazepam):ti,ab
#34.	MeSH descriptor: [ketamine] this term only
#35.	(ketamine or ketalar or calipsol or ketanest or ketaset or calypso or kalipsol):ti,ab
#36.	MeSH descriptor: [lidocaine] this term only
#37.	(lidocaine or xylocaine or lignocaine or dalcaine or octocaine or xylesthesin or xylocaine or xylocitin or xyloneural or minijet):ti,ab
#38.	MeSH descriptor: [nerve block] explode all trees
#39.	(analg* or (pain* adj3 relie*) or ((nerve* or neural*) adj3 block*)):ti,ab
#40.	MeSH descriptor: [codeine] explode all trees
#41.	MeSH descriptor: [morphine] explode all trees
#42.	MeSH descriptor: [tramadol] explode all trees
#43.	MeSH descriptor: [heroin] explode all trees
#44.	(morphine or oramorph or sevredol or minijet or cyclimorph or filnarine or morphgesic or continus or zomorph or mxl or morphia or duramorph):ti,ab
#45.	(diamorphine or heroin or diamorf or diacetylmorphine or diagesil or codeine or tramadol):ti,ab
#46.	MeSH descriptor: [acetaminophen] explode all trees
#47.	(paracetamol or panadol or perfalgan or acetaminophen or tylenol or acamol or co-codamol or codipar or kapake or solpadol or tylex):ti,ab
#48.	MeSH descriptor: [fentanyl] explode all trees
#49.	(fentanyl or durogesic or sublimaze or instanyl or pecfent or actiq or abstral or effentora or fentora or matrifen or haldid or onsolis or lazanda):ti,ab
#50.	MeSH descriptor: [anti-inflammatory agents, non-steroidal] explode all trees
#51.	((non?steroidal or non-steroidal) near/2 (anti?inflammatory or anti-inflammatory or antinflammatory)):ti,ab
#52.	nsaid*:ti,ab
#53.	(aceclofenac or acemetacin or celecoxib or dexibuprofen or dexketoprofen or diclofenac or etodolac or etoricoxib or fenbufen or fenoprofen or flurbiprofen or ibuprofen or indometacin or ketoprofen or mefenamic acid or meloxicam or nabumetone or naproxen or piroxicam or sulindac or tenoxicam or tiaprofenic acid or tolfenamic acid or clotam rapid):ti,ab
#54.	(preservex or emflex or celebrex or seractil or keral or voltarol or dyloject or diclomax or motifene or arthrotec or eltopan or lodine or arcoxia or fenopron or froben or brufen or fenbid or orudis or oruvail or axorid or ponstan or mobic or relifex or naprosyn or synflex or vimovo or napratec or brexidol or feldene or sulindac or mobiflex or surgam):ti,ab
#55.	{or #25-#54}
#56.	#24 and #55

F.4.3 Information and support

4. What information and support do people with non-complex fractures and their families and carers require?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Fractures	Information	n/a	The following filters were used in Medline, Embase and CINAHL only: QUAL	See Error! eference source not found. English only Exclusion filter applied in Medline, Embase and CINAHL

Medline search terms

1.	exp fractures, bone/
2.	fracture*.ti,ab.
3.	or/1-2
4.	patients/ or inpatients/ or outpatients/
5.	caregivers/ or exp family/ or exp parents/ or exp legal-guardians/
6.	(patient* or carer* or famil*).ti,ab.
7.	or/4-6
8.	popular-works-publication-type/ or exp information-services/ or publications/ or books/ or pamphlets/ or counseling/ or directive-counseling/
9.	7 and 8
10.	(patient* adj3 (education or educate or educating or literature or leaflet* or booklet* or pamphlet* or information)).ti,ab.
11.	patient education as topic/
12.	consumer health information/
13.	(information* adj3 (patient* or need* or requirement* or support* or seek* or access* or disseminat* or barrier*)).ti,ab.
14.	(discharge* adj3 (information* or advice)).ti,ab.
15.	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj2 (information* or educat* or learn* or train* or program* or advi?e* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*)).ti,ab.
16.	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj2 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*)).ti,ab.
17.	((information* or educat* or learn* or train* or program* or advi?e* or instruction* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*) adj2 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*)).ti,ab.
18.	((information* or educat*) adj2 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*)).ti,ab.
19.	exp consumer-satisfaction/ or personal-satisfaction/ or exp patient-acceptance-of-health-care/
20.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or inform*)).ti,ab.
21.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (knowledge or

	awareness or misconception* or understanding or misunderstanding)).ti,ab.
22.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (experience or experiences or opinion* or concern* or belief* or feeling* or idea* or satisfaction or anxiet* or fear* or acceptance or denial or stigma* or label* or behaviour* or behavior*)),ti,ab.
23.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (need* or requirement* or support* or communication* or involvement)).ti,ab.
24.	or/9-23
25.	3 and 24

Embase search terms

1.	exp fracture/
2.	fracture*.ti,ab.
3.	or/1-2
4.	patient/ or hospital patient/ or outpatient/
5.	caregiver/ or exp family/ or exp parent/
6.	(patient* or carer* or famil*).ti,ab.
7.	or/4-6
8.	information service/ or information center/ or publication/ or book/ or counseling/ or directive counseling/
9.	7 and 8
10.	patient attitude/ or patient preference/ or patient satisfaction/ or consumer attitude/
11.	patient information/ or consumer health information/
12.	patient education/
13.	(patient* adj3 (education or educate or educating or information or literature or leaflet* or booklet* or pamphlet*)),ti,ab.
14.	(information* adj3 (need* or requirement* or support* or seek* or access* or disseminat* or barrier*)),ti,ab.
15.	(discharge* adj3 (information* or advice)).ti,ab.
16.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or inform*)),ti,ab.
17.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (knowledge or awareness or misconception* or understanding or misunderstanding)).ti,ab.
18.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (experience or experiences or opinion* or concern* or belief* or feeling* or idea* or satisfaction or anxiet* or fear* or acceptance or denial or stigma* or label* or behaviour* or behavior*)),ti,ab.
19.	((patient* or user* or carer* or famil* or parent* or father* or mother*) adj3 (need* or requirement* or support* or communication* or involvement)).ti,ab.
20.	or/9-19
21.	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj2 (information* or educat* or learn* or train* or program* or advi?e* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*)),ti,ab.
22.	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj2 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*)),ti,ab.
23.	((information* or educat* or learn* or train* or program* or advi?e* or instruction* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*) adj2 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or

	handout* or website* or web site* or web page* or webpage* or video* or dvd*).ti,ab.
24.	((information* or educat*) adj2 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*).ti,ab.
25.	or/9-24
26.	3 or 25

Cinahl search terms

S1.	(MH "fractures+")
S2.	ti fracture* or ab fracture*
S3.	S1 or S2
S4.	(MM "patient education") or (MM "patient discharge education")
S5.	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver* or next of kin*) n2 (information* or educat* or learn* or train* or program* or advi?e* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*))
S6.	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver* or next of kin*) n2 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*))
S7.	((information* or educat* or learn* or train* or program* or advi?e* or instruction* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*) n2 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*))
S8.	((information* or educat*) n2 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*))
S9.	S4 or S5 or S6 or S7 or S8
S10.	MH patients or MH inpatients or MH outpatients or MH caregivers or MH family+ or MH parents+ or MH guardianship, legal
S11.	MH information services+ or MH books+ or MH pamphlets or MH counseling
S12.	S10 and S11
S13.	((patient* or user* or carer* or famil* or parent* or father* or mother*) n3 (attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or inform or knowledge or awareness or misconception* or understanding or misunderstanding or experience or experiences or opinion* or concern* or belief* or feeling* or idea* or satisfaction or anxiet* or fear* or acceptance or denial or stigma* or label* or behaviour* or behavior* or need* or requirement* or support* or communication* or involvement))
S14.	MH consumer satisfaction+ or MH consumer attitudes or MH personal satisfaction
S15.	(MH "patient attitudes") or (MH "family attitudes+")
S16.	(information* n3 (need* or requirement* or support* or seek* or access* or disseminat* or barrier*))
S17.	(discharge* n3 (information* or advice))
S18.	S13 or S14 or S15 or S16 or S17
S19.	S9 or S12 or S18
S20.	S3 and S20

F.4.4 Hot reporting

5. Is the use of definitive hot reporting of X-Rays by radiographers and/or radiologists clinically and cost-effective for use in patients with suspected fractures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Fractures OR Major trauma OR Emergency department settings	Radiographer/radiologist report	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Error! eference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	exp fractures, bone/
2.	fracture*.ti,ab.
3.	(trauma* or polytrauma*).ti,ab.
4.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*)).ti,ab.
5.	multiple trauma/
6.	wounds, gunshot/ or wounds, stab/ or accidents, traffic/ or accidental falls/ or blast injuries/ or accidents, aviation/
7.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) adj3 (accident* or crash* or collision* or smash*)).ti,ab.
8.	(MVAs or MVA or RTAs or RTA).ti,ab.
9.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger).ti,ab.
10.	exp emergency service, hospital/
11.	emergency medical services/
12.	((emergency or emergencies) adj2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)).ti,ab.
13.	"accident and emergency".ti,ab.
14.	A&E.ti,ab.
15.	ED.ti,ab.
16.	or/1-15
17.	((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed) adj2 report*).ti,ab.
18.	((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed) adj5 reporting).ti,ab.
19.	((radiograph* or radiolog* or imag* or tomograph* or ct or xray or x ray) and ((preliminary or provisional* or definitive*) adj3 report*)).ti,ab.
20.	(red adj2 dot*).ti,ab.
21.	or/17-20
22.	16 and 21

Embase search terms

1.	fracture/
2.	fracture*.ti,ab.
3.	(trauma* or polytrauma*).ti,ab.

