

DRAFT FOR CONSULTATION

Major trauma: assessment and initial management

Major trauma: assessment and management of major trauma

Clinical guideline <...>

Appendices A – F

August 2015

Draft for consultation

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.

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Appendices

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Appendix A: Scope

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

SCOPE

1 Guideline title

Major trauma: assessment and management of airway, breathing and ventilation, circulation, haemorrhage and temperature control.

1.1 Short title

Major trauma

2 The remit

The Department of Health has asked NICE: 'To produce a clinical guideline on the assessment and management of major trauma including resuscitation following major blood loss associated with trauma.'

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

3

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

3 Clinical need for the guideline

3.1 *Epidemiology*

- a) Injury is a leading cause of death and disability worldwide. In the UK, there are approximately 15,000 deaths a year from accidents. One third of these are caused by road traffic accidents. Almost 100 people per week die and 200 people are permanently disabled in road accidents.
- b) The early identification of life threatening injuries and conditions and appropriate rapid interventions can be lifesaving. Good early interventions for all injuries speeds recovery, prevents complications and allows an earlier return to active life. However, late identification of injuries (both major and minor), inadequate investigation and imaging of such injuries and late or poor treatment substantially increases both mortality and morbidity.

3.2 *Current practice*

- a) According to a February 2010 report from the National Audit Office:

'There is unacceptable variation in major trauma care in England depending upon where and when people are treated. Care for patients who have had a major traumatic injury, for example following a road accident or a fall, has not significantly improved in the past 20 years despite numerous reports identifying poor practice, and services are not being delivered efficiently or effectively.
- b) Survival rates vary significantly from hospital to hospital, with between 5 unexpected survivors and 8 unexpected deaths per 100 trauma patients, reflecting the variable quality of care. The National

Audit Office estimates that 450 to 600 lives could be saved each year in England if major trauma care were managed more effectively.

- c) For best outcomes care should be led by consultants experienced in major trauma, but major trauma is most likely to occur at night and at weekends, when consultants are not normally in the emergency department. A very small minority of hospitals have 24-hour consultant cover, 7 days a week.
- d) Major trauma care is not coordinated and there are no formal arrangements for taking patients directly for specialist treatment or transferring them between hospitals. CT scanning is very important for major trauma patients; however, a significant number of patients that need a scan do not receive one.
- e) Access to rehabilitation services, which can improve patients' recovery, quality of life and reduce the length of hospital stay, varies across the country and patients do not always receive the care that they need.
- f) The costs of major trauma care are not well understood. The estimated annual lost economic output from deaths and serious injuries from major trauma is between £3.3 billion and £3.7 billion. Collecting information on care is essential for monitoring and improving services, but only 60% of hospitals delivering major trauma care contribute to the Trauma Audit and Research Network (TARN). The performance of the 40% of hospitals that do not submit data to TARN cannot therefore be measured.

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 with a suspected major traumatic injury.

4.1.2 Groups that will not be covered

People with burns.

People with spinal injuries (this will be covered in another guideline)

People with complex fractures (this will be covered in another guideline)

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 and management of pain relief (including opiates and entonox)
- b) Airway management with cervical spine protection (methods to protect the spine will be addressed in the Spinal Injury guideline and will be cross referred to in this guideline)
 - Definitive airway control (intubation [drug assisted] versus simple supra-glottic devices versus no intervention)
- c) Breathing and ventilation

- Pre-hospital: recognition of chest trauma (including clinical assessment and mechanism of injury)
 - management of chest trauma (including life threatening chest trauma) types of dressings for the treatment of open pneumothorax
 - needle decompression versus open thoracostomy versus chest drain
- Hospital: management of chest trauma (including life threatening chest trauma)
 - needle decompression versus open thoracostomy versus chest drain
 - ◊ chest tube placement
- Imaging assessment of chest trauma (including choice and timing of imaging modality and imaging parameters) such as,
 - pre-hospital: focussed abdominal sonography for trauma (FAST)
 - hospital: X-ray, FAST, CT

d) Circulation with haemorrhage control:

- Assessment of haemorrhage
 - hypotensive shock (including pre-hospital and hospital risk tools)
 - use of lactate levels to guide management of shock
 - imaging (including X-ray, FAST, CT)
- Control of external haemorrhage (stratified by limbs and abdomen)
 - pneumatic compared with mechanical tourniquets
 - haemostatic dressings

- Pre-hospital control of uncompressible haemorrhage:
 - pelvic binders

 - Control of haemorrhage in hospital:
 - use of major haemorrhage protocols
 - interventional radiology (including timing)
 - damage-control surgery

 - Management of shock
 - access (including intravenous versus intraosseous access)
 - hypotensive versus normotensive resuscitation
 - type of fluid replacement (including blood and fresh frozen plasma ratios)
 - haemostatic agents

 - Monitoring:
 - blood tests (including coagulation point-of-care versus laboratory tests)
 - frequency of monitoring
 - Management of specific complications in hospital relating to anticoagulation reversal.
- e) Exposure:
- Temperature management
 - aggressive warming techniques
- f) Skills to be present within the multidisciplinary team
- Pre hospital attending team
 - Hospital Trauma team
- g) Documentation of clinical assessments and management for people with major trauma (including pre hospital and hospital)

- 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 major trauma.
- b) Any management after definitive lifesaving intervention.
- c) Major trauma resulting from burns.

The following NICE guidance will be cross referred to

- d) Head injury (for disability relating to neurological assessment)
- e) Spinal injury (methods to protect the spine)
- f) Intravenous fluid therapy in adults (resuscitation)

4.4 Main outcomes

- a) Adverse effects associated with assessment and management of major blood loss following trauma.
- b) Functional scales that quantify level of disability.
- c) Health-related quality of life.
- d) Healthcare contacts; duration and continuity.
- e) Return to normal activities.
- f) Morbidity.
- g) Mortality.
- h) Patient-reported outcomes.
- i) Time to operating theatre (surrogate outcome).
- j) Time to definitive control of haemorrhage.

4.5 Economic aspects

Developers will take into account both clinical and cost effectiveness when making recommendations involving a choice between alternative interventions or strategies. 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

- [Patient experience in adult NHS services](#). NICE clinical guideline 138 (2012).
- [Organ donation for transplantation](#). NICE clinical guideline 135 (2011).
- [CardioQ-ODM \(oesophageal Doppler monitor\)](#). NICE medical technologies guidance 3 (2011).
- [Venous thromboembolism](#). NICE clinical guideline 92 (2010)
- [Pre-hospital initiation of fluid replacement therapy in trauma](#). NICE technology appraisal 74 (2004).

5.2 Guidance under development

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

- Intravenous fluid therapy. NICE clinical guideline. Publication expected November 2013.
- Head injury. NICE clinical guideline. Publication expected January 2014.
- Pressure ulcers. NICE clinical guideline. Publication expected May 2014.
- Transfusion. NICE clinical guideline. Publication expected May 2015.
- Spinal injury assessment. NICE clinical guideline. Publication expected June 2015.
- Complex fractures. NICE clinical guideline. Publication expected June 2015.
- Major trauma. NICE clinical guideline. Publication expected June 2015.
- Trauma services. NICE clinical guideline. Publication expected October 2015.
- Intravenous fluid therapy in children. NICE clinical guideline. Publication expected November 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](#).

1 Appendix B: Declarations of interest

2 B.1 Complex fractures

3 **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	

1

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 meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
29 April 2015		
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	

1

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	
Tenth GDG meeting 27 January 2015	Did not attend	
Eleventh GDG meeting 11 March 2015	Did not attend	

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	

1

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	
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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
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	

1

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 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	

GDG meeting	Declaration of Interests	Action taken
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	

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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	
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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2014		
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	

1

Table 7: Harrison, 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 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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
4 December 2014		
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	

1

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	

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	Did not attend	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	

1

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	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	Did not attend	
Eighth GDG meeting 4 December 2014	Personal non-pecuniary interest: <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 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	No change in declaration	
Fourteenth GDG meeting 19 May 2015	No change in declaration	

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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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 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	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	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
17 January 2014		
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	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	

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Table 13: McPherson, Simon

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

GDG meeting	Declaration of Interests	Action taken
meeting 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	

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Table 14: Morris, Craig

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	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	

1

Table 15: Morris, Kevin

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	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 GDG meeting 19 May 2015	Did not attend	

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Table 16: Nanchahal, Jagdeep

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest:	No action taken

GDG meeting	Declaration of Interests	Action taken
	<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. 	
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 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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
30 April 2015		
Fourteenth GDG meeting 19 May 2015	No change in declaration	

1

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 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	Did not attend	
Tenth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 27 January 2015		
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	

1

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 4 September 2014	Did not attend	
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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	
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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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	

1

Table 20: Skinner, David

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	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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
26 January 2015		
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	

1

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	

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	Did not attend	
Thirteenth GDG meeting 30 April 2015	No change in declaration	
Fourteenth GDG meeting 19 May 2015	Did not attend	

1

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2014		
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	Did not attend	
Fourteenth GDG meeting 19 May 2015	No change in declaration	

1

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
4 December 2014		
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	
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	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
2014		
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	

1

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
23 October 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	

1

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 22 October 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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	

1 B.2 Major trauma

2 **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> <ul style="list-style-type: none"> • Astra-Zeneca- unrestricted grant for coagulation/haemorrhage research • Haemonetics- unrestricted grant for coagulation/haemorrhage research <p>TEM International- support for research devices and consumables (unrestricted).</p>	No action taken

GDG meeting	Declaration of Interests	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	
Ninth GDG meeting 31 July 2014	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> • Paid consultancy for Haemonetics Inc (TEG manufacturers) in 2012 <p>Non personal pecuniary interest:</p> <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 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 26 March 2015		
Sixteenth GDG meeting 7 May 2015	No change in declaration	

1

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 meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January	Did not attend	

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	Did not attend	

1

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 14 May 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> Appointed to the board of the TARNLet committee. 	No action taken
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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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 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 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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
14 May 2014		
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 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	

1

Table 32: Griffiths, Nathan

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <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	

GDG meeting	Declaration of Interests	Action taken
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	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	

1

Table 33: Hough, Jennifer

GDG meeting	Declaration of Interests	Action taken
On application	Personal family interest:	No action taken

GDG meeting	Declaration of Interests	Action taken
	<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. 	
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	
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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	
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	Did not attend	

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	

1

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	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	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	

1

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	No change in declaration	

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	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	No change in declaration	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	No change in declaration	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 14 May 2014		
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	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	

1

Table 39: Lomas, Gabrielle

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: • 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	

1

Table 40: McPherson, Simon

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

GDG meeting	Declaration of Interests	Action taken
2013		
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	
Sixteenth GDG meeting 7 May 2015	No change in declaration	

1

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 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	No change in declaration	

1

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	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
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	

1

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 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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	
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	

GDG meeting	Declaration of Interests	Action taken
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	

1

Table 45: Snaith, Beverly

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
31 July 2014		
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	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
14 May 2014		
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 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	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	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	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 7 January 2014		
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	
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	

1

Table 49: Welch, Nick

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest:	No action taken

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> Member of the British orthopaedic Association's patient liaison group. 	
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	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	

GDG meeting	Declaration of Interests	Action taken
Sixteenth GDG meeting 7 May 2015	Did not attend	

1

Table 50: Wiltshire, Steve

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	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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
GDG meeting 25 March 2015		
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Sixteenth GDG meeting 7 May 2015	No change in declaration	

1 B.3 Non complex fractures

2 **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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
12 March 2015		
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
13 May 2015		
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

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	
Fourteenth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
14 May 2015		

1

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 meeting 12 March 2015	No change in declaration	
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.

GDG meeting	Declaration of Interests	Action taken
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

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 September 2014. 	No action taken
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	No change in declaration	

1

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 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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 13 May 2015		
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

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	
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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
GDG meeting 14 May 2015		

1

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 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	No change in declaration	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

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 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	No change in declaration	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

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 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	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	

1

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	
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	

2

Table 62: Jackson, Michael

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

GDG meeting	Declaration of Interests	Action taken
meeting 16 January 2014		
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 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	

1

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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	funded study into trauma triage.	
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	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	

1

Table 64: McFadyen, Iain (co-chair)

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest:	No action taken

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> IM is a member of the Department of Health 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	

1

Table 65: Nanchahal, Jagdeep

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest:	No action taken

GDG meeting	Declaration of Interests	Action taken
	<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. 	
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 GDG meeting 14 May 2015	No change in declaration	

1

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	
Fourteenth GDG meeting 14 May 2015	No change in declaration	

2

Table 67: Silvester, Lucy

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

GDG meeting	Declaration of Interests	Action taken
meeting 16 January 2014		
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 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

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	

GDG meeting	Declaration of Interests	Action taken
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 meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

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	

GDG meeting	Declaration of Interests	Action taken
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 12 March 2015	No change in declaration	Conflict of interest: Withdrew from recommendation making discussions on hot reporting.
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	

1 B.4 PET

2 **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	

1

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 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> <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). 	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	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	

2

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	

3

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 of Radiologists and the British Society of Paediatric radiologists to help develop national standards for the radiological 	No action taken

PET meeting	Declaration of Interests	Action taken
	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	

1 **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	

2 **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	
05 Feb 2015	Did not attend	
17 Apr 2015	Did not attend	

3 **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

PET meeting	Declaration of Interests	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	

1

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	

2

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	

1

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	

2

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	
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	

3

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	

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

1 **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	

2 **B.5 Service Delivery**

3 **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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
25 February 2015		
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	

1

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 9 April 2015		

1

Table 89: Brohi, Karim

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> <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) 	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	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	

GDG meeting	Declaration of Interests	Action taken
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	Did not attend	

1

Table 90: Charters, Alan

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 9 April 2015		

1

Table 91: Christmas, David

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	
Eleventh GDG meeting 9 April 2015	Did not attend	

2

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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	imaging of children with major trauma.	
Second GDG meeting 16 July 2014	Did not attend	
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	

1

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
26 September 2014		
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	

1

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	
Seventh GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 8 January 2015		
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	

1

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 2015	No change in declaration	
Ninth GDG meeting 26 February	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2015		
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	Did not attend	

1

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	
Eleventh GDG meeting 9 April 2015	Did not attend	

2

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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	Clinical reference group for major trauma.	
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	

1

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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> NIHR CRN reimburses FL's employer 10% of her salary 	
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	

1

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2014		
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	

1

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	
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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	
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	

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	

1

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 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	

1

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	
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	

2

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 26 September 2014		
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	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	

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	

1 B.6 Spinal injuries

2 **Table 107: Berry, Kathleen**

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	

1

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	
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	

2

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	Personal non-pecuniary interest: <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- 	No action taken

GDG meeting	Declaration of Interests	Action taken
	invasive ventilation for acute spinal injury management.	
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	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	No change in declaration	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 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	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	Did not attend	

1

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 meeting 2	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
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	

1

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 5 March 2014	No change in declaration	
Tenth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
3 Feb 2015		
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	Did not attend	

1

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	
Twelfth GDG meeting 16 April 2015	Did not attend	

2

Table 114: El Masri(y), Wagih

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest:	No action taken

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> WEM is one of the global advisors to Hollister urinary appliances firm. 	
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	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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 mechanical turning bed. PH is a committee member of Multidisciplinary Association of Spinal Cord Injury Professionals (MASCIP) and honorary vice president of Spinal Injuries Association (2012-2015). 	No action taken
Second GDG meeting 16 July 2013	Personal non-pecuniary interest: <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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
20 August 2013		
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	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
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	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	

1

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 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	
Tenth GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
3 Feb 2015		
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 Apr 2015	No change in declaration	

1

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 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	

2

Table 121: 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 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 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	Did not attend	

1

Table 122: Morris, Kevin

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
16 July 2013		
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	
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	

1

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	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	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	

1

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	

GDG meeting	Declaration of Interests	Action taken
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	

1

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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 16 April 2015		

1

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	

2

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 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	

1

2

1 Appendix C: Review protocols

2 C.1 Airway management

3 **Table 128: Review protocol for airway management**

Review question: What is the most clinically and cost effective strategy of airway management in patients with major trauma pre-hospital?	
Objective: To identify the optimum pre-hospital strategies for managing the airway in people who have suffered a major trauma	
Population	Children, young people and adults experiencing a traumatic incident, including: People able to be intubated without drugs (GCS = 3) People unable to maintain or protect their own airway (GCS <9, <12, <15) People who are able to maintain their own airway, but who need to be intubated for other reasons People who may lose their airway during transport People who require ventilatory support for chest or head trauma management
Intervention	Tracheal intubation (Drug assisted, non-drug assisted, Rapid sequence induction of anaesthesia)Supra-glottic devices Surgical airway (cricothyroidotomy)
Comparison	A comparison of those listed above Basic airway adjuncts (inc. bag valve mask, naso and oro-pharyngeal airway) No intervention
Outcomes	Critical: Mortality at 48 hours, 30 days/1 month and 1 year Health related quality of life (GOS or other functional outcome score SF36, FIM, RCS, SF12, EQ5D) Brain injury management oxygenation (blood gas levels on arrival, oxygen saturation), control of carbon dioxide levels (blood gas or end-tidal) Aspiration events Failure to intubate or secure airway Adverse effects: Hypotension unrecognised oesophageal intubation) Important: Patient-reported outcomes (psychological wellbeing). 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: RCTs or Systematic reviews of RCTs, and cohort studies if no RCTs

Review question: What is the most clinically and cost effective strategy of airway management in patients with major trauma pre-hospital?	
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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). Stratify by GCS: GCS = 3, GCS = 3 – 8, GCS = 9 – 11, GCS = 12 – 15 Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury

1 C.2 Assessment and management of chest trauma

2 C.2.1 Pre-hospital chest imaging

3 Table 129: Pre hospital diagnostic accuracy

Review question: What is the diagnostic accuracy of performing FAST compared to clinical examination pre-hospital in children, young people and adults who have suffered a suspected major chest trauma?	
ADDITIONAL QUESTION: What is the diagnostic accuracy of clinical examination pre-hospital in children, young people and adults who have suffered a suspected major chest trauma?	
Objective: To determine the diagnostic accuracy of performing FAST compared to clinical examination pre-hospital in children, young people and adults who have suffered a major chest trauma.	
Population	Children, young people and adults who have experienced a suspected major chest trauma as follows: tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury
Index test	Pre-hospital: Extended FAST (focused assessment with sonography for trauma) scan No imaging/clinical examination (including different clinical examinations compared to each other or to no imaging)
Reference standard	Pre-hospital: Later imaging (X ray or CT, or in hospital imaging) or surgical findings
Outcomes	Diagnostic accuracy 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: Observational studies
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. Appraisal of methodological quality: The methodological quality of each

Review question: What is the diagnostic accuracy of performing FAST compared to clinical examination pre-hospital in children, young people and adults who have suffered a suspected major chest trauma?

ADDITIONAL QUESTION: What is the diagnostic accuracy of clinical examination pre-hospital in children, young people and adults who have suffered a suspected major chest trauma?

	study will be assessed using NICE checklists and GRADE.
Analysis	Stratify by age: children (0-17 years), adults (18 and over) Subgroup children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older)

1

Table 130: Pre hospital test and treat

Review question:

What is the clinical and cost effectiveness of performing FAST compared to clinical examination pre-hospital in children, young people and adults who have suffered a suspected major chest trauma?

Objective: To identify whether patient outcomes are improved if FAST is pre-hospital in children, young people and adults who have suffered a suspected major chest trauma.

Population	Children, young people and adults who have experienced a suspected major chest trauma as follows: tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury.
Intervention	Extended FAST (focused assessment with sonography for trauma) scan Treatments that are acceptable in any RCTs comparing these tests (availability must be the same in each arm of each RCT): chest drain (haemothorax) needle decompression (tension pneumothorax) needle aspiration (pericardiocentesis for cardiac tamponade) thoracostomy thoracotomy
Comparison	Clinical examination
Outcomes	Critical: Mortality at 24 hours, 30 days/1 month and 1 year Health related quality of life Length of intensive care stay Adverse events: parenchymal lung damage infection, bleeding lung damage air embolism empyema Numbers with inappropriate treatments Important: Patient reported outcomes (psychosocial wellbeing) Destination Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.

Review question: What is the clinical and cost effectiveness of performing FAST compared to clinical examination pre-hospital in children, young people and adults who have suffered a suspected major chest trauma?	
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: RCT, Systematic Reviews of RCTs, Quasi-RCT
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Subgroups if between study heterogeneity: Children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older)

1 C.2.2 Pre-hospital tension pneumothorax

2 Table 131: Review protocol for pre-hospital tension pneumothorax

Review question: What is the most clinically and cost effective treatment for technique (pre hospital) to managetension pneumothoraces?	
Objective: To determine the optimal method of treating a tension pneumothorax in the pre-hospital setting	
Population	Children and adults with a suspected of tension pneumothoraces after experiencing a traumatic incident.
Intervention	Needle decompression Chest drain (placement of chest tube) Open thoracostomy (intubated patients only)
Comparison	A comparison of the above
Outcomes	Critical: Mortality at 24 hours, 30days/1month, and 12 months Health related quality of life Length of intensive care stay Adverse effects: nerve damage air embolism infection tissue damage Important: Patient-reported outcomes: pain/discomfort return to normal activities psychological wellbeing 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

Review question: What is the most clinically and cost effective treatment for technique (pre hospital) to managetension pneumothoraces?	
	Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts f no RCTs retrieved.
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Sub-group if between-study heterogeneity: Cardiac arrest Within-study confounders (if cohorts used) Cardiac arrest Age Injury severity Depth of shock Degree of head injury

1 **C.2.3 Management of open pneumothorax**

2 **Table 132: Review protocol for management of open pneumothroax**

Review question: Which occlusive dressing used in the pre-hospital setting is the most clinically and cost effective in improving outcomes for patients with open pneumothoraces as a part of major trauma?	
Objective: To determine the optimal dressing to use in the pre-hospital setting for patients with open pneumothoraces after experiencing a traumatic incident	
Population	Children and adults with an open pneumothorax after experiencing a traumatic incident.
Intervention	Occlusive dressing (non-vented) Occlusive dressing (with vent/valve) Improvised dressing (three-sided) Occlusive/improvised dressing [any] and chest drain
Comparison	No dressing A comparison of the above
Outcomes	Critical: Mortality at 24 hours, 30days/1month, and 12 months Health related quality of life Adverse effects: conversion to tension pneumothorax infection) Important: Patient-reported outcomes: pain/discomfort return to normal activities psychological wellbeing

Review question: Which occlusive dressing used in the pre-hospital setting is the most clinically and cost effective in improving outcomes for patients with open pneumothoraces as a part of major trauma?	
	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: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved.
The review strategy	If insufficient RCT data is found then cohort or case-control studies with multivariate analysis will be considered. Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury

1 C.3 In-hospital tension pneumothoraces

2 Table 133: Review protocol for in-hospital tension pneumothoraces

Review question: What is the most clinically and cost effective technique (in hospital) to manage tension pneumothoraces?	
Objective: To establish the most effective way to manage tension pneumothorax in hospital.	
Population	Children and adults with a tension pneumothorax after experiencing a traumatic incident.
Intervention	Needle decompression Chest drain (placement of chest tube) Open thoracostomy (intubated patients only)
Comparison	A comparison of the above
Outcomes	Critical: Mortality at 24 hours, 30days/1month, and 12 months Health related quality of life Length of intensive care stay Adverse effects (infection, air embolism, nerve damage, tissue damage) Important: Patient-reported outcomes (pain/discomfort, return to normal activities, psychological wellbeing). Population size and directness:

Review question: What is the most clinically and cost effective technique (in hospital) to manage tension pneumothoraces?	
	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: RCTs or Systematic reviews of RCTs; cohorts or case-controls if no RCTs retrieved.
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Cardiac arrest

1 C.4 Imaging assessment of chest trauma

2 Table 134: Hospital diagnostic accuracy

Review question: What is the diagnostic accuracy of hospital imaging strategies in identifying the following injuries tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury) in patients with major trauma on initial presentation?	
Objective: To identify the optimal hospital strategy for assessing chest trauma (tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury) in children, young people and adults who have suffered a major trauma, in hospital.	
Population	Children, young people and adults who have experienced a suspected major trauma.
Index Tests	Hospital: X-ray Ultrasound Extended FAST (focused assessment sonography for trauma) scan Chest CT
Reference standard	CT or subsequent operative findings
Outcomes	Diagnostic accuracy 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: Observational studies
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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)

Review question: What is the diagnostic accuracy of hospital imaging strategies in identifying the following injuries tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury) in patients with major trauma on initial presentation?	
	Subgroup children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older)

1

Table 135: Hospital test and treat

Review question: What are the most clinically and cost effective hospital strategies for assessing chest trauma (tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury) in patients with major trauma on initial presentation?	
Objective: To identify the optimal hospital strategy for assessing chest trauma (tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury) in children, young people and adults who have suffered a major trauma, in hospital.	
Population	Children, young people and adults who have experienced a suspected major trauma.
Intervention	<p>Tests:</p> <p>X-ray</p> <p>Ultrasound</p> <p>Extended FAST (focused assessment sonography for trauma)</p> <p>Chest CT</p> <p>X-ray + Chest CT</p> <p>Ultrasound + Chest CT</p> <p>X-ray + Ultrasound + Chest CT</p> <p>FAST + Chest CT</p> <p>Appropriate treatments in response to test findings are the same as for the FAST protocol</p>
Comparison	All tests will be compared with each other.
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30 days/1 month and 1 year</p> <p>Health related quality of life</p> <p>Length of intensive care stay</p> <p>Complications – parenchymal lung damage, infection, bleeding, lung damage, air embolism, empyema</p> <p>Numbers with inappropriate treatments</p> <p>Important:</p> <p>Patient reported outcomes (psychosocial wellbeing)</p> <p>Destination</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	People with a major trauma resulting from burns
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, Systematic reviews of RCTs or Quasi-RCTs</p>
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-

Review question: What are the most clinically and cost effective hospital strategies for assessing chest trauma (tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic injury) in patients with major trauma on initial presentation?	
	analysis and GRADE report only overall scores. 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) Subgroup if between-study heterogeneity: Children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older)

1 C.5 Assessment and management of haemorrhage

2 C.5.1 Control of external haemorrhage

3 C.5.1.1 Use of haemostatic dressings

4 Table 136: Use of haemostatic dressings

Review question: Are haemostatic dressings clinically and cost effective in improving outcomes in patients with haemorrhage in major trauma?	
Objective: To identify whether haemostatic dressings are effective for managing haemorrhage in people who have experienced a traumatic incident	
Population	Children and adults with haemorrhage after experiencing a traumatic incident
Intervention	<p>Factor concentrators (dehydrators):</p> <ul style="list-style-type: none"> QuikClot QuikClot ACS TraumaDex Self-expanding haemostatic polymer (SEHP) <p>Mucoadhesive agents:</p> <ul style="list-style-type: none"> HemCon HemCon ChitoFlex HemCon ChitoGauze Celox Gauze (CEL) RDH mRDH WoundStat Super QR Syvek Patch Syvek NT InstaClot BloodStop <p>Procoagulant supplementors:</p> <ul style="list-style-type: none"> Dry fibrin sealant dressing (DFSD) TachoComb H FastAct/SeraSeal QuikClot Combat Gauze (X-Sponge)

Review question: Are haemostatic dressings clinically and cost effective in improving outcomes in patients with haemorrhage in major trauma?	
	QuikClot Combat Gauze XL
Comparison	A comparison of factor concentrators, mucoadhesive agents, procoagulant supplementors versus each other or standard dressings (with no active ingredients).
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30 days/1month and 12 months</p> <p>Health related quality of life</p> <p>Length of ICU stay</p> <p>Blood product use</p> <p>Adverse events:</p> <p>skin burn</p> <p>delayed wound healing</p> <p>necrosis</p> <p>surgical complications/difficulties</p> <p>Important:</p> <p>Patient-reported outcomes:</p> <p>psychological wellbeing</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	People with a major trauma resulting from burns
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>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores.</p> <p>Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Within-study confounders (if cohorts used)</p> <p>Age</p> <p>Injury severity</p> <p>Depth of shock</p> <p>Degree of head injury</p>

1 **C.5.1.2 Use of tourniquets**

2 **Table 137: Use of tourniquets**

Review question: Is the use of pneumatic or mechanical tourniquets clinically and cost effective in improving outcomes in patients with haemorrhage in major trauma?	
Objective: To determine the optimal type of tourniquet to use in patients with limb trauma haemorrhage.	
Population	Children, young people and adults who have experienced a traumatic limb injury.

Review question: Is the use of pneumatic or mechanical tourniquets clinically and cost effective in improving outcomes in patients with haemorrhage in major trauma?	
Intervention	Pneumatic tourniquets Mechanical tourniquets
Comparison	No tourniquets/ direct pressure Each other
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30 days/1month and 12 months</p> <p>Health related quality of life</p> <p>Blood product use:</p> <p>RBCs</p> <p>Platelets</p> <p>Plasma</p> <p>cryoprecipitate)</p> <p>Length of intensive care stay</p> <p>Adverse effects:</p> <p>Amputation</p> <p>nerve palsies</p> <p>renal failure</p> <p>increased bleeding.</p> <p>Important:</p> <p>Time to definitive control of haemorrhage</p> <p>Patient-reported outcomes (psychological wellbeing).</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	People with a major trauma resulting from burns.
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>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores.</p> <p>Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Within-study confounders (if cohorts used)</p> <p>Age</p> <p>Injury severity</p> <p>Depth of shock</p> <p>Degree of head injury</p>

1 **C.5.2 Pelvic binders**

2 **Table 138: Pelvic binders**

Review question: Is the application of pelvic binders pre-hospital in patients suspected of pelvic fracture clinically and cost effective in improving outcomes?	
Objective: To determine the clinical and cost effectiveness of pelvic binders in the pre-hospital setting for people with suspected pelvic fracture	
Population	Children, young people and adults who are suspected of a pelvic fracture following a traumatic incident.
Intervention	Pelvic binders
Comparison	None
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30 days/1month and 12 months</p> <p>Volume of blood products</p> <p>Health related quality of life</p> <p>Adverse effects (unnecessary imaging)</p> <p>Important:</p> <p>Patient-reported outcomes (pain/discomfort).</p> <p>Improvement in haemodynamics (bloodpressure and heart rate)</p> <p>Population size and directness:</p> <p>No limitations on sample size</p> <p>Hospital pre-imaging will be considered.</p>
Exclusion	People with a major trauma resulting from burns
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>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores.</p> <p>Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Sub-groups if between-study heterogeneity exists:</p> <p>Subgroup children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years)</p> <p>Sub-group by:</p> <p>Presence of shock or haemorrhage</p> <p>Within-study confounders (if cohorts used)</p> <p>Age</p> <p>Injury severity</p> <p>Depth of shock</p> <p>Degree of head injury</p>

1 **C.5.3 Haemostatic agents**

2 **Table 139: haemostatic agents**

Review question: Is the use of systemic haemostatic agents clinically and cost effective in improving outcomes in patients with confirmed or suspected haemorrhage in major trauma?	
Objective: Which haemostatic agents administered systemically improve outcomes in patients with confirmed or suspected haemorrhage in major trauma?	
Population	Children, young people and adults who have a suspected haemorrhage following a traumatic incident.
Intervention	Factor 7 (recombinant activated factor vii) Tranexamic acid Fibrinogen concentrate Prothrombin complex concentrates Other anti-fibrinolytic agents
Comparison	Nothing A comparison of the above In combination In addition to standard care (Blood products (plasma, RBCs, platelets))
Outcomes	Critical: Mortality at 24 hours, 30 days/ 1 month and 12 months Health related quality of life Adverse effects venous thromboembolism thrombotic events (MI/Stroke, pulmonary embolism) over-transfusion related morbidity infections) Blood product use: RBCs Platelets Plasma cryoprecipitate) Important: Time to definitive control of haemorrhage Patient-reported outcomes (psychological wellbeing). 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: RCTs or Systematic reviews of RCTs; cohorts for (fib and PC)
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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)

Review question: Is the use of systemic haemostatic agents clinically and cost effective in improving outcomes in patients with confirmed or suspected haemorrhage in major trauma?

	Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury
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1 **C.5.4 Anticoagulation reversal**

2 **Table 140: Anticoagulation reversal**

Review question: What is the most clinically and cost effective regimen for reversal of pre-existing therapeutic anticoagulation (laboratory effect) in major trauma?

Objective: To identify the optimal reversal regimen for children, young people and adults who have experienced a traumatic incident and are on pre-existing therapeutic anticoagulants.

Population	Children, young people and adults who have experienced a traumatic incident and who are on pre-existing therapeutic anticoagulant therapy Anticoagulant classes: <ul style="list-style-type: none"> • Coumarins and phenindione • Direct thrombin inhibitors • Anti-platelet agents • Low molecular weight heparins
Intervention	Reversal agents: Fibrinogen concentrate Cryoprecipitate Platelets Vitamin K (Phytonadione) Fresh frozen plasma Prothrombin complex concentrates (PCCs) Recombinant factor VIIa
Comparison	A comparison of the above
Outcomes	Critical: Mortality at 24 hours, 30days/1month, and 12 months Health related quality of life Adverse effects (Stroke, MI, Thromboembolism (PA and venous)) Reversal of anti-coagulation as measured by laboratory assessment (degree of reversal (reduction of INR)) Degree of resuscitation (units of blood transfused) Neurological outcome (brain injured patients) Important: Patient-reported outcomes (pain/discomfort, return to normal activities, psychological wellbeing). Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.