4.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*)).ti,ab.
5.	multiple trauma/
6.	gunshot injury/ or stab wound/ or traffic accident/ or falling/ or blast injury/ or aircraft accident/
7.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) adj3 (accident* or crash* or collision* or smash*)).ti,ab.
8.	(MVAs or MVA or RTAs or RTA).ti,ab.
9.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger).ti,ab.
10.	emergency health service/
11.	emergency ward/
12.	((emergency or emergencies) adj2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)).ti,ab.
13.	"accident and emergency".ti,ab.
14.	ED.ti,ab.
15.	A&E.ti,ab.
16.	or/1-15
17.	((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed) adj2 report*).ti,ab.
18.	((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed) adj5 reporting).ti,ab.
19.	((radiograph* or radiolog* or imag* or tomograph* or ct or xray or x ray) and ((preliminary or provisional* or definitive*) adj3 report*)).ti,ab.
20.	(red adj2 dot*).ti,ab.
21.	or/17-20
22.	16 and 21

Cochrane search terms

#1.	fracture*:ti,ab
#2.	MeSH descriptor: [fractures, bone] explode all trees
#3.	(trauma* or polytrauma*):ti,ab
#4.	((serious* or severe* or major or life threaten*) near/3 (accident* or injur* or fall*)):ti,ab
#5.	MeSH descriptor: [multiple trauma] this term only
#6.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) near/3 (accident* or crash* or collision* or smash*)):ti,ab
#7.	(MVAs or MVA or RTAs or RTA):ti,ab
#8.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger):ti,ab
#9.	MeSH descriptor: [emergency service, hospital] explode all trees
#10.	MeSH descriptor: [emergency medical services] this term only
#11.	((emergency or emergencies) near/2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)) .ti,ab.
#12.	"accident and emergency":ti,ab
#13.	A&E:ti,ab
#14.	ED:ti,ab
#15.	{or #1-#14}

#16.	((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed near/2 report*):ti,ab
#17.	((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed near/5 reporting):ti,ab
#18.	((radiograph* or radiolog* or imag* or tomograph* or ct or xray or x ray) and ((preliminary or provisional* or definitive*) near/3 report*)):ti,ab
#19.	(red near/2 dot*):ti,ab
#20.	{or #16-#19}
#21.	#15 and #20

F.4.5 Multidisciplinary teams

6. Who are the most clinically and cost-effective referral pathway decision-makers for patients with NCF?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Long bone fractures.	Multi-disciplinary team OR Grade/seniority of clinician	n/a	n/a	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	fractures, bone/ or ankle fractures/ or humeral fractures/ or exp radius fractures/ or shoulder fractures/ or tibial fractures/ or exp ulna fractures/ or femoral fractures/
2.	((long bone* or longbone* or limb or limbs or arm or arms or forearm* or leg or legs) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
3.	((humerus or humeral or humeri or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
4.	((radius or radii or ulnae or ulna or elbow* or forearm* or wrist* or colles or colles' or raikar*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
5.	((tibia or tibiae or tibias or shin* or shank*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
6.	((fibula or fibulae or calf*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
7.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
8.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
9.	or/1-8
10.	exp fractures, bone/
11.	femur/ or fibula/ or tibia/ or humerus/ or radius/ or ulna/ or wrist/ or elbow/ or shoulder/ or forearm/ or upper extremity/ or ankle/ or knee/ or leg/ or lower extremity/ or extremities/
12.	10 and 11

13.	9 or 12
14.	consultants/
15.	(consultant* or registrar* or specialist*).ti,ab.
16.	orthopedics/
17.	(surgeon* or orthopod*).ti,ab.
18.	(house officer* or sho or junior doctor*).ti,ab.
19.	nurse*.ti,ab.
20.	exp nurses/ or exp nursing staff/
21.	(physical therapist* or physiotherapist*).ti,ab.
22.	physical therapists/
23.	locum*.ti,ab.
24.	radiologist*.ti,ab.
25.	(plaster technician* or orthop?edic technician*).ti,ab.
26.	extended practitioner*.ti,ab.
27.	or/14-26
28.	(senior* or experience* or supervis* or grade* or competen* or skill* or team*).ti,ab.
29.	(referral* or pathway* or decision*).ti,ab.
30.	decision making/
31.	"referral and consultation"/
32.	clinical competence/
33.	or/28-32
34.	27 and 33
35.	patient care team/ or nursing, team/
36.	interprofessional relations/
37.	(multidisciplin* or interdisciplin* or mdt or interprofessional* or multiprofessional* or inter-disciplin* or multi-disciplin* or inter-professional or multi-professional).ti,ab.
38.	((patient or medical or health*) adj2 team*).ti,ab.
39.	or/34-38
40.	13 and 39

Embase search terms

1.	*fracture/
2.	exp *arm fracture/ or *leg fracture/ or *ankle fracture/ or *distal tibia fracture/ or *fibula fracture/ or *knee fracture/ or *patella fracture/ or *proximal tibia fracture/ or *tibia fracture/ or *tibia shaft fracture/ or *joint fracture/ or exp *femur fracture/
3.	((long bone* or longbone* or limb or limbs or arm or arms or forearm* or leg or legs) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
4.	((humerus or humeral or humeri or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
5.	((radius or radii or ulnae or ulna or elbow* or forearm* or colles or colles' or raikar*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
6.	((tibia or tibiae or tibias or shin* or shank*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
7.	((fibula or fibulae or calf*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
8.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
9.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or

	injur*)).ti,ab.
10.	or/1-9
11.	exp *fracture/
12.	*femur/ or *fibula/ or *tibia/ or *humerus/ or *radius/ or *ulna/ or *limb/ or *arm/ or *forearm/ or *elbow/ or *wrist/ or *leg/ or *lower leg/ or *knee/ or *ankle/
13.	11 and 12
14.	10 or 13
15.	*consultation/
16.	(consultant* or registrar* or specialist*).ti,ab.
17.	*orthopedic surgeon/
18.	(surgeon* or orthopod*).ti,ab.
19.	(house officer* or sho or junior doctor*).ti,ab.
20.	nurse*.ti,ab.
21.	*nurse/
22.	(physical therapist* or physiotherapist*).ti,ab.
23.	*physiotherapist/
24.	locum*.ti,ab.
25.	radiologist*.ti,ab.
26.	(plaster technician* or orthop?edic technician*).ti,ab.
27.	extended practitioner*.ti,ab.
28.	or/15-27
29.	(senior* or experience* or supervis* or grade* or competen* or skill* or team*).ti,ab.
30.	(referral* or pathway* or decision*).ti,ab.
31.	*decision making/ or *medical decision making/ or *patient decision making/
32.	*patient referral/
33.	*clinical competence/
34.	or/29-33
35.	28 and 34
36.	*patient care/
37.	*teamwork/
38.	(multidisciplin* or interdisciplin* or mdt or inter-professional* or multiprofessional* or inter-disciplin* or multi-disciplin* or inter-professional or multi-professional).ti,ab.
39.	((patient or medical or health*) adj2 team*).ti,ab.
40.	or/35-39
41.	14 and 40

Cochrane search terms

#1.	MeSH descriptor: [fractures, bone] this term only
#2.	MeSH descriptor: [tibial fractures] this term only
#3.	MeSH descriptor: [ankle fractures] this term only
#4.	MeSH descriptor: [humeral fractures] this term only
#5.	MeSH descriptor: [radius fractures] explode all trees
#6.	MeSH descriptor: [shoulder fractures] this term only
#7.	MeSH descriptor: [ulna fractures] explode all trees
#8.	MeSH descriptor: [femoral fractures] this term only
#9.	((long bone* or longbone* or limb or limbs arm or arms or forearm* or leg or legs) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab

#10.	((humerus or humeral or humeri or shoulder*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#11.	((radius or radii or ulnae or ulna or elbow* or forearm* or colles or colles' or raikar*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#12.	((tibia or tibiae or tibias or shin* or shank*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#13.	((fibula or fibulae or calf*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#14.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#15.	((femur* or femora* or thigh*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)) .ti,ab.
#16.	{or #1-#15}
#17.	MeSH descriptor: [fractures, bone] explode all trees
#18.	MeSH descriptor: [femur] this term only
#19.	MeSH descriptor: [fibula] this term only
#20.	MeSH descriptor: [tibia] this term only
#21.	MeSH descriptor: [humerus] this term only
#22.	MeSH descriptor: [radius] this term only
#23.	MeSH descriptor: [ulna] this term only
#24.	MeSH descriptor: [wrist] this term only
#25.	MeSH descriptor: [elbow] this term only
#26.	MeSH descriptor: [shoulder] this term only
#27.	MeSH descriptor: [forearm] this term only
#28.	MeSH descriptor: [upper extremity] this term only
#29.	MeSH descriptor: [ankle] this term only
#30.	MeSH descriptor: [knee] this term only
#31.	MeSH descriptor: [leg] this term only
#32.	MeSH descriptor: [lower extremity] this term only
#33.	MeSH descriptor: [extremities] this term only
#34.	{or #18-#33}
#35.	#17 and #34
#36.	#16 or #35
#37.	MeSH descriptor: [consultants] this term only
#38.	(consultant* or registrar* or specialist*):ti,ab
#39.	MeSH descriptor: [orthopedics] this term only
#40.	(surgeon* or orthopod*):ti,ab
#41.	(house officer* or sho or junior doctor*):ti,ab
#42.	nurse*:ti,ab
#43.	MeSH descriptor: [nurses] this term only
#44.	MeSH descriptor: [nursing staff] this term only
#45.	(physical therapist* or physiotherapist*):ti,ab
#46.	MeSH descriptor: [physical therapists] this term only
#47.	locum*:ti,ab
#48.	radiologist*:ti,ab
#49.	(plaster next technician* or orthopedic next technician* or orthopaedic next technician*):ti,ab

#50.	extended next practitioner*:ti,ab
#51.	{or #37-#50}
#52.	(senior* or experience* or supervis* or grade* or competen* or skill* or team*):ti,ab
#53.	(referral* or pathway* or decision*):ti,ab
#54.	MeSH descriptor: [decision making] this term only
#55.	MeSH descriptor: [referral and consultation] this term only
#56.	MeSH descriptor: [clinical competence] this term only
#57.	{or #52-#56}
#58.	#51 and #57
#59.	MeSH descriptor: [patient care team] this term only
#60.	MeSH descriptor: [nursing, team] this term only
#61.	MeSH descriptor: [interprofessional relations] this term only
#62.	(multidisciplin* or interdisciplin* or mdt or interprofessional* or multiprofessional* or interdisciplin* or multi-disciplin* or inter-professional or multi-professional):ti,ab
#63.	((patient or medical or health*) near/2 team*):ti,ab
#64.	{or #58-#63}
#65.	#36 and #64

F.4.6 Clinics

7. What is the clinical and cost effectiveness of virtual fracture clinics compared to face to face fracture clinics for patients with NCF?
8. What is the clinical and cost effectiveness of different referral destinations for patients with NCF?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Long bone fractures.	Virtual or specialist clinics	n/a	n/a	See Error! eference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	fractures, bone/ or ankle fractures/ or humeral fractures/ or exp radius fractures/ or shoulder fractures/ or tibial fractures/ or exp ulna fractures/ or femoral fractures/
2.	((long bone* or longbone* or limb or limbs or arm or arms or forearm* or leg or legs) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
3.	((humerus or humeral or humeri or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
4.	((radius or radii or ulnae or ulna or elbow* or forearm* or wrist* or colles or colles' or raikar*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
5.	((tibia or tibiae or tibias or shin* or shank*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab.
6.	((fibula or fibulae or calf*) adj4 (fracture* or break or breaks or broken or crack* or frx or

	trauma or injur*).ti,ab.
7.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
8.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
9.	or/1-8
10.	exp fractures, bone/
11.	femur/ or fibula/ or tibia/ or humerus/ or radius/ or ulna/ or wrist/ or elbow/ or shoulder/ or forearm/ or upper extremity/ or ankle/ or knee/ or leg/ or lower extremity/ or extremities/
12.	10 and 11
13.	9 or 12
14.	outpatient clinics, hospital/
15.	telemedicine/
16.	exp decision making, computer-assisted/
17.	((virtual or tele* or face to face or in person or remote) adj2 (clinic* or outpatient* or appointment* or follow* up or meeting* or consultation* or referral*).ti,ab.
18.	((specialist* or fracture* or general or orthop*) adj2 (clinic* or outpatient* or appointment* or follow* up or meeting* or consultation* or referral*).ti,ab.
19.	or/14-18
20.	13 and 19

Embase search terms

1.	*fracture/
2.	exp *arm fracture/ or *leg fracture/ or *ankle fracture/ or *distal tibia fracture/ or *fibula fracture/ or *knee fracture/ or *patella fracture/ or *proximal tibia fracture/ or *tibia fracture/ or *tibia shaft fracture/ or *joint fracture/ or exp *femur fracture/
3.	((long bone* or longbone* or limb or limbs or arm or arms or forearm* or leg or legs) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
4.	((humerus or humeral or humeri or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
5.	((radius or radii or ulnae or ulna or elbow* or forearm* or colles or colles' or raikar*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
6.	((tibia or tibiae or tibias or shin* or shank*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
7.	((fibula or fibulae or calf*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
8.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
9.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*).ti,ab.
10.	or/1-9
11.	exp *fracture/
12.	*femur/ or *fibula/ or *tibia/ or *humerus/ or *radius/ or *ulna/ or *limb/ or *arm/ or *forearm/ or *elbow/ or *wrist/ or *leg/ or *lower leg/ or *knee/ or *ankle/
13.	11 and 12
14.	10 or 13
15.	*outpatient department/

16.	*telemedicine/
17.	*decision support system/
18.	((virtual or tele* or face to face or in person or remote) adj2 (clinic* or outpatient* or appointment* or follow* up or meeting* or consultation* or referral*)).ti,ab.
19.	((specialist* or fracture* or general or orthop*) adj2 (clinic* or outpatient* or appointment* or follow* up or meeting* or consultation* or referral*)).ti,ab.
20.	or/15-19
21.	14 and 20

Cochrane search terms

#1.	MeSH descriptor: [fractures, bone] this term only
#2.	MeSH descriptor: [tibial fractures] this term only
#3.	MeSH descriptor: [ankle fractures] this term only
#4.	MeSH descriptor: [humeral fractures] this term only
#5.	MeSH descriptor: [radius fractures] explode all trees
#6.	MeSH descriptor: [shoulder fractures] this term only
#7.	MeSH descriptor: [ulna fractures] explode all trees
#8.	MeSH descriptor: [femoral fractures] this term only
#9.	((long bone* or longbone* or limb or limbs arm or arms or forearm* or leg or legs) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#10.	((humerus or humeral or humeri or shoulder*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#11.	((radius or radii or ulnae or ulna or elbow* or forearm* or colles' or colles' or raikar*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#12.	((tibia or tibiae or tibias or shin* or shank*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#13.	((fibula or fibulae or calf*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#14.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)):ti,ab
#15.	((femur* or femora* or thigh*) near/4 (fracture* or break or breaks or broken or crack* or frx or trauma or injur*)) .ti,ab.
#16.	{or #1-#15}
#17.	MeSH descriptor: [fractures, bone] explode all trees
#18.	MeSH descriptor: [femur] this term only
#19.	MeSH descriptor: [fibula] this term only
#20.	MeSH descriptor: [tibia] this term only
#21.	MeSH descriptor: [humerus] this term only
#22.	MeSH descriptor: [radius] this term only
#23.	MeSH descriptor: [ulna] this term only
#24.	MeSH descriptor: [wrist] this term only
#25.	MeSH descriptor: [elbow] this term only
#26.	MeSH descriptor: [shoulder] this term only
#27.	MeSH descriptor: [forearm] this term only
#28.	MeSH descriptor: [upper extremity] this term only
#29.	MeSH descriptor: [ankle] this term only
#30.	MeSH descriptor: [knee] this term only

#31.	MeSH descriptor: [leg] this term only
#32.	MeSH descriptor: [lower extremity] this term only
#33.	MeSH descriptor: [extremities] this term only
#34.	{or #18-#33}
#35.	#17 and #34
#36.	#16 or #35
#37.	MeSH descriptor: [outpatient clinics, hospital] explode all trees
#38.	MeSH descriptor: [telemedicine] explode all trees
#39.	MeSH descriptor: [decision making, computer-assisted] explode all trees
#40.	((virtual or tele* or face to face or in person or remote) near/2 (clinic* or outpatient* or appointment* or follow* up or meeting* or consultation* or referral*)):ti,ab
#41.	((specialist* or fracture* or general or orthop*) near/2 (clinic* or outpatient* or appointment* or follow* up or meeting* or consultation* or referral*)):ti,ab
#42.	{or #37-#41}
#43.	#36 and #42

F.4.7 Humerus fractures - treatment

9. What is the most cost effective definitive treatment for displaced low energy fractures of the proximal humerus?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Proximal humerus fractures	n/a	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((humerus* or humeral* or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	hill-sachs.ti,ab.
3.	humeral fractures/
4.	or/1-3

Embase search terms

1.	((humerus* or humeral* or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	hill-sachs.ti,ab.
3.	*humerus fracture/
4.	or/1-3

Cochrane search terms

#1.	((humerus* or humeral* or shoulder*) near/4 (fracture* or break or breaks or broken or
-----	--

	crack* or frx)):ti,ab
#2.	hill-sachs:ti,ab
#3.	[MH "humeral fractures"]
#4.	{or #1-#3}

F.4.8 Distal radius fractures – reduction and timing of surgery

Searches for the following four questions were run as one search:

10. Is the reduction through manipulation of a dorsally displaced distal radius fracture without neurovascular compromise influenced by the use of an image intensifier?
11. Is the reduction through manipulation of a dorsally displaced distal radius fracture without neurovascular compromise influenced by timing?
12. What type of anaesthetic is the most clinically and cost effective for closed reduction of dorsally displaced distal radius fractures in people without neurovascular compromise in the emergency department?
13. What is the maximum safe delay in surgical management of fractures of the distal radius before outcome is compromised?
14. What is the most clinically and cost effective definitive treatment for dorsally displaced low-energy fractures of the distal radius?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Distal radius fractures	n/a	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	colles' fracture/
2.	radius fractures/ and distal*.ti,ab.
3.	((colles or smith* or barton* or wrist*) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
4.	(distal* adj4 (radial or radius) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
5.	or/1-4
6.	exp fractures, bone/
7.	radius/ and distal*.ti,ab.
8.	6 and 7
9.	5 or 8

Embase search terms

1.	colles fracture/
2.	radius fracture/ and distal*.ti,ab.