Review question: What is the most clinically and cost effective regimen for reversal of pre-existing therapeutic anticoagulation (laboratory effect) in major trauma?	
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: RCTs or Systematic reviews of RCTs
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Anticoagulant class Presence of brain injury

1 C.5.5 Haemorrhage shock prediction/risk tools

2 Table 141: Haemorrhage shock prediction/risk tools

Review question: What is the most accurate risk tool to predict the need for massive transfusion in patients with major trauma (pre-hospital and hospital)?	
Objective: To determine the optimal strategy to predict later haemorrhagic shock in patients with major trauma (pre-hospital and hospital). Early prediction of later severe shock is vital as it allows blood products to be prepared and set up for use if required later, as shown by a diagnostic test for shock. Although treatments may not be given proactively in response to greater risk, they will be available more readily at the point of need. Hence treatment is REACTIVE to the diagnosis of shock, and therefore will not influence the gold standard (which is, of course, the diagnosis of shock).	
Population	Children, young people and adults who have experienced a traumatic incident.
Index tests	Pre-hospital and hospital: Clinical risk scores (examples) ABC score TASH score PWH score McLaughlin score Emergency Transfusion Score (ETS) Shock Index Shock Classification (part of ATLS protocols)
Reference standard	Need for massive transfusion, as diagnosed by a suitable blood test or clinical signs.
Outcomes	Diagnostic accuracy Outcomes related to under or over triage
Exclusion	People with a major trauma resulting from burns. Treatments applied for shock BEFORE diagnosis of shock (ie, test or clinical sign indicating the need for transfusion).
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: External validation studies. Internal validation studies (using different samples to those used to derive the risk tool) may be used if a test has no external validation studies.

Review question: What is the most accurate risk tool to predict the need for massive transfusion in patients with major trauma (pre-hospital and hospital)?	
The review strategy	If the external validation measures (ie AUROC, calibration slope or MD) are given with 95% CIs a meta-analysis in Generic inverse Variance may be possible. Otherwise a narrative review will be adequate.
Analysis	Stratify by age: children (0-17 years), adults (18 and over) Pre-hospital or hospital setting

1 **C.5.6 IO/IV access**

2 **Table 142: IO/IV access**

Review question: What is the most clinically and cost effective technique for circulatory access in patients with major trauma, including following a failed attempt at initial peripheral access?	
Objective: To identify the optimal technique for circulatory access in adults, young people and children with major trauma.	
Population	Children, young people and adults who have experienced a traumatic incident.
Intervention	Intravenous (central and peripheral) Intraosseous
Comparison	A comparison of the above
Outcomes	Critical: Mortality at 24 hours, 30 days/1month and 12 months Health related quality of life Adverse effects: pain, infection, thrombosis, multiple failures, compartment syndrome, fracture Time to establish access Important: Patient-reported outcomes (psychological wellbeing). 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: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved.
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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). Within-study confounders (if cohorts used) Age Injury severity Depth of shock

Review question: What is the most clinically and cost effective technique for circulatory access in patients with major trauma, including following a failed attempt at initial peripheral access?

Degree of head injury

1 C.5.7 Volume resuscitation

2 Table 143: Volume resuscitation

Review question: What are the most clinically and cost effective fluid resuscitation strategies in the major trauma patient (hypotensive vs. normotensive)?

Objective: To identify the optimal fluid resuscitation strategy for adults, young people and children

Population	Children, young people and adults experiencing a traumatic incident with acute haemorrhage.
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Intervention	Combination of permissive hypotension and normotension Permissive hypotension
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Comparison	Resuscitation with normotension as aim
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Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30days/1 month, and 12 months</p> <p>Health related quality of life</p> <p>Neurological outcome</p> <p>Length of intensive care stay</p> <p>Blood product use</p> <p>Important:</p> <p>Multi organ failure</p> <p>Time to definitive control of haemorrhage</p> <p>Patient-reported outcomes: 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>
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Exclusion	People with a major trauma resulting from burns
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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>
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The review strategy	<p>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores.</p> <p>Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
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Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Pre-hospital or hospital setting</p> <p>Blunt or penetrating trauma</p> <p>Sub-groups if between-study heterogeneity exists: Co-existing traumatic brain injury</p>
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Review question: What are the most clinically and cost effective fluid resuscitation strategies in the major trauma patient (hypotensive vs. normotensive)?

	<p>Within-study confounders (if cohorts used)</p> <p>Age</p> <p>Injury severity</p> <p>Depth of shock</p> <p>Degree of head injury</p>
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1 **C.5.8 Fluid replacement**

2 **Table 144: Fluid replacement**

Review question: What is the best volume expansion fluid to use in the resuscitation of haemorrhagic shock?

Objective: To determine what type of fluid replacement should be used in the management of shock for children, young people and adults who have experienced a traumatic incident.

Population	Children, young people and adults who have experienced a traumatic incident.
Intervention	<p>Red blood cells</p> <p>Fresh frozen plasma</p> <p>Liquid plasma</p> <p>Crystalloids</p> <p>Lyophilised plasma</p>
Comparison	A comparison or combination of the above (including different ratios)
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30 days/1month and 12 months</p> <p>Health related quality of life</p> <p>Length of intensive care stay</p> <p>Adverse effects: (check SHOT website for acute transfusion reactions)</p> <p>Acute transfusion reaction</p> <p>Haemolytic transfusion reaction – acute</p> <p>Haemolytic transfusion reaction – delayed</p> <p>Post transfusion purpura</p> <p>Previously uncategorised complications of transfusion</p> <p>Transfusion associated graft versus host disease</p> <p>Transfusion associated circulatory overload</p> <p>Transfusion associated dyspnoea</p> <p>Transfusion related acute lung injury</p> <p>Transfusion transmitted infections</p> <p>Important:</p> <p>Time to definitive control of haemorrhage</p> <p>Patient-reported outcomes:</p> <p>return to normal activities</p> <p>psychological wellbeing)</p> <p>Population size and directness:</p> <p>No limitations on sample size</p> <p>Studies with indirect populations will not be considered.</p>

Review question: What is the best volume expansion fluid to use in the resuscitation of haemorrhagic shock?	
Exclusion	People with a major trauma resulting from burns. Patients in shock, not from trauma.
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 for lyophilised plasma
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Sub-groups if between-study heterogeneity: Subgroup children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years) Sub-group adults by: 18- 65 years and > 65 years. Subgroup by: Pre-existing hypertension Co-existing traumatic brain injury Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury

1 C.6 Control of haemorrhage in hospital

2 C.6.1 Haemorrhage protocols

3 Table 145: Haemorrhage protocols

Review question: What type of major haemorrhage protocol is the most clinically and cost effective for improving outcomes in patients with major trauma?	
Objective: To determine which type of haemorrhage protocol should be used in the management of major haemorrhage.	
Population	Children, young people and adults who have experienced a traumatic incident.
Intervention	Empiric haemorrhage/transfusion protocols Targeted (laboratory-guided, point-of-care guided) haemorrhage/transfusion protocols
Comparison	Each other
Outcomes	Critical: Mortality at 24 hours, 30 days/1month and 12 months Health related quality of life Blood product use: RBCs

Review question: What type of major haemorrhage protocol is the most clinically and cost effective for improving outcomes in patients with major trauma?	
	<p>Platelets Plasma cryoprecipitate Length of intensive care stay Adverse effects: over-transfusion related morbidity thromboembolism transfusion-reactions infections</p> <p>Important: Patient-reported outcomes (psychological wellbeing). Blood product waste</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	People with a major trauma resulting from burns
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 retrieved.</p>
The review strategy	<p>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over).</p> <p>Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury</p>

1 **C.6.2 Haemorrhage imaging**

2 **Table 146: Hospital diagnostic accuracy**

Review question: What is the diagnostic accuracy of imaging strategies for detecting life threatening internal haemorrhage in major trauma patients?	
Objective: To determine the optimal strategy for detecting life threatening internal haemorrhage in a person who has experienced a major trauma.	
Population	Children, young people and adults who have experienced a traumatic incident suspected of having internal haemorrhage.
Index tests	<p>X-ray FAST X-ray + fast</p>

Review question: What is the diagnostic accuracy of imaging strategies for detecting life threatening internal haemorrhage in major trauma patients?	
	Ultrasound (in children <12)
Reference Test	Surgical or interventional radiology findings CT (for X-ray and FAST)
Outcomes	Diagnostic accuracy accurately identify and subgroup people who go on to need: initiate haemorrhage/transfusion protocol surgery interventional radiology observation/careful monitoring 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: Observational studies
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Subgroup if between study heterogeneity: Children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years) Adults: 18- 65 years and > 65 years. older)

1 **Table 147: Hospital test and treat**

Review question: What are the most clinically and cost effective imaging strategies for detecting life threatening internal haemorrhage in major trauma patients?	
Objective: To determine the optimal strategy for detecting life threatening internal haemorrhage in a person who has experienced a major trauma.	
Population	Children, young people and adults who have experienced a traumatic incident
Intervention	Tests: X-ray FAST CT scans X-ray + CT FAST + CT X-ray + FAST X-ray + FAST + CT Possible treatments:

Review question: What are the most clinically and cost effective imaging strategies for detecting life threatening internal haemorrhage in major trauma patients?	
	<p>initiate haemorrhage/transfusion protocol surgery interventional radiology observation/careful monitoring Combination of the above</p>
Comparison	<p>A comparison of the above Surgical or interventional radiology findings</p>
Outcomes	<p>Critical: Mortality (24 hours, 30 days/1 month and 1 year) Health related quality of life Blood product use: RBCs Platelets Plasma cryoprecipitate) Length of intensive care stay Adverse events: Infarction Infection surgical complications)</p> <p>Important: Time to definitive control of haemorrhage Patient reported outcomes: 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	<p>People with a major trauma resulting from burns</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</p>
The review strategy	<p>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over) Subgroup children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years) Sub-group adults by: 18- 65 years and > 65 years.</p>

1 **C.6.3 Whole-body computed tomography**

2 **Table 148: Whole body CT**

Review question: What is the clinical and cost effectiveness of whole-body CT imaging in major trauma?	
Objective: To determine the value of whole-body CT in the initial management of people with major trauma.	
Population	Children, young people and adults who have experienced a traumatic incident
Intervention	Whole-body CT scan
Comparison	Selective imaging (including CT, X-ray and USS)
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30 days/1month and 12 months</p> <p>Health related quality of life</p> <p>Blood product use:</p> <p>RBCs</p> <p>Platelets</p> <p>Plasma</p> <p>cryoprecipitate)</p> <p>Length of intensive care stay</p> <p>Important:</p> <p>Time to definitive control of haemorrhage</p> <p>Time to surgery</p> <p>Patient reported outcomes (psychosocial wellbeing)</p> <p>Long-term radiation risk</p> <p>Delayed/missed injury</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	People with a major trauma resulting from burns.
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>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores.</p> <p>Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Sub-groups if between study heterogeneity exists:</p> <p>Subgroup children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older)</p> <p>Subgroup by:</p> <p>Timing of whole-body CT (immediately on arrival/primary survey in CT room versus primary survey then transfer to CT versus secondary survey then</p>

Review question: What is the clinical and cost effectiveness of whole-body CT imaging in major trauma?	
	transfer to CT)
	Within-study confounders (if cohorts used)
	Age
	Injury severity
	Depth of shock
	Degree of head injury

1 **C.6.4 Damage control surgery**

2 **Table 149: Damage control surgery**

Review question: What are the most clinically and cost effective surgical intervention strategies in the major trauma patient with active haemorrhage (damage control versus definitive surgery)?	
Objective: To determine the optimal strategy for surgical intervention	
Population	Children, young people and adults experiencing a traumatic incident.
Intervention	Damage control surgery followed by definitive surgery
Comparison	Definitive surgery
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours (post damage control surgery and pre-definitive surgery), 30 days/ 1 month and 12 months</p> <p>Health related quality of life</p> <p>Adverse effects (complications of surgery)</p> <p>Important:</p> <p>Patient-reported outcomes (psychological wellbeing).</p> <p>Blood products</p> <p>Length of stay on ICU</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	<p>People with a major trauma resulting from burns.</p> <p>Damage control orthopaedics?</p>
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</p>
The review strategy	<p>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores.</p> <p>Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Within-study confounders (if cohorts used)</p> <p>Age</p> <p>Injury severity</p> <p>Depth of shock</p> <p>Degree of head injury</p>

1 **C.6.5 Interventional radiology**

2 **Table 150: Interventional radiology**

Review question: Is the use of interventional radiology for definitive haemorrhage control in major trauma patients clinically and cost effective?	
Objective: To determine whether interventional radiology for definitive haemorrhage control in major trauma patients improves outcomes.	
Population	Children, young people and adults experiencing haemorrhage due to a traumatic incident.
Intervention	Therapeutic interventional radiology Stent grafts Embolization (coil, plug, embolotherapy)
Comparison	Definitive Surgery Damage control surgery No intervention
Outcomes	<p>Critical:</p> <p>Mortality at 24 hours, 30 days/ 1 month and 12 months Health related quality of life Failure rate or re-intervention rate Adverse effects ischaemic damage necrosis renal failure) Blood product use Length of intensive care stay Time to definitive control of haemorrhage</p> <p>Important:</p> <p>Patient-reported outcomes: 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	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: RCTs or Systematic reviews of RCTs, if no RCTs retrieved drop down to cohorts
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Type of IR: Stent grafts and embolization

Review question: Is the use of interventional radiology for definitive haemorrhage control in major trauma patients clinically and cost effective?	
	Sub-groups if between-study heterogeneity: Time to IR ≤1 hour >1 hour Source of haemorrhage (pelvis, spleen, kidney, thoracic, limbs and liver) Severity of haemorrhage Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury

1 C.7 Monitoring

2 C.7.1 Coagulation testing

3 Table 151: Diagnostic RCT protocol

Review question: Is the use of point of care coagulation testing versus laboratory coagulation testing clinically and cost effective in patients with major trauma?	
Objective: To determine the optimal strategy for coagulation testing in the management of children, young people and adults with major trauma.	
Population	Children, young people and adults with haemorrhage who have experienced a traumatic incident
Intervention	Point of care coagulation testing: TEG (thromboelastography) Modified TEG ROTEM (rotational thromboelastometry) Point of care INR CoaguChek INRatio ProTime
Comparison	Laboratory coagulation testing Clotting screen Laboratory TEG or ROTEM Fibrinogen Platelet count Combination of the above
Outcomes	Critical: Mortality at 24 hours, 30 days/1month and 12 months Health related quality of life Length of intensive care stay Blood product use Important: Time to definitive control of haemorrhage Time to availability of result

Review question: Is the use of point of care coagulation testing versus laboratory coagulation testing clinically and cost effective in patients with major trauma?	
	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: RCTs or Systematic reviews of RCTs;
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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)

1

Table 152: Diagnostic accuracy

Review question: What is the diagnostic accuracy of point of care coagulation testing versus laboratory coagulation testing in patients with major trauma?	
Objective: To determine the optimal strategy for coagulation testing in the management of children, young people and adults with major trauma.	
Population	Children, young people and adults with haemorrhage who have experienced a traumatic incident
Index test	Point of care coagulation testing: TEG (thromboelastography) Modified TEG ROTEM (rotational thromboelastometry) Point of care INR: CoaguChek INRatio ProTime
Reference standard	Laboratory coagulation testing Clotting screen Laboratory TEG or ROTEM Fibrinogen Platelet count
Outcomes	Diagnostic accuracy 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: Observational studies
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-

Review question: What is the diagnostic accuracy of point of care coagulation testing versus laboratory coagulation testing in patients with major trauma?	
	analysis and GRADE report only overall scores. 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)

1 C.7.2 Frequency of blood testing

2 Table 153: Frequency of blood monitoring

Review question: What is the most clinically and cost effective frequency of blood test monitoring for people with suspected haemorrhage following major trauma?	
Objective: To identify the most effective frequency of blood test monitoring following a suspected haemorrhage from major trauma	
Population	Children, young people and adults in the emergency department who have a suspected haemorrhage following a traumatic incident
Intervention	Set frequencies of blood testing within 48 hours of injury Blood tests of interest: Coagulation tests Haemoglobin test Haematocrit Lactate Base excess/deficit
Comparison	Alternative frequencies of blood testing
Outcomes	Critical: Mortality at 24 hours, 30days/1month, and 12 months Health related quality of life Length of intensive care stay Blood product use: RBCs Platelets Plasma cryoprecipitate Important: Patient-reported outcomes: pain/discomfort return to normal activities psychological wellbeing Time to definitive control of shock/haemorrhage 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

Review question: What is the most clinically and cost effective frequency of blood test monitoring for people with suspected haemorrhage following major trauma?	
	Study designs: RCTs or Systematic reviews of RCTs; cohorts if no RCTs retrieved
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Type of test Sub-group if between study heterogeneity: Severity of the coagulopathy Pre-existing anticoagulant therapy Within-study confounders (if cohorts used) Pre-existing anticoagulants Age Injury severity Depth of shock Degree of head injury

1 **C.7.3 Lactate levels**

2 **Table 154: Lactate levels**

Review question: Does monitoring of lactate levels to guide management of hypovolemic shock improve outcomes?	
Objective: To determine whether monitoring lactate levels to guide the management of hypovolemic shock improves outcomes.	
Population	Children, young people and adults experiencing a traumatic incident.
Intervention	Treatment for hypovolemic shock + monitoring of lactate levels
Comparison	Treatment for hypovolemic shock without monitoring lactate levels. Treatment for hypovolemic shock + monitoring HR, BP and other haemodynamic levels.
Outcomes	Critical: Mortality at 24 hours, 30 days/1month and 12 months Health related quality of life Length of intensive care stay Adverse effects: over-transfusion related morbidity thromboembolism transfusion-reactions Blood product use: red blood cells platelets plasma cryoprecipitate Important:

Review question: Does monitoring of lactate levels to guide management of hypovolemic shock improve outcomes?	
	<p>Patient-reported outcomes (psychological wellbeing). Time to definitive control of shock/haemorrhage Blood product waste</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	People with a major trauma resulting from burns.
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; or cohorts if no RCTs retrieved.</p>
The review strategy	<p>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury</p>

1 C.8 Warming

2 Table 155: Warming

Review question: Is warming clinically and cost effective in people who have experienced major trauma?	
Objective: To identify if there is benefit to warming children and adults who have experienced major trauma (pre-hospital and in the emergency department)	
Population	Children and adults experiencing a traumatic incident.
Intervention	<p>Pre-hosp External: Bubble wrap Foil blankets Active heating chemical blankets Internal: Intravenous fluid warmed devices (including IV solutions/blood products)</p> <p>Emergency department Active external rewarming Convection warming units Air convection (Bair hugger/WarmAir) Fluid convection Warming mattress (Inditherm warming mattress) Radiant warmers/heater</p>

Review question: Is warming clinically and cost effective in people who have experienced major trauma?	
	<p>Active internal rewarming: Warmed IV solutions Ventilation with warmed, humidified air or oxygen</p> <p>A combination of the above.</p>
Comparison	<p>A comparison of the above. Standard care (standard blankets)</p>
Outcomes	<p>Critical: Mortality at 24 hours, 30days/1month, and 12 months Health related quality of life Length of intensive care stay Adverse effects: skin burns hyperthermia infection) Neurological outcome</p> <p>Important: Patient-reported outcomes: 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	<p>People with a major trauma resulting from burns</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 retrieved.</p>
The review strategy	<p>Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.</p>
Analysis	<p>Stratify by age: children (0-17 years), adults (18 and over)</p> <p>Sub-group if between-study heterogeneity: Head injury Severity of hypothermia</p> <p>Within-study confounders (if cohorts used) Severity of hypothermia Age Injury severity Depth of shock</p>

Review question: Is warming clinically and cost effective in people who have experienced major trauma?	
	Degree of head injury

1 C.9 Pain

2 C.9.1 Pain assessment

3 Table 156: Pain assessment

Review question: What is the most appropriate pain assessment tool (pre-hospital and hospital) in patients with major trauma?	
Objective: To identify the optimal strategy for assessing pain in all children young people and adults who have suffered a major trauma (pre-hospital and in hospital).	
Population	Children, young people and adults who have experienced a traumatic incident.
Intervention	Pictorial scales Numerical scales Verbal scales Visual scales
Comparison	A comparison of the above Standard/usual care (clinical examination and judgement) No intervention
Outcomes	Critical: Patient satisfaction Health related quality of life Important: Patient-reported outcomes (psychological wellbeing). 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: RCTs or Systematic reviews of RCTs; cohorts or case-controls if no RCTs retrieved.
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Children: 0-2 (pre-verbal), 2-5 (verbal child), 5-17 (verbal older child) Sub-group by if between-study heterogeneity exists: People with learning difficulties People with dementia

Review question: What is the most appropriate pain assessment tool (pre-hospital and hospital) in patients with major trauma?

	<p>Within-study confounders (if cohorts used)</p> <p>Age</p> <p>Injury severity</p> <p>Depth of shock</p> <p>Degree of head injury</p>
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1 **C.9.2 Pain management**

2 **Table 157: Pain management**

Review question: What are the most clinically and cost effective first line pharmacological pain management strategies (pre-hospital and hospital) in patients with major trauma?

Objective: To determine the effectiveness of various first line acute pain management methods in people who have suffered a major trauma (pre-hospital and in hospital).

Population	Children, young people and adults who have experienced a traumatic incident.
Intervention	<p>Intra-nasal:</p> <p>Opiates – (Diamorphine, fentanyl, alfentanyl)</p> <p>Ketamine</p> <p>Intra-muscular:</p> <p>Opiates - (Diamorphine, fentanyl, alfentanyl)</p> <p>Ketamine</p> <p>Inhaled:</p> <p>Entonox / nitrous oxide</p> <p>IV:</p> <p>Opiates -(Diamorphine, fentanyl, alfentanyl)</p> <p>Ketamine</p> <p>Paracetamol - Acetaminophen</p>
Comparison	A comparison of the above
Outcomes	<p>Critical:</p> <p>Pain levels</p> <p>Health related quality of life</p> <p>Adverse effects:</p> <p>nausea</p> <p>respiratory depression</p> <p>hallucinations</p> <p>Level of consciousness</p> <p>Important:</p> <p>Patient-reported outcomes (psychological wellbeing).</p> <p>Population size and directness:</p> <p>No limitations on sample size</p> <p>Studies with indirect populations will not be considered.</p>

Review question: What are the most clinically and cost effective first line pharmacological pain management strategies (pre-hospital and hospital) in patients with major trauma?	
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: RCTs or Systematic reviews of RCTs
The review strategy	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. 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) Subgroup children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years) Stratify by hospital and prehospital. Sub-groups if between study heterogeneity: Dose Within-study confounders (if cohorts used) Age Injury severity Depth of shock Degree of head injury

1 C.10 Documentation

2 Table 158: Documentation

Review question: Is documentation using a standard form across all clinical settings (pre-hospital and hospital) in which a major trauma patient might be treated clinically and cost effective?	
Objective: To determine whether it is clinically and cost effective to use the same standard form to document the journey of a major trauma patient through all stages of their medical care	
Population	Children, young people and adults who have experienced a traumatic incident.
Intervention	Standard documentation across all clinical settings
Comparison	Varying documentation across clinical settings
Outcomes	Critical: Mortality at 24 hours Mortality at 30days/1 month Mortality at 12 months Health related quality of life Important: Length of stay Patient-reported outcome: return to normal activities Patient-reported outcome: psychological wellbeing. 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

Review question: Is documentation using a standard form across all clinical settings (pre-hospital and hospital) in which a major trauma patient might be treated clinically and cost effective?	
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	Quality of life data: Collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.
Analysis	None

1 C.11 Information and support

2 Table 159: Information and support

Review question: What information and support do people with major trauma and their families/carers want in hospital/on discharge from ED?	
Objective: To determine what information and support should be provided to patients who have experienced a traumatic event and their families	
Population	Children, young people and adults who have experienced a traumatic incident and their families and carers, where appropriate
Intervention	Any type of information and support described by studies. For example: Content of information/support required and how this information/support is delivered Information and support to include pain relief Information for carers and family members as well as information for patients Timing of information/support
Comparison	N/A
Outcomes	Not predefined. Themes will be discovered during synthesis of studies. Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Setting	Emergency department
Exclusion	People with a major trauma resulting from burns
Search strategy	PRAMS/PROMS Databases: Medline, Embase, the Cochrane Library, Cinahl Date: All years Language: Restrict to English only Study designs: Qualitative studies (interviews, focus groups etc), survey designs.
The review strategy	Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists and GRADE.
Analysis	Meta-synthesis of qualitative research: Thematic analysis - information synthesised into themes and sub-themes.

Review question: What information and support do people with major trauma and their families/carers want in hospital/on discharge from ED?

Results presented diagrammatically and as narrative.

1 C.12 Health Economic review protocol

2 **Table 160: Health economic review protocol**

Review question	All questions – health economic evidence
Objectives	To identify economic evaluations relevant to any of the review questions.
Search criteria	<ul style="list-style-type: none"> • Populations, interventions and comparators must be as specified in the individual review protocol above. • Studies must be of a relevant economic study design (cost–utility analysis, cost-effectiveness analysis, cost–benefit analysis, cost–consequences analysis, comparative cost analysis). • Studies must not be a letter, editorial or commentary, or a review of economic evaluations. (Recent reviews will be ordered although not reviewed. The bibliographies will be checked for relevant studies, which will then be ordered.) • Unpublished reports will not be considered unless submitted as part of a call for evidence. • Studies must be in English.
Search strategy	An economic study search will be undertaken using population-specific terms and an economic study filter – see Appendix F.
Review strategy	<p>Studies not meeting any of the search criteria above will be excluded. Studies published before 1999, abstract-only studies and studies from non-OECD countries or the USA will also be excluded.</p> <p>Each remaining study 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. <p>Where there is discretion</p> <p>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.</p> <p>The health economist will be guided by the following hierarchies.</p>

Setting:

- UK NHS (most applicable).
- OECD countries with predominantly public health insurance systems (for example, France, Germany, Sweden).
- OECD countries with predominantly private health insurance systems (for example, Switzerland).
- Studies set in non-OECD countries or in the USA will have been excluded before being assessed for applicability and methodological limitations.

Economic study type:

- Cost–utility analysis (most applicable).
- Other type of full economic evaluation (cost–benefit analysis, cost-effectiveness analysis, cost–consequences analysis).
- Comparative cost analysis.
- Non-comparative cost analyses including cost-of-illness studies will have been excluded before being assessed for applicability and methodological limitations.

Year of analysis:

- The more recent the study, the more applicable it will be.
- Studies published in 1999 or later but that depend on unit costs and resource data entirely or predominantly from before 1999 will be rated as ‘Not applicable’.
- Studies published before 1999 will have been excluded before being assessed for applicability and methodological limitations.

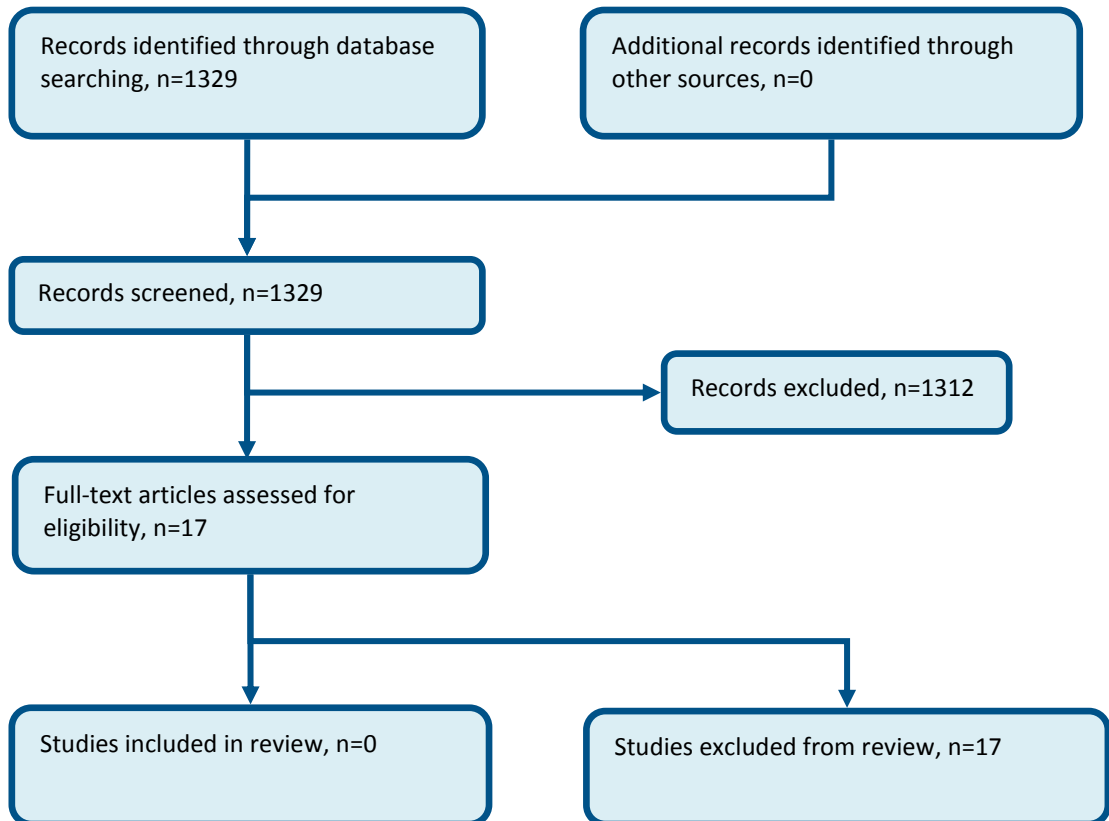
Quality and relevance of effectiveness data used in the economic analysis:

- 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.

1 Appendix D: Clinical article selection

2 D.1 Airway management

Figure 1: Flow chart of clinical article selection for the review of pre-hospital airway management

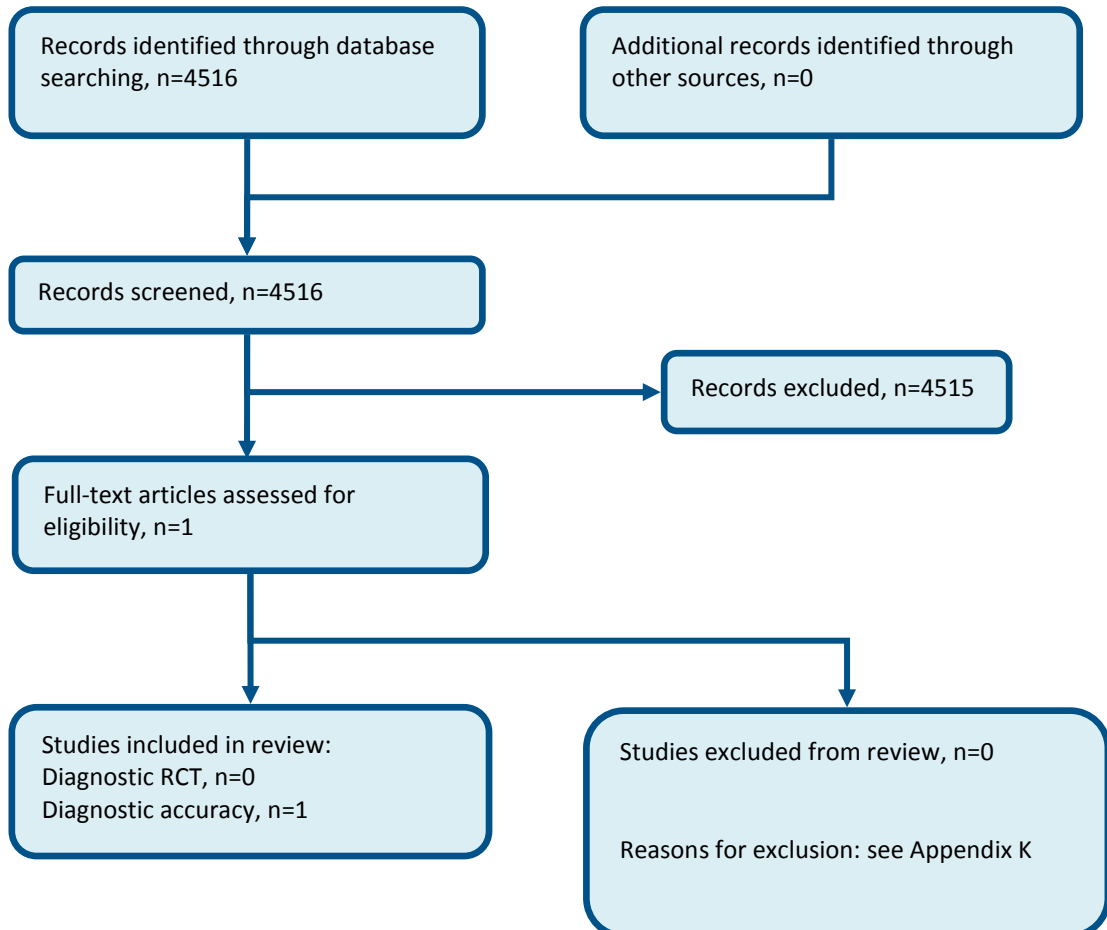


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1 D.2 Assessment and management of chest trauma