3.	((colles or smith* or barton* or wrist*) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
4.	(distal* adj4 (radial or radius) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
5.	or/1-4
6.	fracture/
7.	radius/ and distal*.ti,ab.
8.	6 and 7
9.	5 or 8

Cochrane search terms

#1.	MeSH descriptor: [radius fractures] this term only
#2.	distal:ti,ab
#3.	#1 and #2
#4.	MeSH descriptor: [colles' fracture] this term only
#5.	((colles or smith* or barton* or wrist*) near/3 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#6.	(distal* near/4 (radial or radius) near/4 (fracture* or break or breaks or broken or crack* or frx)) .ti,ab.
#7.	{or #3-#6}
#8.	MeSH descriptor: [fractures, bone] this term only
#9.	MeSH descriptor: [radius] this term only
#10.	distal:ti,ab
#11.	#8 and #9 and #10
#12.	#7 or #11

F.4.9 Adverse events associated with anaesthesia in emergency department

15. What are the rates of serious adverse events for selected anaesthetic techniques used in the emergency department?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Emergency department setting	Anaesthesia			See Error! eference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	exp emergency service, hospital/
2.	((emergency or casualty) adj2 department).ti,ab.
3.	((accident or room) adj2 emergency).ti,ab.
4.	trauma unit*.ti,ab.

5.	("A&E" or ED).ti,ab.
6.	((without or no or lack*) adj6 an?esthetist*).ti,ab.
7.	((consultant* or physician* or registrar* or surgeon*) adj6 (gave or give* or administer* or oversee* or oversaw or deliver* or supervis*) adj6 (an?esthe* or block or blocks or sedat*).ti,ab.
8.	or/1-7
9.	anesthesia, intravenous/
10.	((intravenous* or IV) and (regional adj3 an?esthes*)).ti,ab.
11.	(bier* block* or IVRA).ti,ab.
12.	(h?ematoma adj2 block*).ti,ab.
13.	exp nerve block/
14.	((regional or peripheral* or nerve) adj2 block*).ti,ab.
15.	((axillary or infraclavicular or interscalene or femoral or lumbar plexus or popliteal or sciatic or ankle or supraclavicular or brachial plexus or paravertebral or transversus abdominis plane or TAP) adj3 block*).ti,ab.
16.	((conscious* or procedural*) adj2 sedat*).ti,ab.
17.	or/9-16
18.	8 and 17

Embase search terms

1.	emergency health service/
2.	((emergency or casualty) adj2 department).ti,ab.
3.	((accident or room) adj2 emergency).ti,ab.
4.	trauma unit*.ti,ab.
5.	("A&E" or ED).ti,ab.
6.	((without or no or lack*) adj6 an?esthetist*).ti,ab.
7.	((consultant* or physician* or registrar* or surgeon*) adj6 (gave or give* or administer* or oversee* or oversaw or deliver* or supervis*) adj6 (an?esthe* or block or blocks or sedat*).ti,ab.
8.	or/1-7
9.	intravenous regional anesthesia/
10.	((intravenous* or IV) and (regional adj3 an?esthes*)).ti,ab.
11.	(bier* block* or IVRA).ti,ab.
12.	(h?ematoma adj2 block*).ti,ab.
13.	exp nerve block/
14.	((regional or peripheral* or nerve) adj2 block*).ti,ab.
15.	((axillary or infraclavicular or interscalene or femoral or lumbar plexus or popliteal or sciatic or ankle or supraclavicular or brachial plexus or paravertebral or transversus abdominis plane or TAP) adj3 block*).ti,ab.
16.	conscious sedation/
17.	((conscious* or procedural*) adj2 sedat*).ti,ab.
18.	or/9-17
19.	8 and 18

Cochrane search terms

#1.	MeSH descriptor: [emergency service, hospital] explode all trees
#2.	((emergency or casualty) near/2 department):ti,ab
#3.	((accident or room) near/2 emergency):ti,ab

#4.	(trauma next unit*):ti,ab
#5.	("A&E" or ED):ti,ab
#6.	((without or no or lack*) near/6 (anesthetist* or anaesthetist*)):ti,ab
#7.	((consultant* or physician* or registrar* or surgeon*) near/6 (gave or give* or administer* or oversee* or oversaw or deliver* or supervis*) near/6 (anesthe* or anaesthe* or block or blocks or sedat*)):ti,ab
#8.	{or #1-#7}
#9.	MeSH descriptor: [anesthesia, intravenous] this term only
#10.	((intravenous* or IV) and (regional near/3 (anaesthes* or anesthes*))):ti,ab
#11.	((bier* and block*) or IVRA):ti,ab
#12.	((hematoma or haematoma) near/2 block*):ti,ab
#13.	MeSH descriptor: [nerve block] explode all trees
#14.	((regional or peripheral* or nerve) near/2 block*):ti,ab
#15.	((axillary or infraclavicular or interscalene or femoral or lumbar plexus or popliteal or sciatic or ankle or supraclavicular or "brachial plexus" or paravertebral or "transversus abdominis plane" or TAP) near/3 block*):ti,ab
#16.	((conscious* or procedural*) near/2 sedat*):ti,ab
#17.	{or #9-#16}
#18.	#8 and #17

F.4.10 Torus fractures - treatment

16. What is the most clinically and cost-effective management strategy for children with torus fractures of the forearm?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Torus fractures	n/a	n/a	n/a	See Error! eference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((torus or buckl*) adj2 (fracture* or break* or broken or frx* or forearm* or radius or longbone* or long bone*)):ti,ab.
2.	((incomplete or bowing) adj4 (fracture* or break* or broken or frx*) adj4 (forearm* or radius or longbone* or long bone*)):ti,ab.
3.	radius/ or exp forearm injuries/ or "bone and bones"/ or fractures, bone/
4.	(torus or buckl*):ti,ab.
5.	3 and 4
6.	1 or 2 or 5

Embase search terms

1.	((torus or buckl*) adj2 (fracture* or break* or broken or frx* or forearm* or radius or
----	---

	longbone* or long bone*).ti,ab.
2.	((incomplete or bowing) adj4 (fracture* or break* or broken or frx*) adj4 (forearm* or radius or longbone* or long bone*).ti,ab.
3.	radius fracture/ or radius/
4.	fracture/ or bone injury/
5.	bone/
6.	or/3-5
7.	(torus or buckl*).ti,ab.
8.	6 and 7
9.	1 or 2 or 8

Cochrane search terms

#1.	((torus or buckl*) near/2 (fracture* or break* or broken or frx* or forearm* or radius or longbone*)):ti,ab
#2.	(torus or buckl*) near/2 long next bone*:ti,ab
#3.	((incomplete or bowing) near/4 (fracture* or break* or broken or frx*) near/4 (forearm* or radius or longbone*)):ti,ab
#4.	(incomplete or bowing) near/4 long next bone*:ti,ab
#5.	{or #1-#4}
#6.	MeSH descriptor: [radius] this term only
#7.	MeSH descriptor: [forearm injuries] explode all trees
#8.	MeSH descriptor: [bone and bones] this term only
#9.	MeSH descriptor: [fractures, bone] this term only
#10.	{or #6-#9}
#11.	(torus or buckl*):ti,ab
#12.	#10 and #11
#13.	#5 or #12

F.4.11 Scaphoid fractures - imaging

Searches for the following two questions were run as one search:

17. What is the most clinically and cost-effective imaging strategy for patients with clinically suspected scaphoid fracture but indeterminate X-ray findings?
18. What is the diagnostic accuracy of imaging strategies for a suspected scaphoid fracture in patients with indeterminate initial X-ray findings?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Scaphoid fractures	Imaging techniques	n/a	The following filters were used in Medline and Embase only: DIAG, OBS, RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((scaphoid* or navicular) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	scaphoid bone/
3.	exp fractures, bone/
4.	2 and 3
5.	1 or 4
6.	radiography/ or exp tomography, emission-computed/ or exp tomography, x-ray/ or magnetic resonance imaging/ or exp fluoroscopy/
7.	(x ray* or xray* or fluoroscop* or fluroscop* or MDCT* or magnetic resonance imag* or MRI* or MR imag* or NMR or CT or radiograph* or tomograph*).ti,ab.
8.	(cat adj (scan* or imag*)).ti,ab.
9.	(compute* adj2 tomograph*).ti,ab.
10.	or/6-9
11.	5 and 10

Embase search terms

1.	((scaphoid* or navicular) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	scaphoid fracture/
3.	or/1-2
4.	exp radiodiagnosis/
5.	(x ray* or xray* or fluoroscop* or fluroscop* or MDCT* or magnetic resonance imag* or MRI* or MR imag* or NMR or CT or radiograph* or tomograph*).ti,ab.
6.	(cat adj (scan* or imag*)).ti,ab.
7.	(compute* adj2 tomograph*).ti,ab.
8.	or/4-7
9.	3 and 8