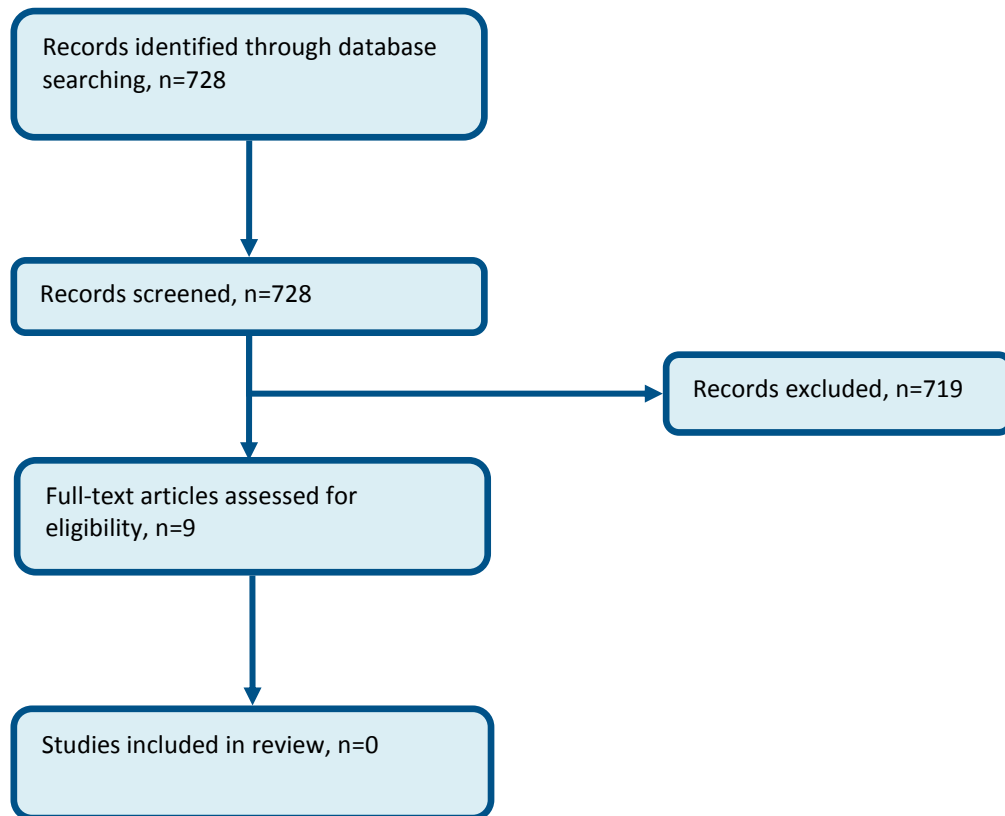
2 D.2.1 Pre-hospital chest imaging

Figure 2: Flow chart of clinical article selection for the review of pre-hospital diagnosis of chest trauma



1 **D.2.2 Pre-hospital tension pneumothorax**

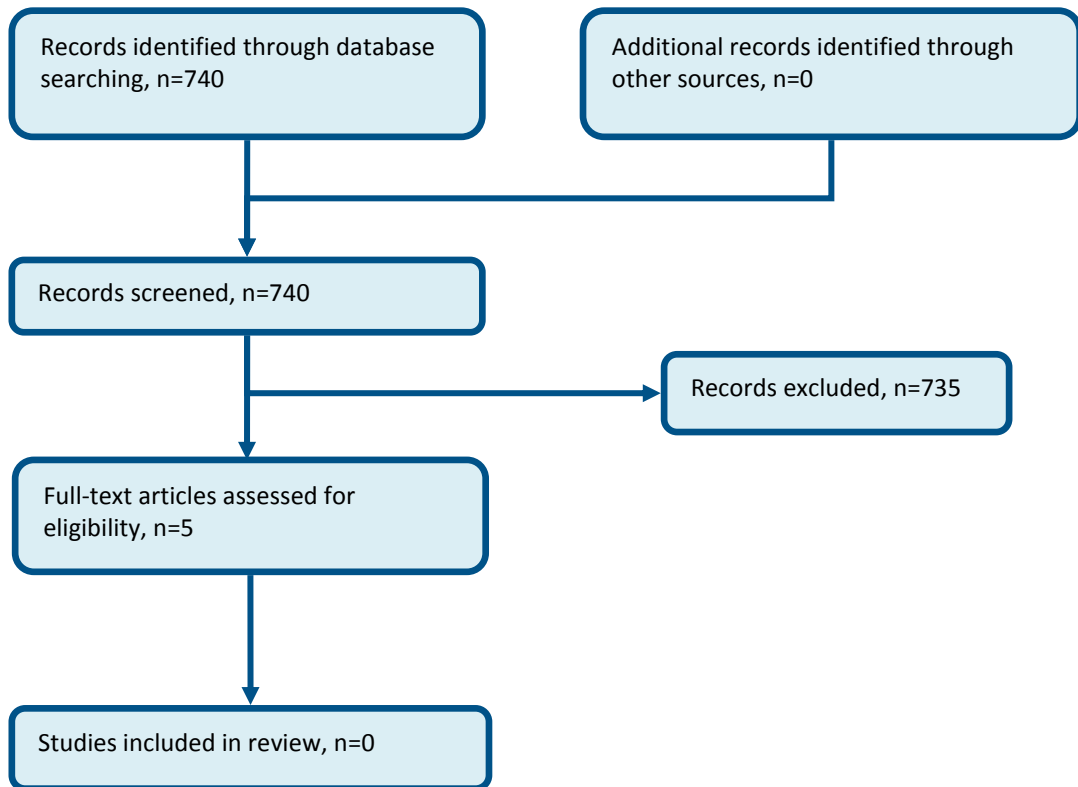
Figure 3: Flow chart of clinical article selection for the review of pre-hospital tension pneumothorax



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1 **D.2.3 Management of open pneumothorax**

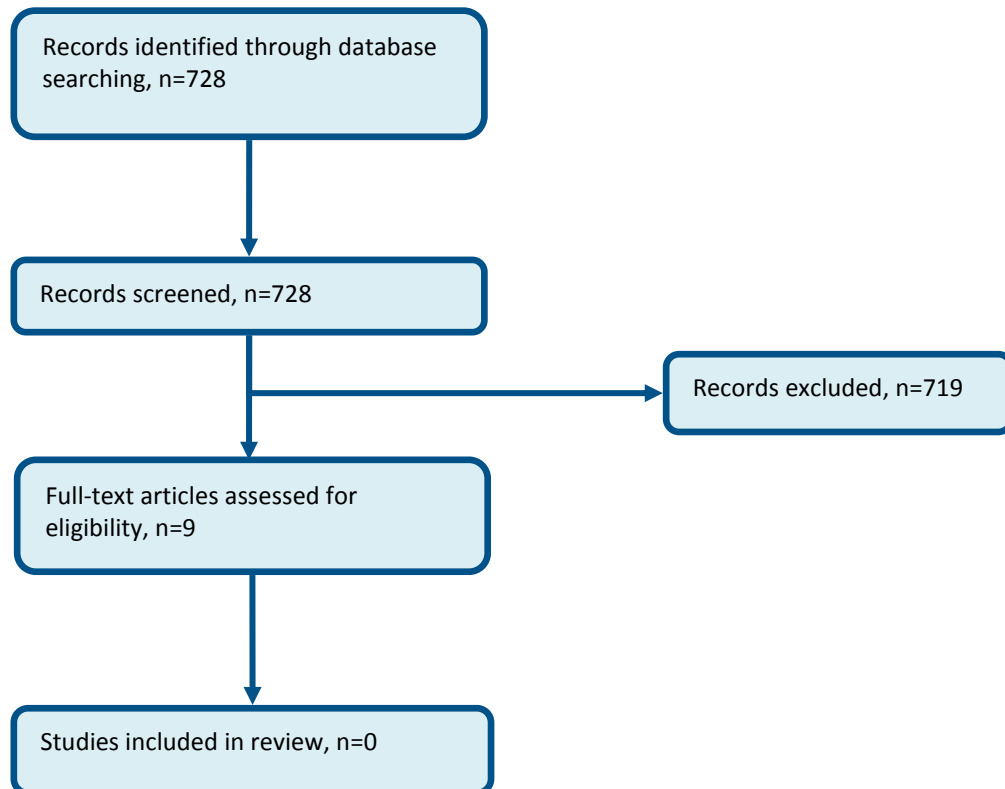
Figure 4: Flow chart of clinical article selection for the review of occlusive dressings



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1 D.3 In-hospital tension pneumothoraces

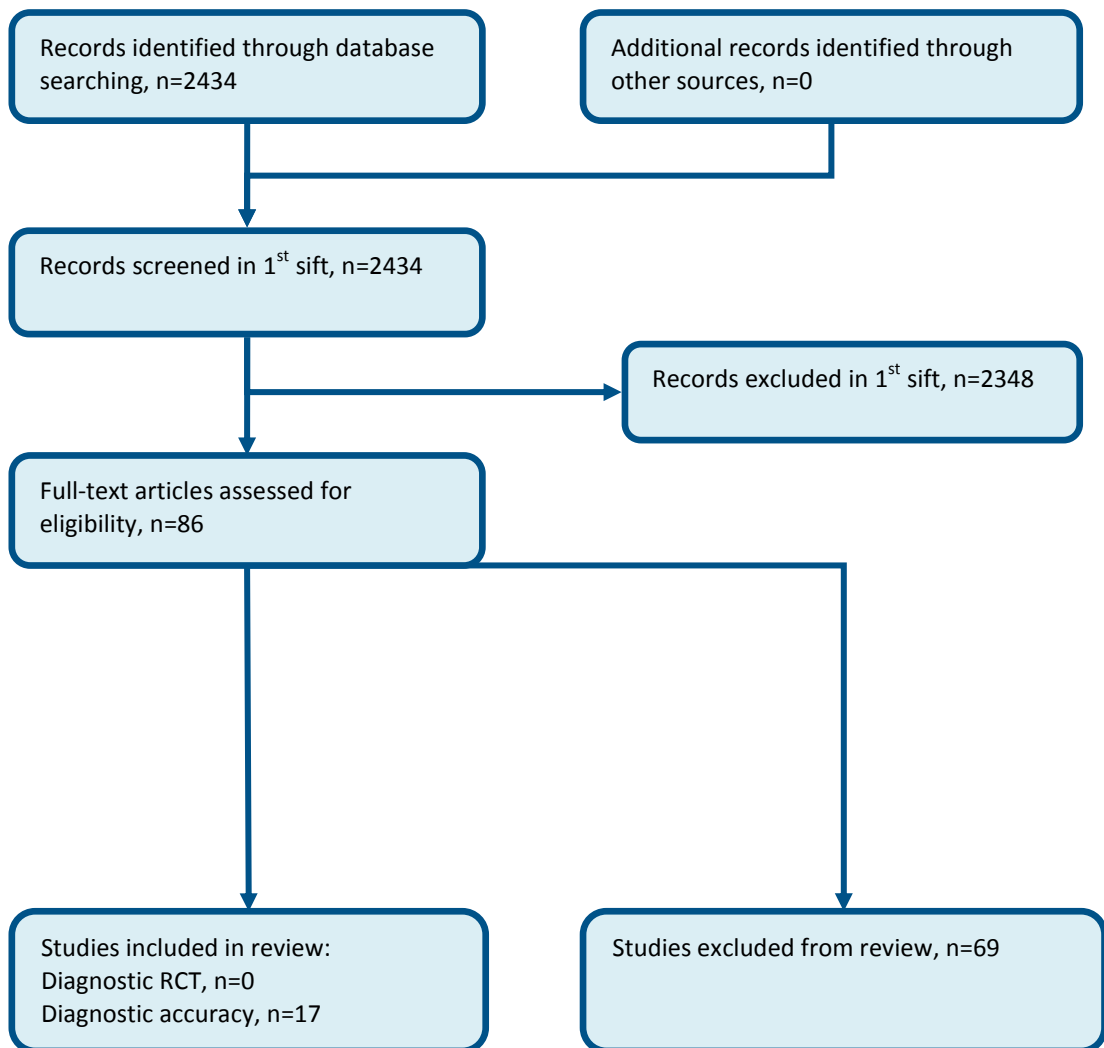
Figure 5: Flow chart of clinical article selection for the review of in-hospital tension pneumothorax



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1 D.4 Imaging assessment of chest trauma

Figure 6: Flow chart of clinical article selection for the review of Chest imaging (pre-hospital FAST and hospital imaging)



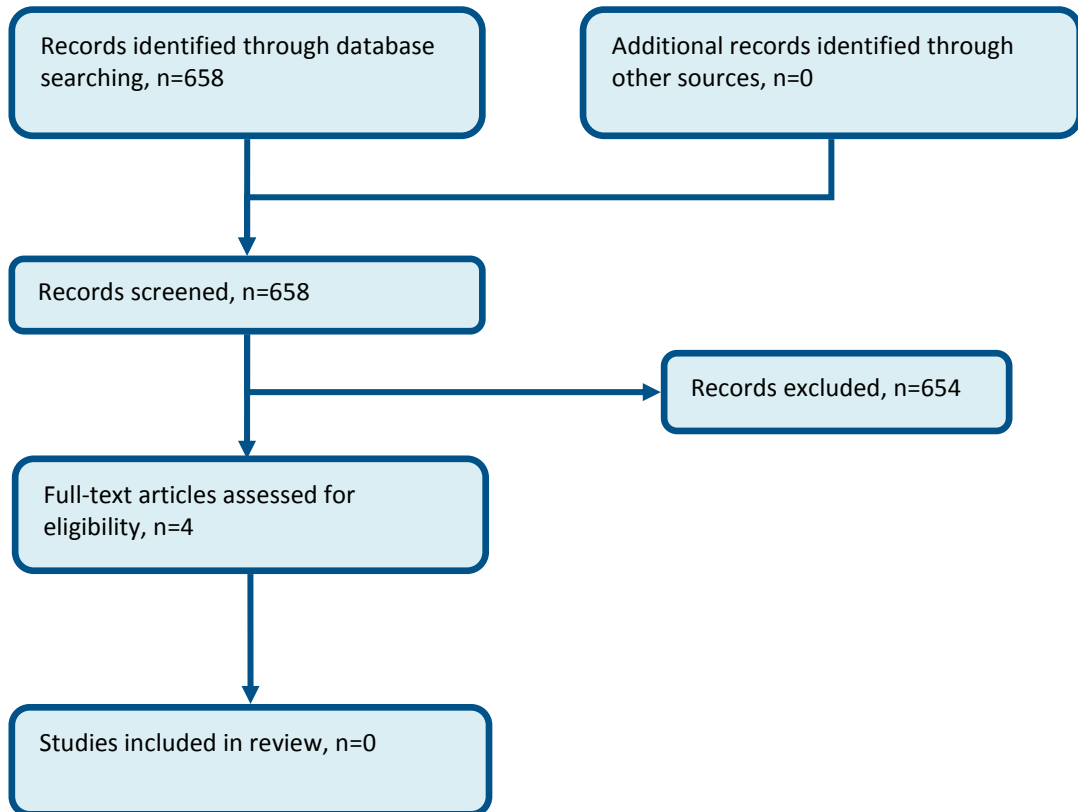
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1 **D.5 Assessment and management of haemorrhage**