Cochrane search terms

#1.	((scaphoid* or navicular) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#2.	MeSH descriptor: [scaphoid bone] this term only
#3.	MeSH descriptor: [fractures, bone] explode all trees
#4.	#2 and #3
#5.	#1 or #4
#6.	MeSH descriptor: [radiography] explode all trees
#7.	(x ray* or xray* or fluoroscop* or fluroscop* or MDCT* or magnetic resonance imag* or MRI* or MR imag* or NMR or CT or radiograph* or tomograph*):ti,ab
#8.	(cat near/2 (scan* or imag*)):ti,ab
#9.	compute* near/2 tomograph*:ti,ab
#10.	{or #6-#9}
#11.	#5 and #10

F.4.12 Paediatric femoral fractures - treatment

19. What is the most clinically and cost-effective treatment for paediatric femoral shaft fractures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Femoral shaft fracture AND Children	Conservative or surgical treatments	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	femoral fractures/
2.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	or/1-2
4.	fractures, bone/
5.	femur/
6.	4 and 5
7.	3 or 6
8.	exp child/
9.	child*.ti,ab.
10.	exp pediatrics/
11.	exp infant/
12.	infan*.ti,ab.
13.	(baby or babies).ti,ab.
14.	"adolescent"/ or adolescen*.ti,ab.
15.	(pediatric* or paediatric*).ti,ab.
16.	(neonat* or newborn*).ti,ab.
17.	teen*.ti,ab.
18.	((skelet* or bone*) adj3 immatur*).ti,ab.
19.	or/8-18
20.	7 and 19
21.	(harness* or traction* or cast* or splint* or nail* or fix* or tape* or plaster* or elastic* or brace* or wire* or bolt* or plate*).ti,ab.
22.	traction/
23.	orthopedic fixation devices/ or bone nails/ or bone plates/ or bone screws/ or bone wires/ or casts, surgical/ or external fixators/ or internal fixators/ or splints/
24.	(pavlik* or bryant* or gallow*).ti,ab.
25.	(spica* or intramedullar*).ti,ab.
26.	(operat* or non-operat* or nonoperat* or surg* or nonsurg* or non-surg* or conservativ*).ti,ab.
27.	(manipulat* or reduction).ti,ab.
28.	or/21-27
29.	20 and 28

Embase search terms

1.	femur fracture/ or femur shaft fracture/
2.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	or/1-2
4.	fracture/
5.	femur/ or femur shaft/
6.	4 and 5
7.	3 or 6
8.	exp child/
9.	exp pediatrics/
10.	child*.ti,ab.
11.	infan*.ti,ab.
12.	(baby or babies).ti,ab.
13.	exp adolescent/ or adolescen*.ti,ab.
14.	(pediatric* or paediatric*).ti,ab.
15.	(neonat* or newborn*).ti,ab.
16.	((skelet* or bone*) adj3 immatur*).ti,ab.
17.	teen*.ti,ab.
18.	juvenile/
19.	or/8-18
20.	7 and 19
21.	(harness* or traction* or cast* or splint* or nail* or fix* or tape* or plaster* or elastic* or brace* or wire* or bolt* or plate*).ti,ab.
22.	traction therapy/
23.	exp fracture fixation/
24.	(pavlik* or bryant* or gallow*).ti,ab.
25.	(spica* or intramedullar*).ti,ab.
26.	(operat* or non-operat* or nonoperat* or surg* or nonsurg* or non-surg* or conservativ*).ti,ab.
27.	conservative treatment/
28.	(manipulat* or reduction).ti,ab.
29.	open reduction/
30.	fracture reduction/
31.	or/21-30
32.	20 and 31

Cochrane search terms

#1.	MeSH descriptor: [femoral fractures] this term only
#2.	((femur* or femora* or thigh*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#3.	#1 or #2
#4.	MeSH descriptor: [fractures, bone] this term only
#5.	MeSH descriptor: [femur] this term only
#6.	#4 and #5
#7.	#3 or #6
#8.	MeSH descriptor: [child] explode all trees

#9.	child*:ti,ab
#10.	MeSH descriptor: [pediatrics] explode all trees
#11.	MeSH descriptor: [infant] explode all trees
#12.	infan*:ti,ab
#13.	(baby or babies):ti,ab
#14.	MeSH descriptor: [adolescent] explode all trees
#15.	adolescen*:ti,ab
#16.	(pediatric* or paediatric*):ti,ab
#17.	(neonat* or newborn*):ti,ab
#18.	teen*:ti,ab
#19.	((skelet* or bone*) near/3 immatur*):ti,ab
#20.	{or #8-#19}
#21.	#7 and #20
#22.	(harness* or traction* or cast* or splint* or nail* or fix* or tape* or plaster* or elastic* or brace* or wire* or bolt* or plate* or screw*):ti,ab
#23.	MeSH descriptor: [traction] this term only
#24.	MeSH descriptor: [orthopedic fixation devices] this term only
#25.	MeSH descriptor: [bone nails] this term only
#26.	MeSH descriptor: [bone plates] this term only
#27.	MeSH descriptor: [bone screws] this term only
#28.	MeSH descriptor: [bone wires] this term only
#29.	MeSH descriptor: [casts, surgical] this term only
#30.	MeSH descriptor: [external fixators] this term only
#31.	MeSH descriptor: [internal fixators] this term only
#32.	MeSH descriptor: [splints] this term only
#33.	(pavlik* or bryant* or gallow*):ti,ab
#34.	(spica* or intramedullar*):ti,ab
#35.	(operat* or non-operat* or nonoperat* or surg* or nonsurg* or non-surg* or conservativ*):ti,ab
#36.	(manipulat* or reduction):ti,ab
#37.	{or #22-#36}
#38.	#21 and #37

F.4.13 Distal femoral fractures - mobilisation

20. What is the most clinically and cost-effective weight-bearing strategy in patients with operatively treated fractures of the distal femur?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Femoral fractures	Weight bearing	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				Embase

Medline search terms

1.	femoral fractures/
2.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	exp Fractures, Bone/
4.	femur/
5.	3 and 4
6.	or/1-2,5
7.	exp weight-bearing/
8.	("load bearing" or loadbearing or weight-bearing or weightbearing or load-bearing or "weight bearing").ti,ab.
9.	("load carrying" or loadcarrying or load-carrying or weight-carrying or weightcarrying or "weight carrying").ti,ab.
10.	((immediate or delay* or prolong*) adj3 (weight or load*)).ti,ab.
11.	((restricted or unrestricted or forward) adj3 (weight or load*)).ti,ab.
12.	((full or partial or touch or non or non- or protect* or tolerat*) adj3 (weight or load*)).ti,ab.
13.	early ambulation/
14.	((early or immediate or delay*) adj3 (mobili* or walk* or ambulat*)).ti,ab.
15.	or/7-14
16.	6 and 15

Embase search terms

1.	exp femur fracture/
2.	((femur* or femora* or thigh*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	fracture/ and femur/
4.	or/1-3
5.	*weight bearing/
6.	("load bearing" or loadbearing or weight-bearing or weightbearing or load-bearing or "weight bearing").ti,ab.
7.	("load carrying" or loadcarrying or load-carrying or weight-carrying or weightcarrying or "weight carrying").ti,ab.
8.	((immediate or delay* or prolong*) adj3 (weight or load*)).ti,ab.
9.	((restricted or unrestricted or forward) adj3 (weight or load*)).ti,ab.
10.	((full or partial or touch or non or non- or protect* or tolerat*) adj3 (weight or load*)).ti,ab.
11.	*mobilization/
12.	((early or immediate or delay*) adj3 (mobili* or walk* or ambulat*)).ti,ab.
13.	or/5-12
14.	4 and 13

Cochrane search terms

#1.	[mh ^"femoral fractures"]
#2.	((femur* or femora* or thigh*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab

#3.	[mh femur]
#4.	MeSH descriptor: [fractures, bone] explode all trees
#5.	#3 and #4
#6.	#1 or #2 or #5
#7.	[mh weight-bearing]
#8.	("load bearing" or loadbearing or weight-bearing or weightbearing or load-bearing or "weight bearing"):ti,ab
#9.	("load carrying" or loadcarrying or load-carrying or weight-carrying or weightcarrying or "weight carrying"):ti,ab
#10.	((immediate or delay* or prolong*) near/3 (weight or load*)):ti,ab
#11.	((restricted or unrestricted or forward) near/3 (weight or load*)):ti,ab
#12.	((full or partial or touch or non or non- or protect* or tolerat*) near/3 (weight or load*)):ti,ab
#13.	[mh ^"early ambulation"]
#14.	((early or immediate or delay*) near/3 (mobili* or walk* or ambulat*)):ti,ab
#15.	{or #7-#14}
#16.	#6 and #15

F.4.14 Knee fractures - clinical prediction rules

21. Are validated clinical prediction rules accurate at predicting suspected knee fractures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Knee fractures	n/a	n/a	The following filters were used in Medline and Embase only: PRED- RULE	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((knee* or patella or femoral condyle* or patellofemoral groove or tibial plateau) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(proximal* adj4 (tibia* or tibula* or fibia* or fibula*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	(distal* adj4 (femur or femoral) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
4.	or/1-3
5.	knee injuries/
6.	knee/ or patella/
7.	5 or 6
8.	exp fractures, bone/
9.	7 and 8
10.	4 or 9

Embase search terms

1.	((knee* or patella or femoral condyle* or patellofemoral groove or tibial plateau) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(proximal* adj4 (tibia* or tibula* or fibia* or fibula*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	(distal* adj4 (femur or femoral) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
4.	or/1-3
5.	knee injuries/
6.	knee/ or patella/
7.	5 or 6
8.	exp fractures, bone/
9.	7 and 8
10.	4 or 9

Cochrane search terms

#1.	((knee* or patella or femoral condyle* or patellofemoral groove or tibial plateau) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#2.	(proximal* near/4 (tibia* or tibula* or fibia* or fibula*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#3.	(distal* near/4 (femur or femoral) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#4.	{or #1-#3}
#5.	MeSH descriptor: [knee injuries] this term only
#6.	MeSH descriptor: [knee] this term only
#7.	MeSH descriptor: [patella] this term only
#8.	#5 or #6 or #7
#9.	MeSH descriptor: [fractures, bone] explode all trees
#10.	#8 and #9
#11.	#4 or #10

F.4.15 Ankle fractures - clinical prediction rules

22. Are validated clinical prediction rules clinically and cost effective at predicting suspected ankle fractures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Ankle fractures	n/a	n/a	The following filters were used in Medline and Embase only: PRED-RULE	See Error! eference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	ankle fractures/
4.	or/1-3
5.	ankle injuries/ or ankle/ or fibula/ or tibia/
6.	exp fractures, bone/
7.	5 and 6
8.	ankle injuries/
9.	(ankle adj4 (sprain* or strain* or injur*)).ti,ab.
10.	or/4,7-9

Embase search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	exp ankle fracture/
4.	or/1-3
5.	ankle injury/
6.	(ankle adj4 (sprain* or strain* or injur*)).ti,ab.
7.	or/4-6

Cochrane search terms

#1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#2.	(distal* near/4 (fibula* or tibia*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#3.	MeSH descriptor: [ankle fractures] this term only
#4.	{or #1-#3}
#5.	MeSH descriptor: [ankle injuries] this term only
#6.	MeSH descriptor: [ankle] this term only
#7.	MeSH descriptor: [fibula] this term only
#8.	MeSH descriptor: [tibia] this term only
#9.	{or #5-#8}
#10.	MeSH descriptor: [fractures, bone] explode all trees
#11.	#9 and #10
#12.	MeSH descriptor: [ankle injuries] explode all trees
#13.	(ankle near/4 (sprain* or strain* or injur*)):ti,ab
#14.	#4 or #11 or #12 or #13

F.4.16 Ankle fractures - imaging

23. Is the use of CT scanning in addition to initial plain film X-ray clinically- and cost- effective for planning surgical treatment of unstable/displaced ankle fractures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Ankle fractures	Imaging techniques	n/a	The following filters were used in Medline and Embase only: RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	ankle fractures/
4.	or/1-3
5.	ankle injuries/ or ankle/ or fibula/ or tibia/
6.	exp fractures, bone/
7.	5 and 6
8.	4 or 7
9.	radiography/ or exp tomography, emission-computed/ or exp tomography, x-ray/ or magnetic resonance imaging/ or exp fluoroscopy/
10.	(x ray* or xray* or fluoroscop* or fluroscop* or MDCT* or magnetic resonance imag* or MRI* or MR imag* or NMR or CT or radiograph* or tomograph*).ti,ab.
11.	(cat adj (scan* or imag*)).ti,ab.
12.	(compute* adj2 tomograph*).ti,ab.
13.	or/9-12
14.	8 and 13

Embase search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	exp ankle fracture/
4.	or/1-3
5.	exp radiodiagnosis/
6.	(x ray* or xray* or fluoroscop* or fluroscop* or MDCT* or magnetic resonance imag* or MRI* or MR imag* or NMR or CT or radiograph* or tomograph*).ti,ab.

7.	(compute* adj2 tomograph*).ti,ab.
8.	(cat adj (scan* or imag*).ti,ab.
9.	or/5-8
10.	4 and 9

Cochrane search terms

#1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#2.	(distal* near/4 (fibula* or tibia*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#3.	MeSH descriptor: [ankle fractures] this term only
#4.	{or #1-#3}
#5.	MeSH descriptor: [ankle injuries] this term only
#6.	MeSH descriptor: [ankle] this term only
#7.	MeSH descriptor: [fibula] this term only
#8.	MeSH descriptor: [tibia] this term only
#9.	{or #5-#8}
#10.	MeSH descriptor: [fractures, bone] explode all trees
#11.	#9 and #10
#12.	#4 or #11
#13.	MeSH descriptor: [radiography] explode all trees
#14.	(cat near/2 (scan* or imag*)):ti,ab
#15.	(compute* near/2 tomograph*):ti,ab
#16.	(x ray* or xray* or fluoroscop* or fluroscop* or MDCT* or magnetic resonance imag* or MRI* or MR imag* or NMR or CT or radiograph* or tomograph*):ti,ab
#17.	{or #13-#16}
#18.	#12 and #17

F.4.17 Ankle fractures - mobilisation

24. What is the most clinically- and cost -effective mobilisation strategy in patients with stable ankle fractures?

25. What is the most clinically- and cost- effective mobilisation strategy in post-operative patients following internal fixation of ankle fracture?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Ankle fractures	Weight bearing	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	ankle fractures/
4.	or/1-3
5.	ankle injuries/ or ankle/ or fibula/ or tibia/
6.	exp fractures, bone/
7.	5 and 6
8.	4 or 7
9.	exp weight-bearing/
10.	("load bearing" or loadbearing or weight-bearing or weightbearing or load-bearing or "weight bearing").ti,ab.
11.	("load carrying" or loadcarrying or load-carrying or weight-carrying or weightcarrying or "weight carrying").ti,ab.
12.	((immediate or delay* or prolong*) adj3 (weight or load*)).ti,ab.
13.	((restricted or unrestricted or forward) adj3 (weight or load*)).ti,ab.
14.	((full or partial or touch or non or non- or protect* or tolerat*) adj3 (weight or load*)).ti,ab.
15.	early ambulation/
16.	((early or immediate or delay*) adj3 (mobili* or walk* or ambulat*)).ti,ab.
17.	or/9 and 16
18.	8 and 17

Embase search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	exp ankle fracture/
4.	or/1-3
5.	*weight bearing/
6.	("load bearing" or loadbearing or weight-bearing or weightbearing or load-bearing or "weight bearing").ti,ab.
7.	("load carrying" or loadcarrying or load-carrying or weight-carrying or weightcarrying or "weight carrying").ti,ab.
8.	((immediate or delay* or prolong*) adj3 (weight or load*)).ti,ab.
9.	((restricted or unrestricted or forward) adj3 (weight or load*)).ti,ab.
10.	((full or partial or touch or non or non- or protect* or tolerat*) adj3 (weight or load*)).ti,ab.
11.	*mobilization/
12.	((early or immediate or delay*) adj3 (mobili* or walk* or ambulat*)).ti,ab.
13.	or/5-12
14.	4 and 13

Cochrane search terms

#1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) near/4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab
-----	---

#2.	(distal* near/4 (fibula* or tibia*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#3.	MeSH descriptor: [ankle fractures] this term only
#4.	{or #1-#3}
#5.	MeSH descriptor: [ankle injuries] this term only
#6.	MeSH descriptor: [ankle] this term only
#7.	MeSH descriptor: [fibula] this term only
#8.	MeSH descriptor: [tibia] this term only
#9.	{or #5-#8}
#10.	MeSH descriptor: [fractures, bone] explode all trees
#11.	#9 and #10
#12.	#4 or #11
#13.	[mh weight-bearing]
#14.	("load bearing" or loadbearing or weight-bearing or weightbearing or load-bearing or "weight bearing"):ti,ab
#15.	("load carrying" or loadcarrying or load-carrying or weight-carrying or weightcarrying or "weight carrying"):ti,ab
#16.	((immediate or delay* or prolong*) near/3 (weight or load*)):ti,ab
#17.	((restricted or unrestricted or forward) near/3 (weight or load*)):ti,ab
#18.	((full or partial or touch or non or non- or protect* or tolerat*) near/3 (weight or load*)):ti,ab
#19.	[mh ^"early ambulation"]
#20.	((early or immediate or delay*) near/3 (mobili* or walk* or ambulat*)):ti,ab
#21.	{or #13-#20}
#22.	#12 and #21

F.4.18 Ankle fractures - timing of surgery

26. What is the most clinically- and cost -effective timing of surgical treatment of an ankle fracture?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Ankle fractures	Timing of surgery	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Error! reference source not found. English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	ankle fractures/

4.	or/1-3
5.	ankle injuries/ or ankle/ or fibula/ or tibia/
6.	fractures, bone/
7.	5 and 6
8.	4 or 7
9.	time factors/
10.	(early or earlie* or late or later or time* or timing* or schedul* or hour* or rapid* or fast* or slow* or delay* or immediate*).ti,ab.
11.	or/9-10
12.	exp surgical procedures, operative/
13.	(surger* or surgical or operation* or operativ* or fixation* or reduc*).ti,ab.
14.	exp orthopedic procedures/
15.	or/12-14
16.	11 and 15
17.	4 and 16

Embase search terms

1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
2.	(distal* adj4 (fibula* or tibia*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	exp ankle fracture/
4.	or/1-3
5.	time/
6.	(early or earlie* or late or later or time* or timing* or schedul* or hour* or rapid* or fast* or slow* or delay* or immediate*).ti,ab.
7.	therapy delay/ or time to treatment/ or early intervention/
8.	or/5-7
9.	*surgery/ or *surgical technique/
10.	(surger* or surgical or operation* or operativ* or fixation* or reduc*).ti,ab.
11.	exp orthopedic procedures/
12.	or/9-11
13.	8 and 12
14.	4 and 13