2 **D.5.1 Control of external haemorrhage**

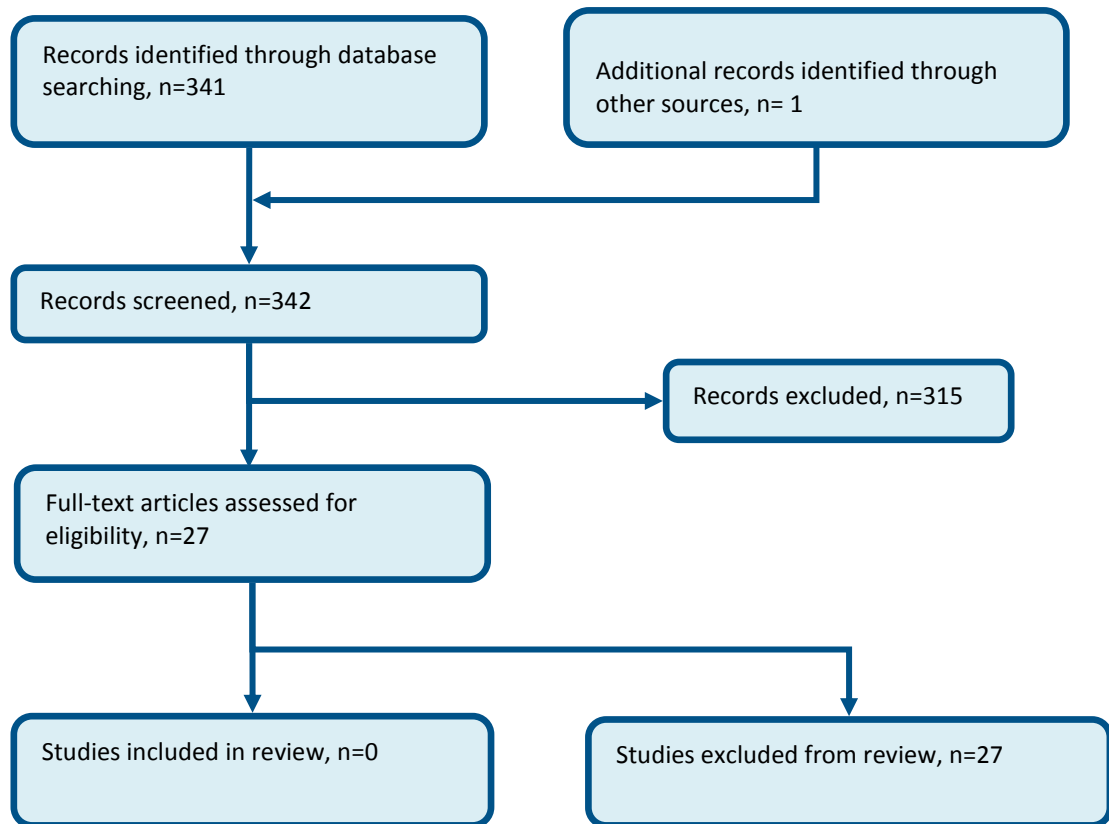
3 **D.5.1.1 Use of haemostatic dressings**

4 **Figure 7: Flow chart of clinical article selection for the review of haemostatic dressings**



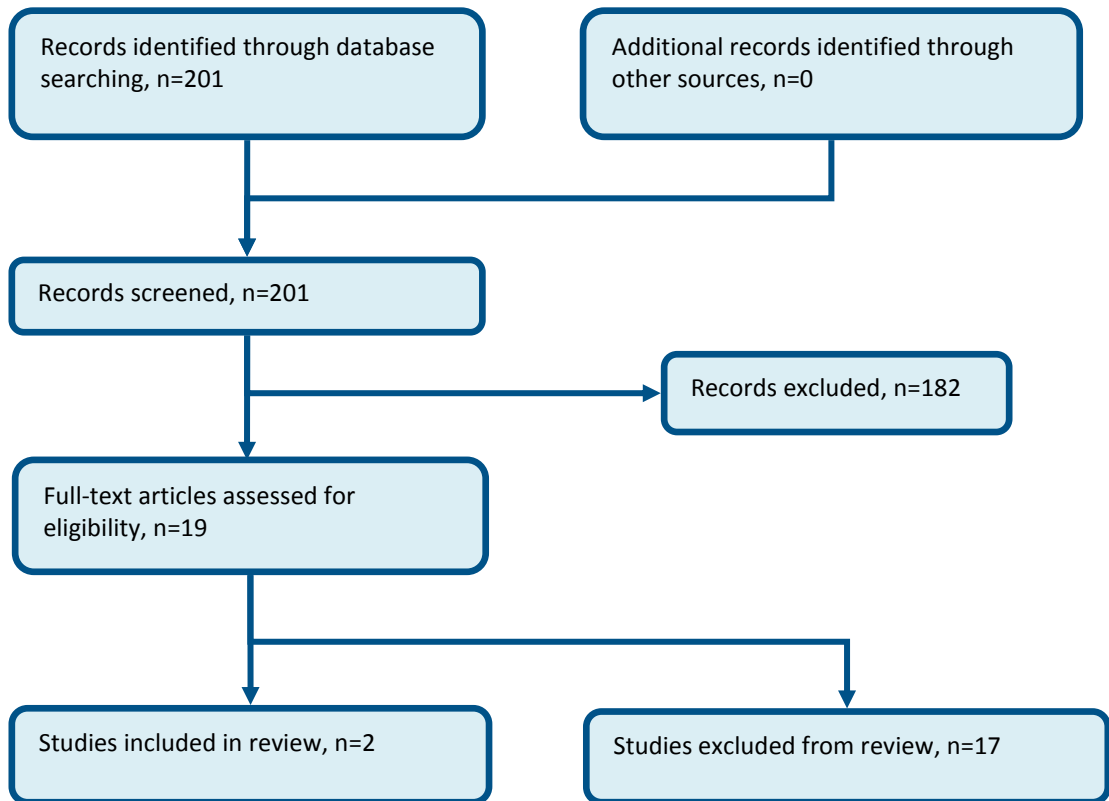
1 D.5.1.2 Use of tourniquets

Figure 8: Flow chart of clinical article selection for the review of tourniquets



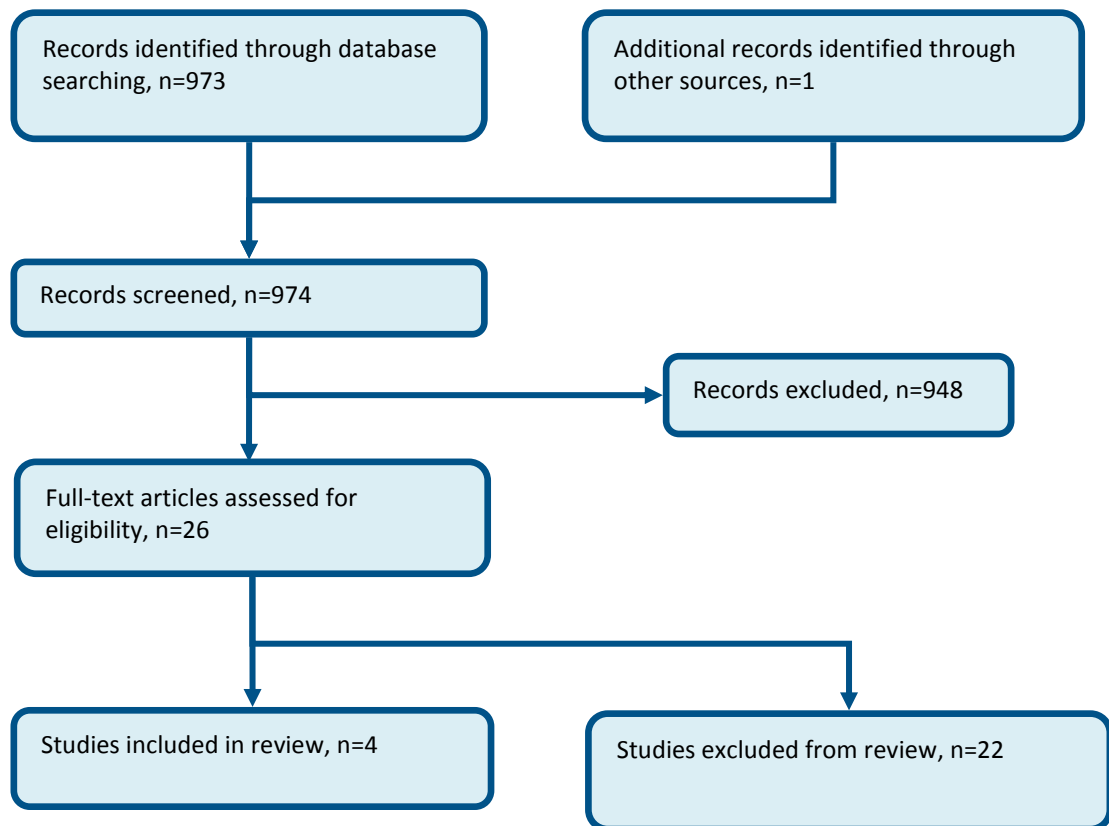
1 D.5.2 Pelvic binders

Figure 9: Flow chart of clinical article selection for the review of pelvic binders



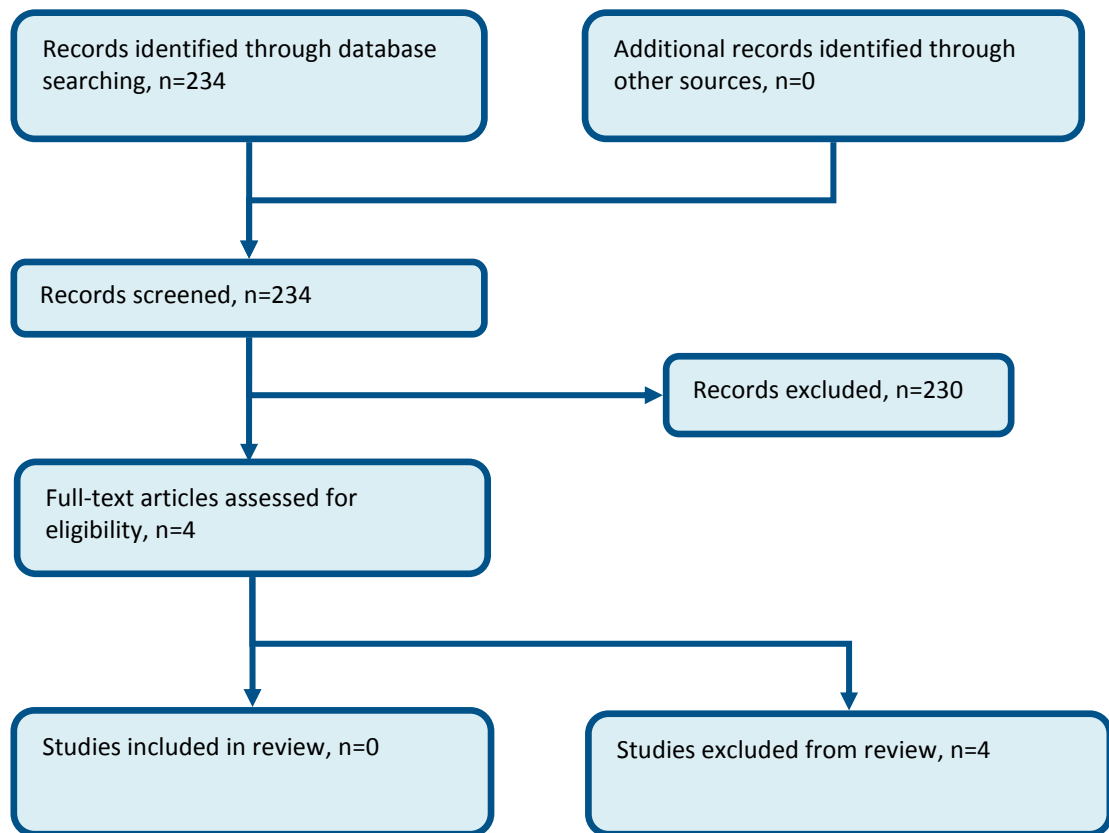
1 D.5.3 Haemostatic agents

Figure 10: Flow chart of clinical article selection for the review of haemostatic agents



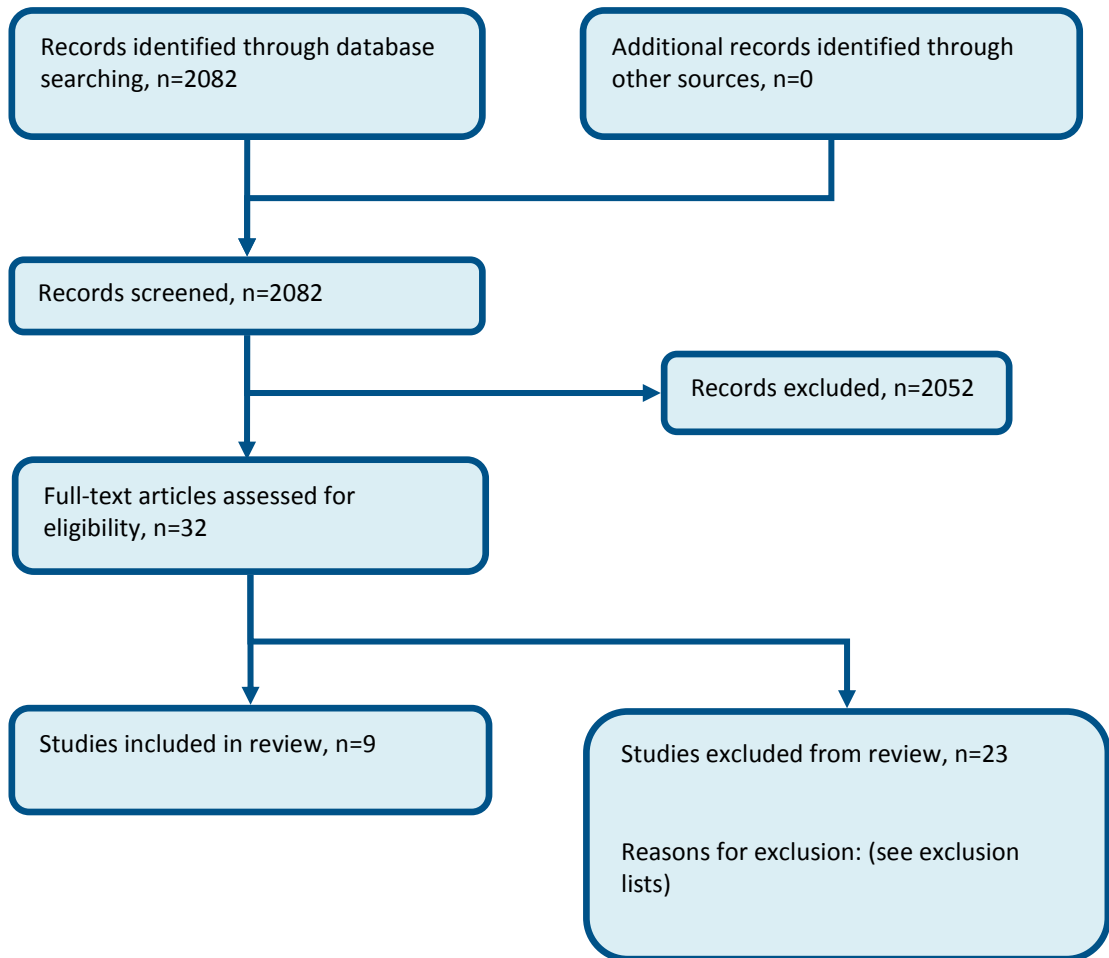
1 D.5.4 Anticoagulation reversal

Figure 11: Flow chart of clinical article selection for the review of anticoagulant reversal



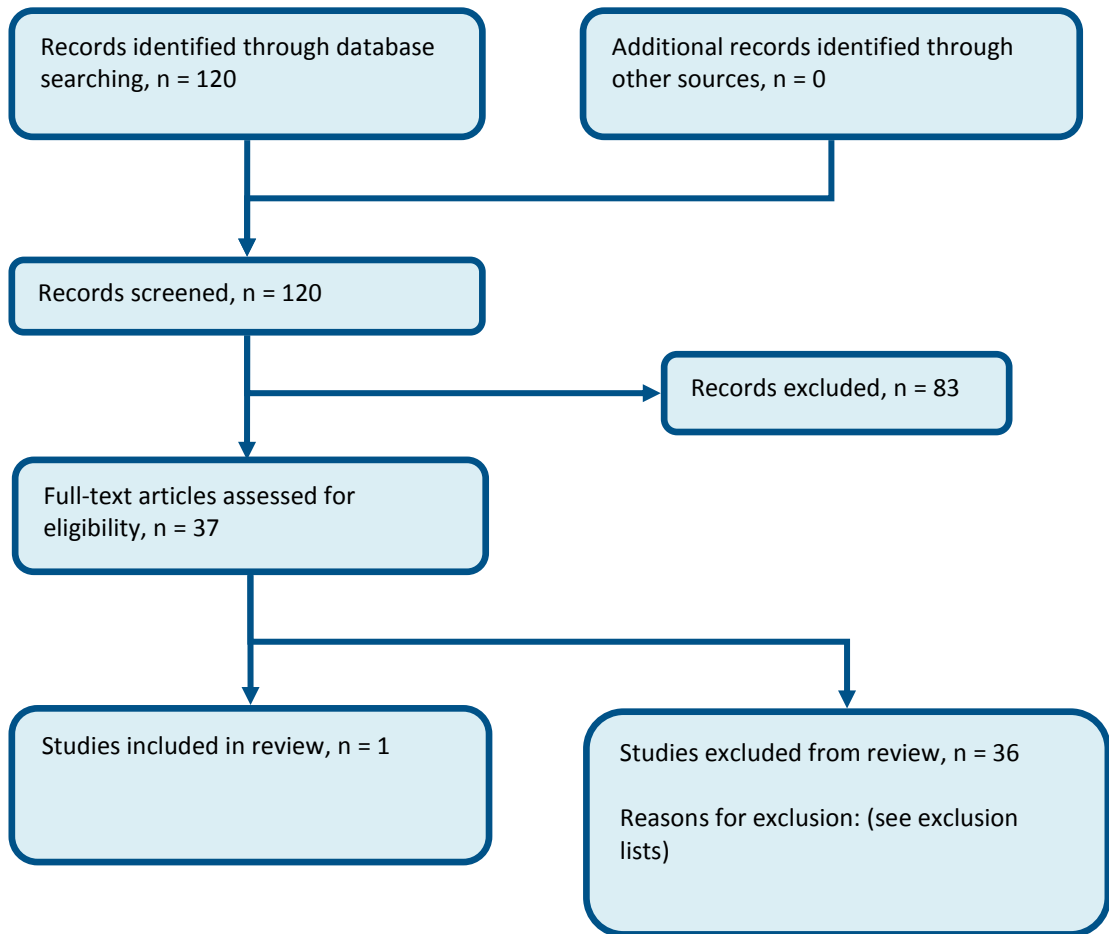
1 D.5.5 Haemorrhage shock prediction/risk tools