Cochrane search terms

#1.	((ankle* or tibiofibula* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren* or syndesmo*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#2.	(distal* near/4 (fibula* or tibia*) near/4 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#3.	MeSH descriptor: [ankle fractures] this term only
#4.	{or #1-#3}
#5.	MeSH descriptor: [ankle injuries] this term only
#6.	MeSH descriptor: [ankle] this term only
#7.	MeSH descriptor: [fibula] this term only
#8.	MeSH descriptor: [tibia] this term only

#9.	{or #5-#8}
#10.	MeSH descriptor: [fractures, bone] explode all trees
#11.	#9 and #10
#12.	#4 or #11
#13.	MeSH descriptor: [time factors] this term only
#14.	(early or earlie* or late or later or time* or timing* or schedul* or hour* or rapid* or fast* or slow* or delay* or immediate*):ti,ab
#15.	{or #13-#14}
#16.	MeSH descriptor: [surgical procedures, operative] explode all trees
#17.	(surger* or surgical or operation* or operativ* or fixation* or reduc*):ti,ab
#18.	MeSH descriptor: [orthopedic procedures] explode all trees
#19.	{or #16-#18}
#20.	#15 and #19
#21.	#12 and #20

F.5 Health economics searches

F.5.1 Health economic reviews

Economic searches were conducted in Medline, Embase, HEED and CRD for NHS EED and HTA.

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
Fractures	n/a	n/a	The following filters were used in Medline and Embase only: HE, MOD	Medline and Embase 2011–16/04/2015 CRD EED and HTA Inception–16/04/2015 HEED Inception-13/01/2014 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	humeral fractures/
2.	((humerus or arm or arms or forelimb*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	hill sachs lesion.ti,ab.
4.	exp radius fractures/ or exp ulna fractures/
5.	((radius or ulna* or forearm* or radial* or elbow* or intercondylar or condylar or capitellum or nightstick or night stick or monteggia or hume or olecranon or galeazzi or colles* or dinner fork or silver fork or bayonet or parry or smith* or barton*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
6.	femoral fractures/
7.	((femoral or femur* or thigh* or leg or legs or stieda*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
8.	exp pelvic bones/in

9.	((pelvic or pelvis or hip or innominate or duverney or coccyx or coxal or coxae or sacrum or ilium or ischium or pubis or acetabul* or cotyloid) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
10.	(hip adj2 (socket* or cavit*) adj3 (fracture* or break* or crack* or frx or fx)).ti,ab.
11.	tibial fractures/ or fibula/in
12.	((lower leg* or crus or gaiter* or tibia* or fibula* or bumper or segond or gosselin or toddler* or bosworth or shins or shin or shinbone* or pilon or distal tibia* or hammer or plafond) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
13.	(childhood adj2 accident* adj2 spiral adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
14.	talus/in
15.	((talus or ankle* or talocrural* or subtalar* or tibiofibular* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
16.	(le fort adj2 (fracture* or break or breaks or broken or crack* or frx) adj2 ankle*).ti,ab.
17.	exp carpal bones/in
18.	((carpal* or wrist* or radiocarpal* or scaphoid* or lunate* or triquetral* or pisiform* or trapezium* or trapezoid* or capitata* or hamate* or ossa carpi or chauffeur* or quervain*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
19.	hand bones/in or metacarpal bones/in
20.	((metacarpal* or metacarpus or hand or hands or scaphoid* or rolando or bennett* or boxer*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
21.	(phalanx adj4 (hand* or foot or feet) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
22.	((phalangeal or phalange* or finger* or toe* or interphalange*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
23.	tarsal bones/in or calcaneus/in
24.	((tarsal* or calcaneus* or navicular* or lover* or don juan or calcaneal* or heel* or cuneiform* or intercuneiform* or cuboid* or foot or feet or lisfranc or tarsometatarsal* or midfoot or chopart*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
25.	metatarsal bones/in
26.	((metatarsal* or jone* or metatarsus* or metatarsophalangeal* or march) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
27.	patella/in
28.	((patella* or knee*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
29.	exp scapula/in or clavicle/in or shoulder fractures/
30.	((clavicular or clavicle* or collarbone* or scapular or scapula* or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
31.	rib fractures/ or exp sternum/in
32.	((ribs or breastbone* or rib or sternal or sternum* or gladiolus or manubrium) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
33.	((hyoid or lingual or cornua) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
34.	or/1-33
35.	fractures, closed/ or fractures, comminuted/ or fractures, open/ or fractures, cartilage/ or intra-articular fractures/
36.	((greenstick or green stick or complex or open or closed or compound or simple) adj2 (fracture* or frx)).ti,ab.
37.	or/35-36

38.	exp facial bones/in
39.	((face or nose or nasal or maxillary or maxillofacial or mandibular or jaw or blowout or orbit) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
40.	(eye* adj3 (socket* or cavit*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
41.	(le fort adj3 skull).ti,ab.
42.	spinal fractures/
43.	((spine or spinal or vertebra* or neck or cervical or jefferson* or sagittal or hangman* or flexion or teardrop or clay shoveler* or burst or compression or holdsworth) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
44.	exp skull fractures/
45.	((skull* or basilar or basal or temporal or occipital or sphenoid* or ethmoid or head) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
46.	exp hip fractures/
47.	((hip or subtrochanteric or nof) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
48.	((femoral or femur) adj3 (head or neck) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
49.	or/38-48
50.	37 not 49
51.	34 or 50

Embase search terms

1.	exp arm fracture/
2.	((humerus or arm or arms or forelimb*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	hill sachs lesion.ti,ab.
4.	((radius or ulna* or forearm* or radial* or elbow* or intercondylar or condylar or capitellum or nightstick or night stick or monteggia or hume or olecranon or galeazzi or colles* or dinner fork or silver fork or bayonet or parry or smith* or barton*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
5.	leg fracture/ or femur fracture/ or femur shaft fracture/
6.	((femoral or femur* or thigh* or leg or legs or stieda*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
7.	exp pelvis fracture/
8.	((pelvic or pelvis or hip or innominate or duverney or coccyx or coxal or coxae or sacrum or ilium or ischium or pubis or acetabul* or cotyloid) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
9.	(hip adj2 (socket* or cavit*) adj3 (fracture* or break* or crack* or frx or fx)).ti,ab.
10.	tibia fracture/ or distal tibia fracture/ or fibula fracture/ or proximal tibia fracture/ or tibia shaft fracture/
11.	((lower leg* or crus or gaiter* or tibia* or fibula* or bumper or segond or gosselin or toddler* or bosworth or shins or shin or shinbone* or pilon or distal tibia* or hammer or plafond) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
12.	(childhood adj2 accident* adj2 spiral adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
13.	exp ankle fracture/
14.	((talus or ankle* or talocrural* or subtalar* or tibiofibular* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.

15.	(le fort adj2 (fracture* or break or breaks or broken or crack* or frx) adj2 ankle*).ti,ab.
16.	((carpal* or wrist* or radiocarpal* or scaphoid* or lunate* or triquetral* or pisiform* or trapezium* or trapezoid* or capitate* or hamate* or ossa carpi or chauffeur* or quervain*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
17.	hand fracture/ or finger fracture/
18.	((metacarpal* or metacarpus or hand or hands or scaphoid* or rolando or bennett* or boxer*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
19.	(phalanx adj4 (hand* or foot or feet) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
20.	((phalangeal or phalange* or finger* or toe* or interphalange*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
21.	calcaneus fracture/ or foot fracture/
22.	((tarsal* or calcaneus* or navicular* or lover* or don juan or calcaneal* or heel* or cuneiform* or intercuneiform* or cuboid* or foot or feet or lisfranc or tarsometatarsal* or midfoot or chopart*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
23.	((metatarsal* or jone* or metatarsus* or metatarsophalangeal* or march) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
24.	knee fracture/ or patella fracture/
25.	((patella* or knee*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
26.	((clavicular or clavicle* or collarbone* or scapular or scapula* or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
27.	exp rib fracture/
28.	((ribs or breastbone* or rib or sternal or sternum* or gladiolus or manubrium) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
29.	((hyoid or lingual or cornua) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
30.	or/1-29
31.	avulsion fracture/ or comminuted fracture/ or fracture dislocation/ or intraarticular fracture/ or joint fracture/ or limb fracture/ or open fracture/
32.	((greenstick or green stick or complex or open or closed or compound or simple) adj2 (fracture* or frx)).ti,ab.
33.	or/31-32
34.	exp face fracture/
35.	((face or nose or nasal or maxillary or maxillofacial or mandibular or jaw or blowout or orbit) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
36.	(eye* adj3 (socket* or cavit*) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
37.	(le fort adj3 skull).ti,ab.
38.	exp spine fracture/
39.	((spine or spinal or vertebra* or neck or cervical or jefferson* or sagittal or hangman* or flexion or teardrop or clay shoveler* or burst or compression or holdsworth) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
40.	exp skull fracture/
41.	((skull* or basilar or basal or temporal or occipital or sphenoid* or ethmoid or head) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
42.	exp hip fracture/
43.	((hip or subtrochanteric or nof) adj4 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
44.	((femoral or femur) adj3 (head or neck) adj4 (fracture* or break or breaks or broken or crack*