Figure 12: Flow chart of clinical article selection for the review of haemorrhagic shock risk prediction tools



1 **D.5.6 IO/IV access**

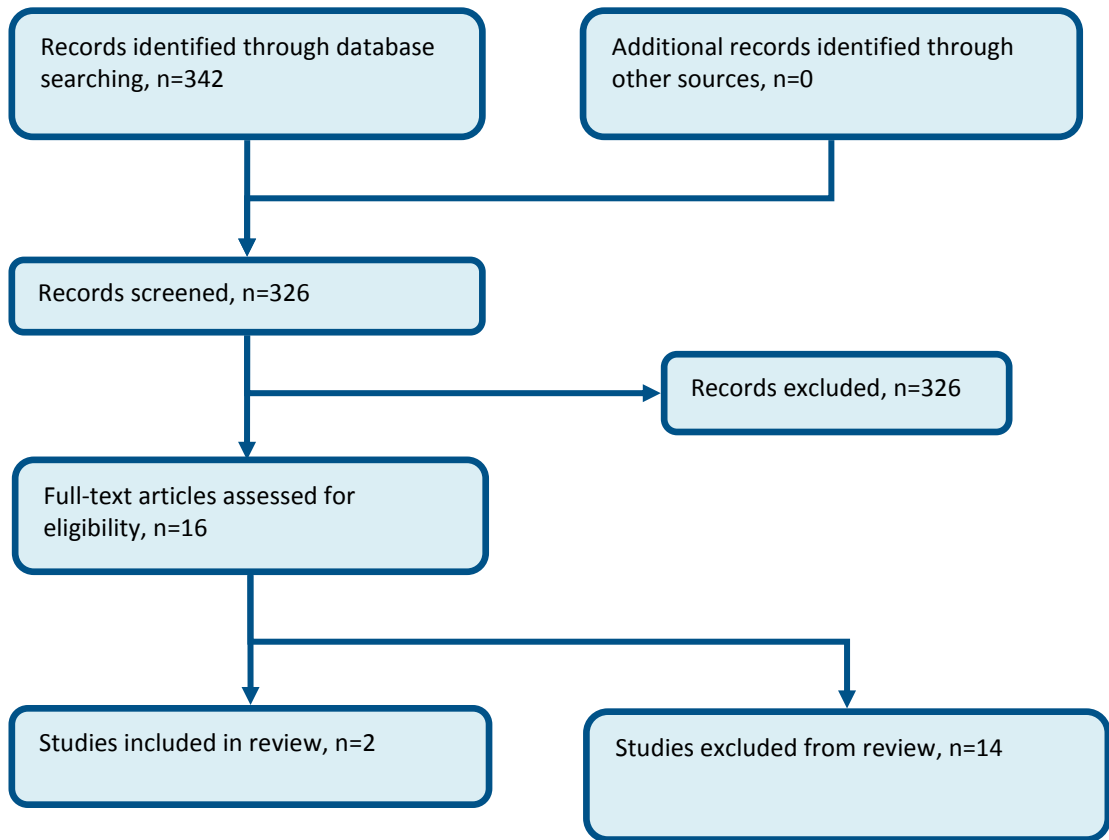
Figure 13: Flow diagram of article selection for the review of vascular access



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1 **D.5.7 Volume resuscitation**

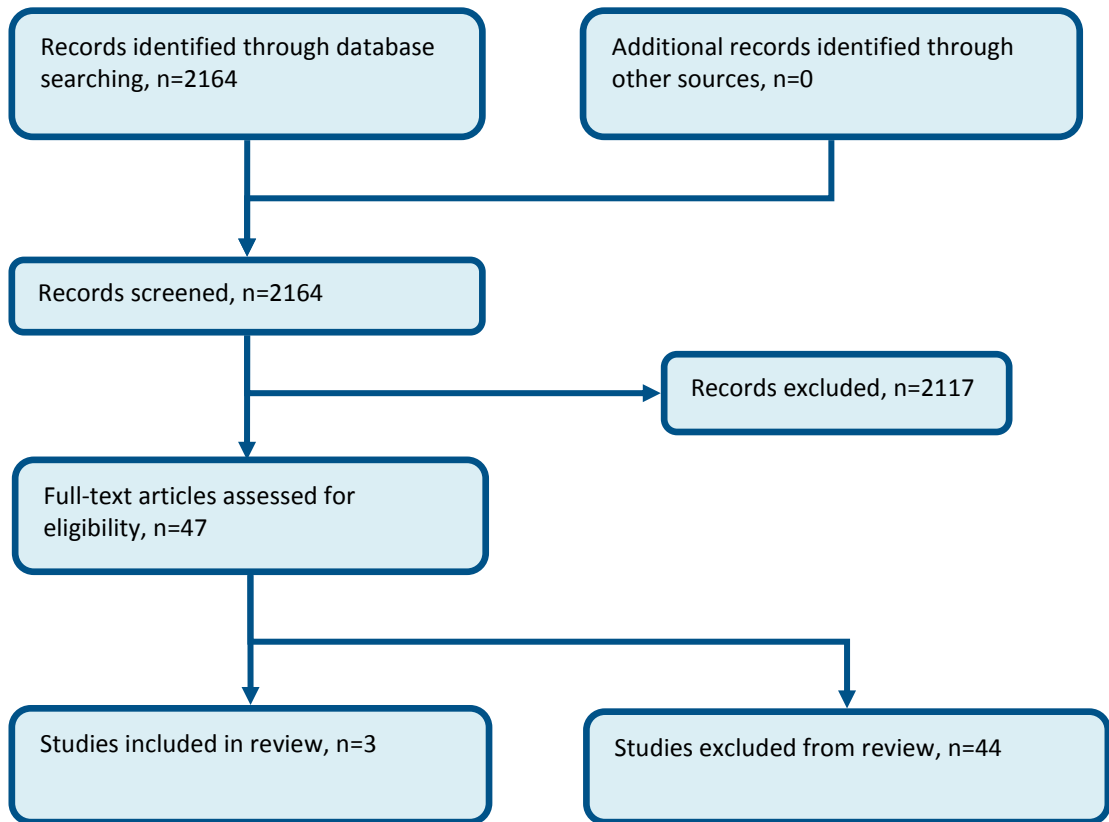
Figure 14: Flow chart of clinical article selection for the review of volume resuscitation



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1 **D.5.8 Fluid replacement**

Figure 15: Flow chart of clinical article selection for the review of types of fluid replacement

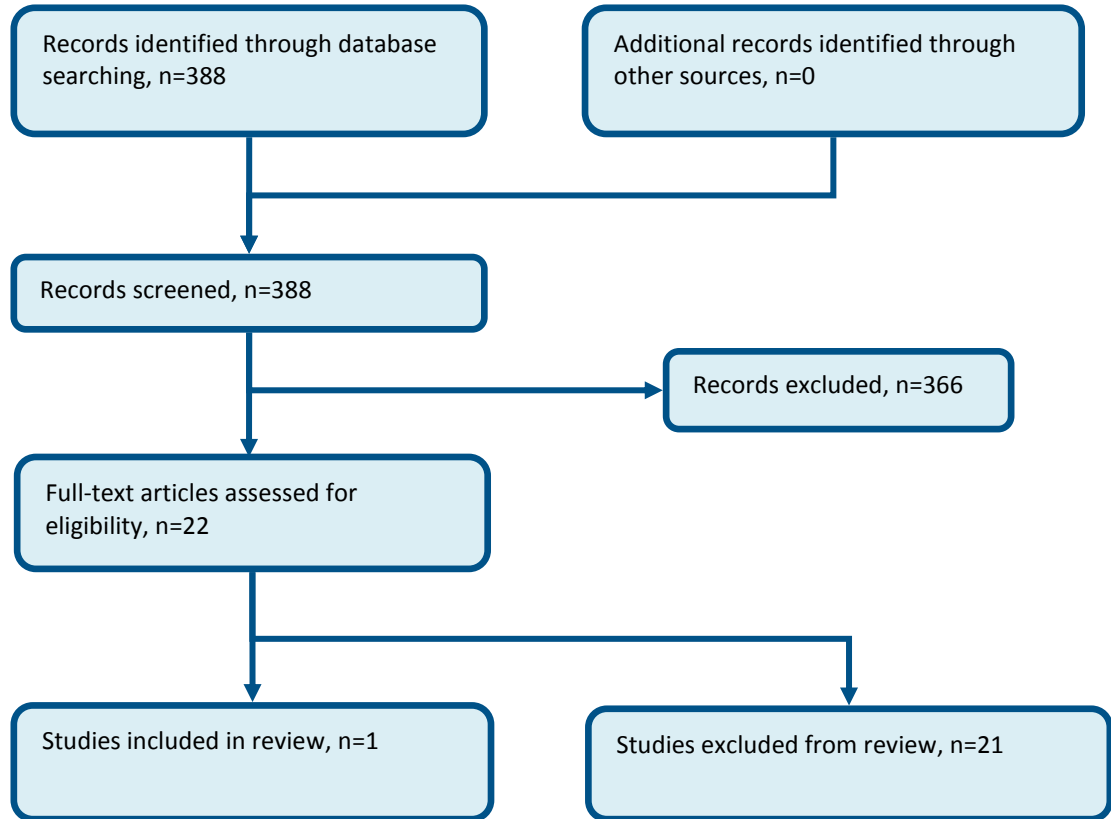


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1 **D.6 Control of haemorrhage in hospital**

2 **D.6.1 Haemorrhage protocols**

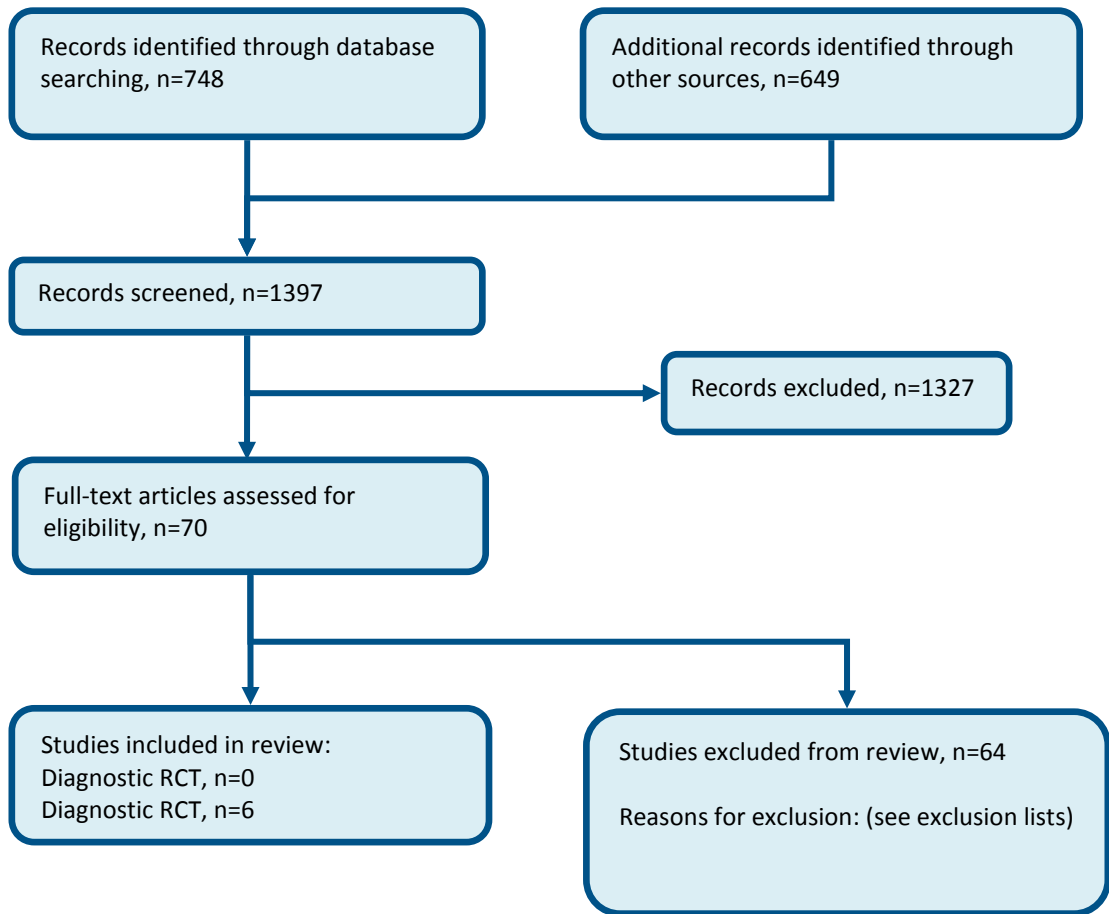
Figure 16: Flow chart of clinical article selection for the review of haemorrhage protocols



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1 **D.6.2 Haemorrhage imaging**

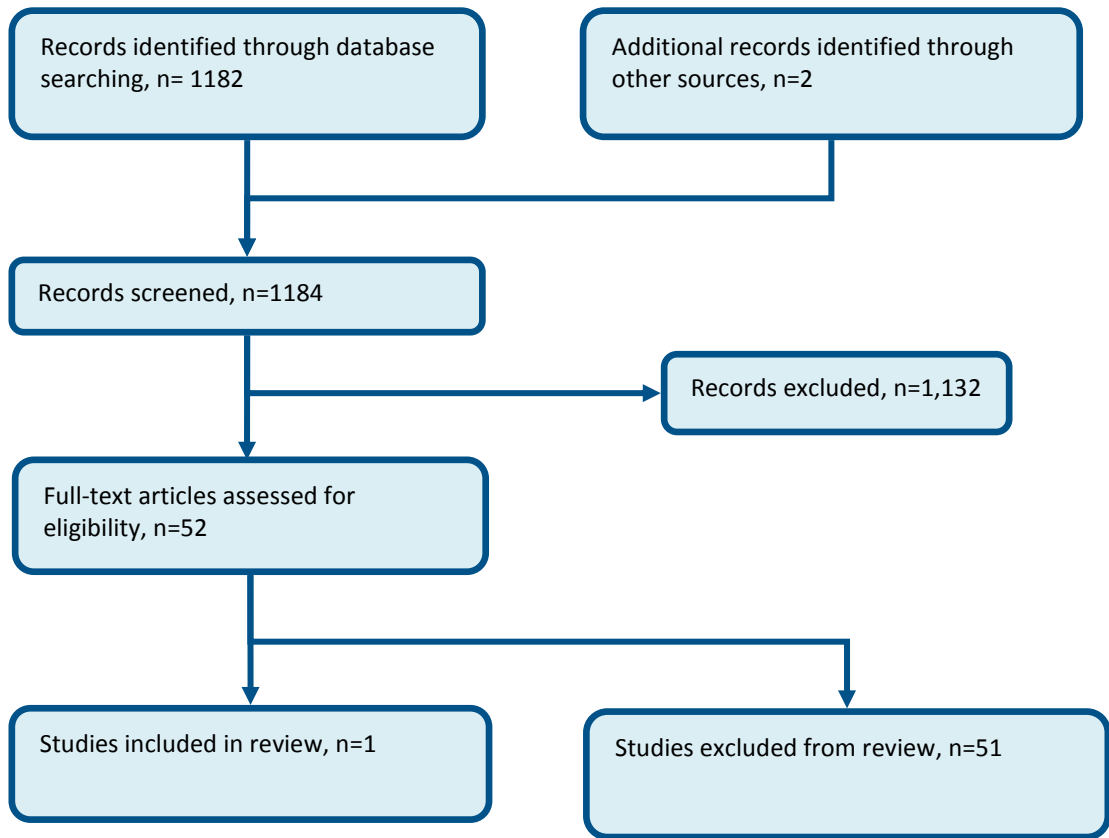
Figure 17: Flow chart of clinical article selection for the review of imaging for haemorrhage