	or frx)).ti,ab.
45.	or/34-44
46.	33 not 45
47.	30 or 46

CRD search terms

#1.	MeSH descriptor humeral fractures
#2.	(((humerus or arm or arms or forelimb*) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#3.	(hill sachs lesion)
#4.	MeSH descriptor radius fractures explode all trees
#5.	MeSH descriptor ulna fractures explode all trees
#6.	(((radius or ulna* or forearm* or radial* or elbow* or intercondylar or condylar or capitellum or nightstick or night stick or monteggia or hume or olecranon or galeazzi or colles* or dinner fork or silver fork or bayonet or parry or smith* or barton*) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#7.	MeSH descriptor femoral fractures
#8.	(((femoral or femur* or thigh* or leg or legs or stieda*) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#9.	MeSH descriptor pelvic bones explode all trees with qualifier in
#10.	(((pelvic or pelvis or hip or innominate or duverney or coccyx or coxal or coxae or sacrum or ilium or ischium or pubis or acetabul* or cotyloid) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#11.	((hip adj2 (socket* or cavit*) adj3 (fracture* or break* or crack* or frx or fx)))
#12.	MeSH descriptor tibial fractures
#13.	MeSH descriptor fibula with qualifier in
#14.	(((lower leg* or crus or gaiter* or tibia* or fibula* or bumper or segond or gosselin or toddler* or bosworth or shins or shin or shinbone* or pilon or distal tibia* or hammer or plafond) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#15.	((childhood adj2 accident* adj2 spiral adj4 (fracture* or break or breaks or broken or crack* or frx)))
#16.	MeSH descriptor talus with qualifier in
#17.	(((talus or ankle* or talocrural* or subtalar* or tibiofibular* or malleolus or malleoli or pott* or trimalleolar* or bimalleolar* or maisonneuve* or dupuytren*) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#18.	((le fort adj2 (fracture* or break or breaks or broken or crack* or frx) adj2 ankle*))
#19.	MeSH descriptor carpal bones explode all trees with qualifier in
#20.	(((carpal* or wrist* or radiocarpal* or scaphoid* or lunate* or triquetral* or pisiform* or trapezium* or trapezoid* or capitata* or hamate* or ossa carpi or chauffeur* or quervain*) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#21.	MeSH descriptor hand bones with qualifier in
#22.	MeSH descriptor metacarpal bones with qualifier in
#23.	(((metacarpal* or metacarpus or hand or hands or scaphoid* or rolando or bennett* or boxer*) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#24.	((phalanx adj4 (hand* or foot or feet) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#25.	(((phalangeal or phalange* or finger* or toe* or interphalange*) adj4 (fracture* or break or breaks or broken or crack* or frx)))
#26.	MeSH descriptor tarsal bones with qualifier in

#27.	MeSH descriptor calcaneus with qualifier in
#28.	((tarsal* or calcaneus* or navicular* or lover* or don juan or calcaneal* or heel* or cuneiform* or intercuneiform* or cuboid* or foot or feet or lisfranc or tarsometatarsal* or midfoot or chopart*) adj4 (fracture* or break or breaks or broken or crack* or frx))
#29.	MeSH descriptor metatarsal bones with qualifier in
#30.	((metatarsal* or jone* or metatarsus* or metatarsophalangeal* or march) adj4 (fracture* or break or breaks or broken or crack* or frx))
#31.	MeSH descriptor patella with qualifier in
#32.	((patella* or knee*) adj4 (fracture* or break or breaks or broken or crack* or frx))
#33.	MeSH descriptor scapula explode all trees with qualifier in
#34.	MeSH descriptor clavicle with qualifier in
#35.	MeSH descriptor shoulder fractures
#36.	((clavicular or clavicle* or collarbone* or scapular or scapula* or shoulder*) adj4 (fracture* or break or breaks or broken or crack* or frx))
#37.	MeSH descriptor rib fractures
#38.	((ribs or breastbone* or rib or sternal or sternum* or gladiolus or manubrium) adj4 (fracture* or break or breaks or broken or crack* or frx))
#39.	((hyoid or lingual or cornua) adj4 (fracture* or break or breaks or broken or crack* or frx))
#40.	MeSH descriptor fractures, closed
#41.	MeSH descriptor fractures, comminuted
#42.	MeSH descriptor fractures, open
#43.	MeSH descriptor fractures, cartilage
#44.	MeSH descriptor intra-articular fractures
#45.	((greenstick or green stick or complex or open or closed or compound or simple) adj2 (fracture* or frx))
#46.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45

HEED search terms

1.	TI=humer* or arm or arms or forelimb* or radius or ulna* or forearm* or radial* or femoral or femur* or leg or legs or pelvic or pelvis or hip or fibular or tibia* or fibula* or talus or ankle or carpal* or wrist* or finger* or toe* or foot or feet or patella* or knee* or clavicular or clavicle* or collarbone* or scapular or scapula* or shoulder* or ribs or rib or pilon or acetabul* or plafond
2.	AB=humer* or arm or arms or forelimb* or radius or ulna* or forearm* or radial* or femoral or femur* or leg or legs or pelvic or pelvis or hip or fibular or tibia* or fibula* or talus or ankle or carpal* or wrist* or finger* or toe* or foot or feet or patella* or knee* or clavicular or clavicle* or collarbone* or scapular or scapula* or shoulder* or ribs or rib or pilon or acetabul* or plafond
3.	TI=fracture* or break or breaks or broken or crack* or frx
4.	AB=fracture* or break or breaks or broken or crack* or frx
5.	CS=1 or 2
6.	CS=3 or 4
7.	CS=5 and 6

F.5.2 Health economic reviews – supplementary search

Economic searches were conducted in Medline, Embase and CRD for NHS EED and HTA.

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
Fractures	n/a	n/a	The following filters were used in Medline and Embase only: HE, MOD	Medline and Embase 2014–17/04/2015 CRD EED and HTA Inception–17/04/2015 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	fracture*.ti,ab.
2.	exp fractures, bone/
3.	1 or 2

Embase search terms

1.	fracture*.ti,ab.
2.	exp fracture/
3.	1 or 2

CRD search terms

#1.	((fracture*))
#2.	MeSH descriptor fractures, bone explode all trees
#3.	#1 or #2

F.5.3 Quality of life reviews

Economic searches were conducted in Medline and Embase.

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
See F.5.1. for search terms	n/a	n/a	The following filters were used in Medline and Embase only: QOL	Medline 1946 - 14/01/2014 Embase 1974–14/01/2014 English only Exclusion filter applied in Medline and Embase

F.5.4 Hot reporting

Economic searches were conducted in Medline, Embase, HEED and CRD for NHS EED and HTA.

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
Major trauma or fractures or emergency	Radiographer/radiologist report	n/a	The following filters were used in Medline and Embase only:	Medline and Embase 2011–17/04/2015

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
department settings			HE	CRD NHS EED and HTA Inception–17/04/2015 English only Exclusion filter applied in Medline and Embase

Medline and Embase search terms

See F.4.4 for population and intervention terms

CRD search terms

#1.	((fracture*))
#2.	((trauma* or polytrauma*))
#3.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*))
#4.	MeSH descriptor multiple trauma
#5.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) adj3 (accident* or crash* or collision* or smash*))
#6.	((MVAs or MVA or RTAs or RTA))
#7.	((stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger))
#8.	MeSH descriptor emergency service, hospital explode all trees
#9.	((accident or department* or room*) adj2 emergency))
#10.	((department* adj2 casualty))
#11.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10
#12.	(((((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed) adj2 report*))
#13.	(((((radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed) adj5 reporting)))
#14.	(((((radiograph* or radiolog* or imag* or tomograph* or CT or xray or x ray) and ((preliminary or provisional* or definitive*) adj3 report*)))))
#15.	((red adj2 dot*))
#16.	#12 or #13 or #14 or #15
#17.	#11 and #16

HEED search terms

1.	TI=(fracture* or trauma* or polytrauma* or accident or emergency or fall* or injur*)
2.	AB=(fracture* or trauma* or polytrauma* or accident or emergency or fall* or injur*)
3.	CS=1 or 2
4.	TI= (radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed)
5.	AB= (radiographer* or radiologist* or led or immediate* or hot or cold or delayed or speed)
6.	CS=4 or 5
7.	TI= report*
8.	AB= report*
9.	CS=7 or 8

10.	CS=3 and 6 and 9
-----	------------------

F.5.5 Pain

Economic searches were conducted in Medline, Embase and Cochrane Library for NHS EED and HTA.

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
Long bone fractures	Pharmacological pain management		The following filters were used in Medline and Embase only: HE	Medline 1946 – 10/04/2015 Embase 1974 – 10/04/2015 Cochrane NHS EED and HTA Inception – 2015 Issue 1 of 4 English only Exclusion filter applied in Medline and Embase

Medline, Embase and Cochrane search terms

See F.4.2 for population and intervention terms

References

- 1 National Institute for Health and Clinical Excellence. The guidelines manual. London: National Institute for Health and Clinical Excellence; 2012. Available from: <http://publications.nice.org.uk/the-guidelines-manual-pmg6/>
- 2 National Institute for Health and Clinical Excellence. Developing NICE guidelines: the manual. London: National Institute for Health and Clinical Excellence; 2014. Available from: <http://www.nice.org.uk/article/pmg20/>