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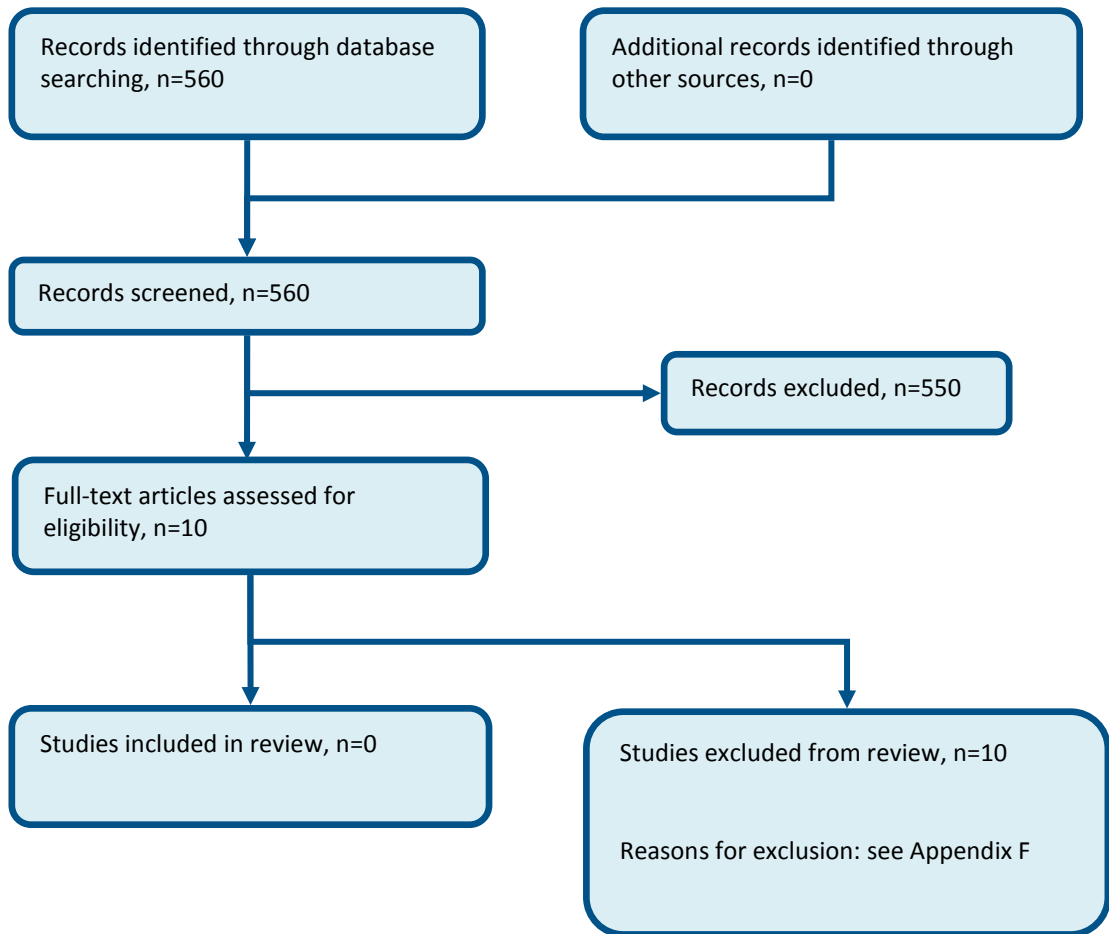
1 D.6.3 Whole-body computed tomography

Figure 18: Flow chart of clinical article selection for the review of whole-body CT



1 **D.6.4 Damage control surgery**

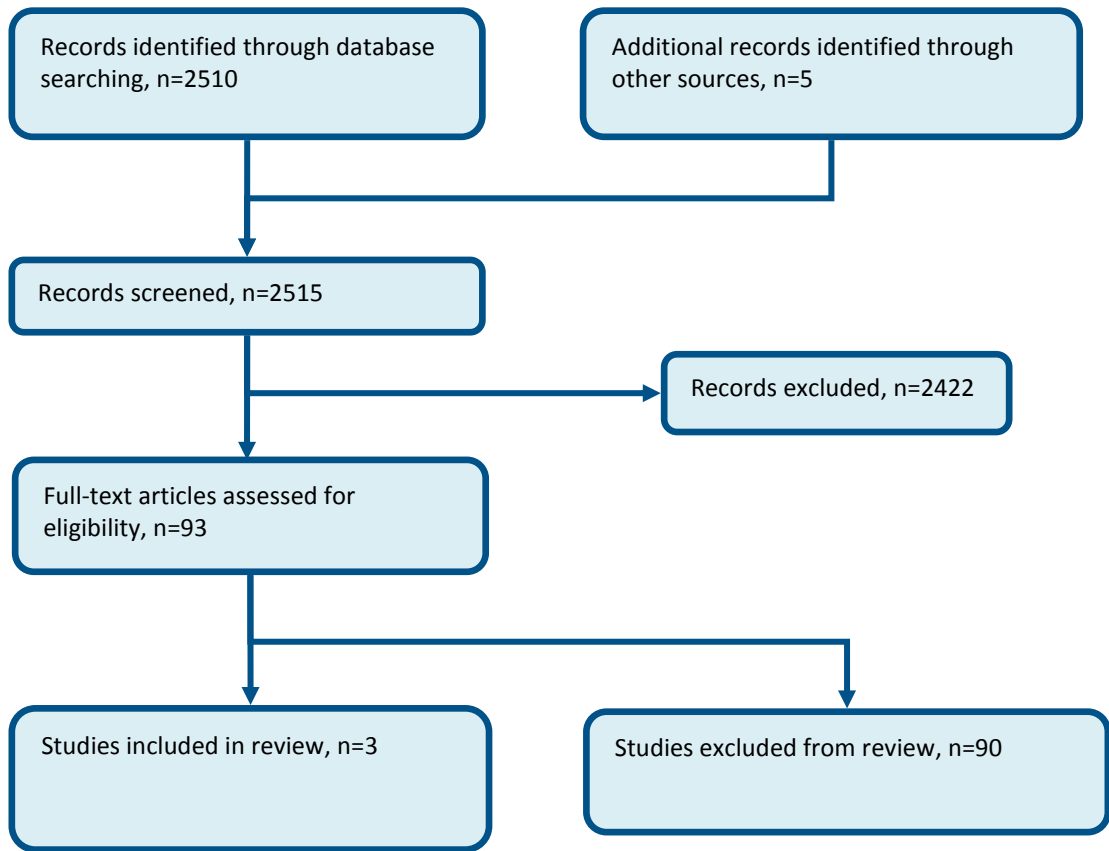
Figure 19: Flow diagram of clinical article selection for the review of damage control



2

1 **D.6.5 Interventional radiology**

Figure 20: Flow chart of clinical article selection for the review of interventional radiology

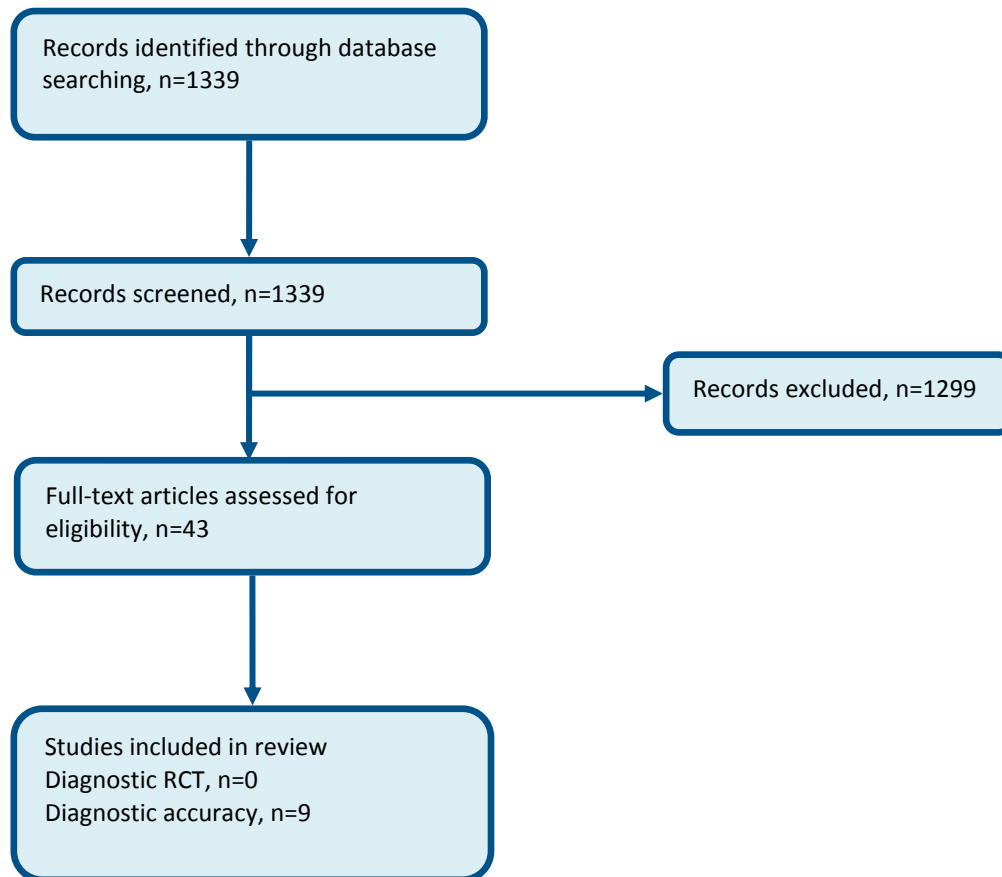


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1 **D.7 Monitoring**

2 **D.7.1 Coagulation testing**

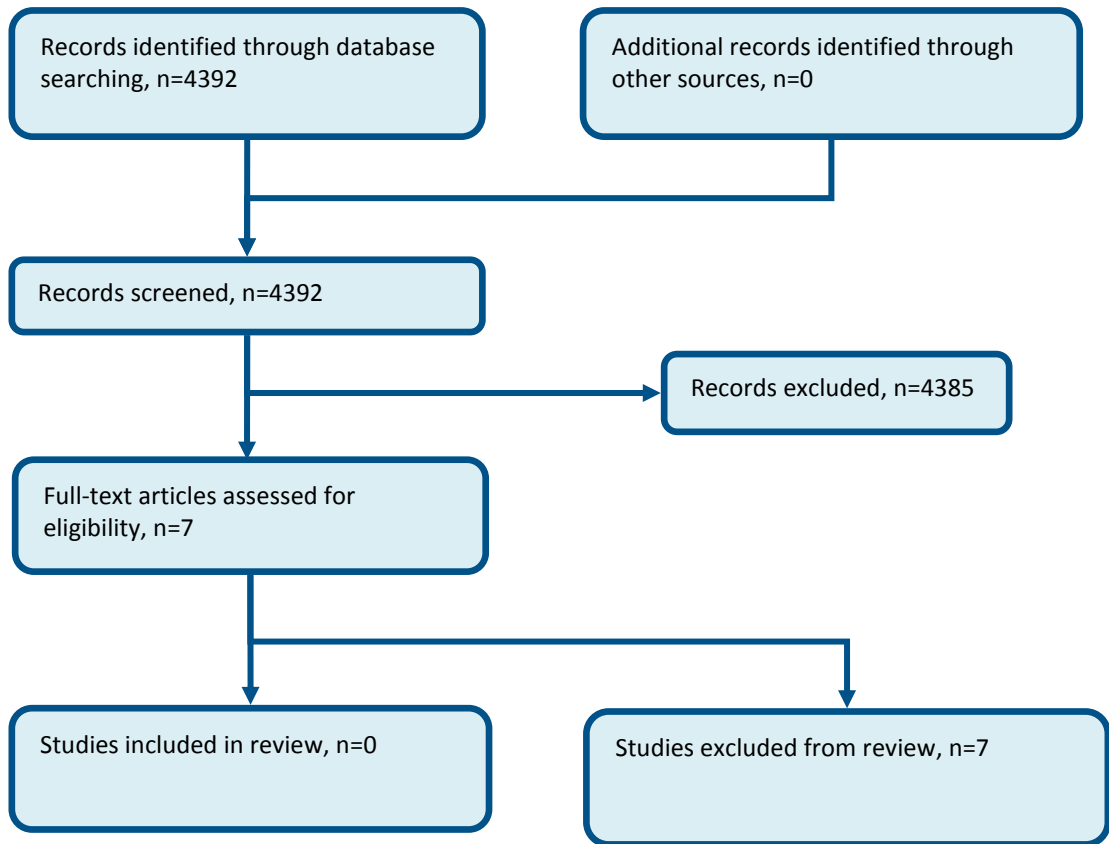
Figure 21: Flow chart of clinical article selection for the review of coagulation testing



3

1 **D.7.2 Frequency of blood monitoring**

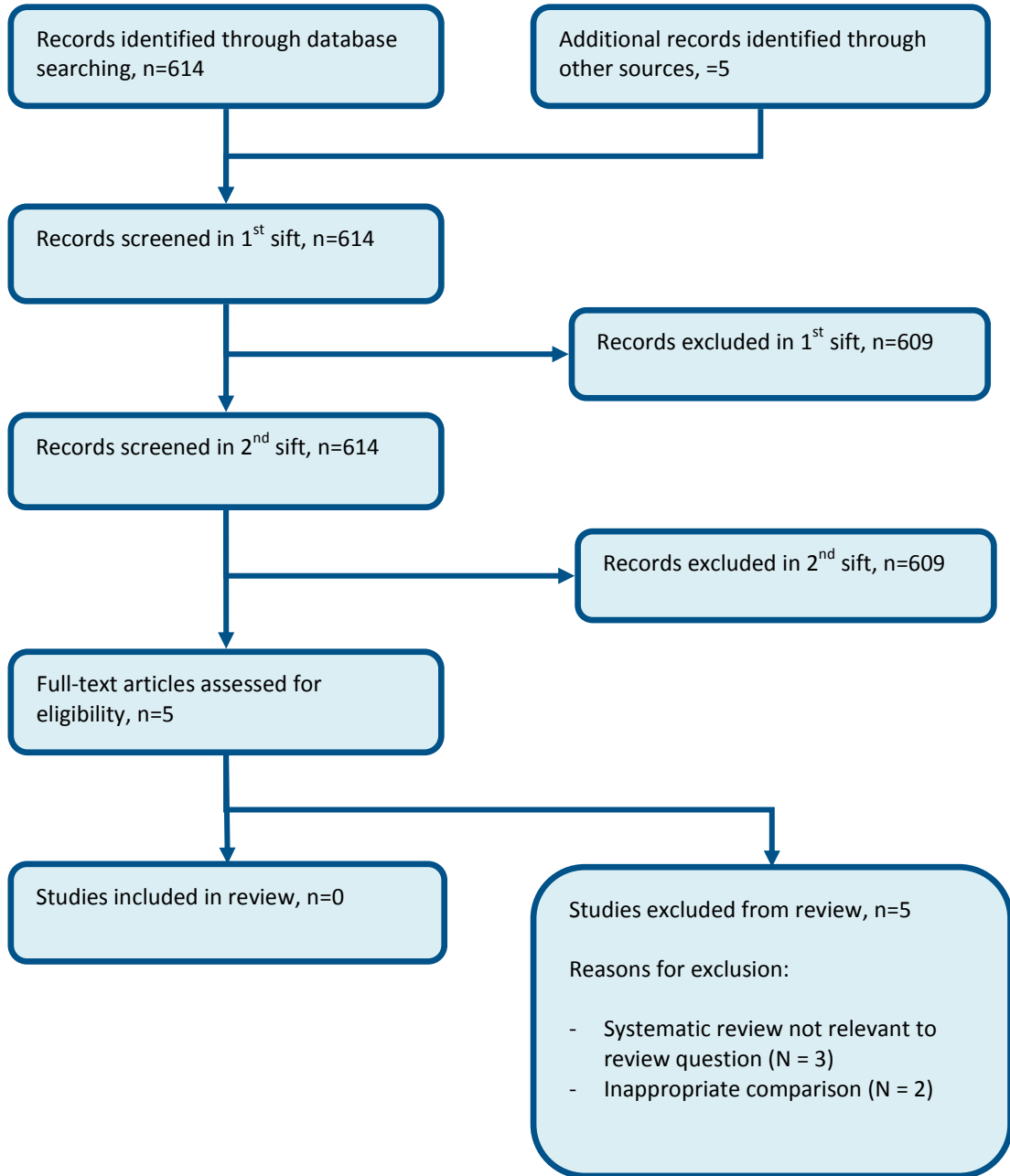
Figure 22: Flow chart of clinical article selection for the review of frequency of blood test monitoring



2

1 **D.7.3 Lactate levels**

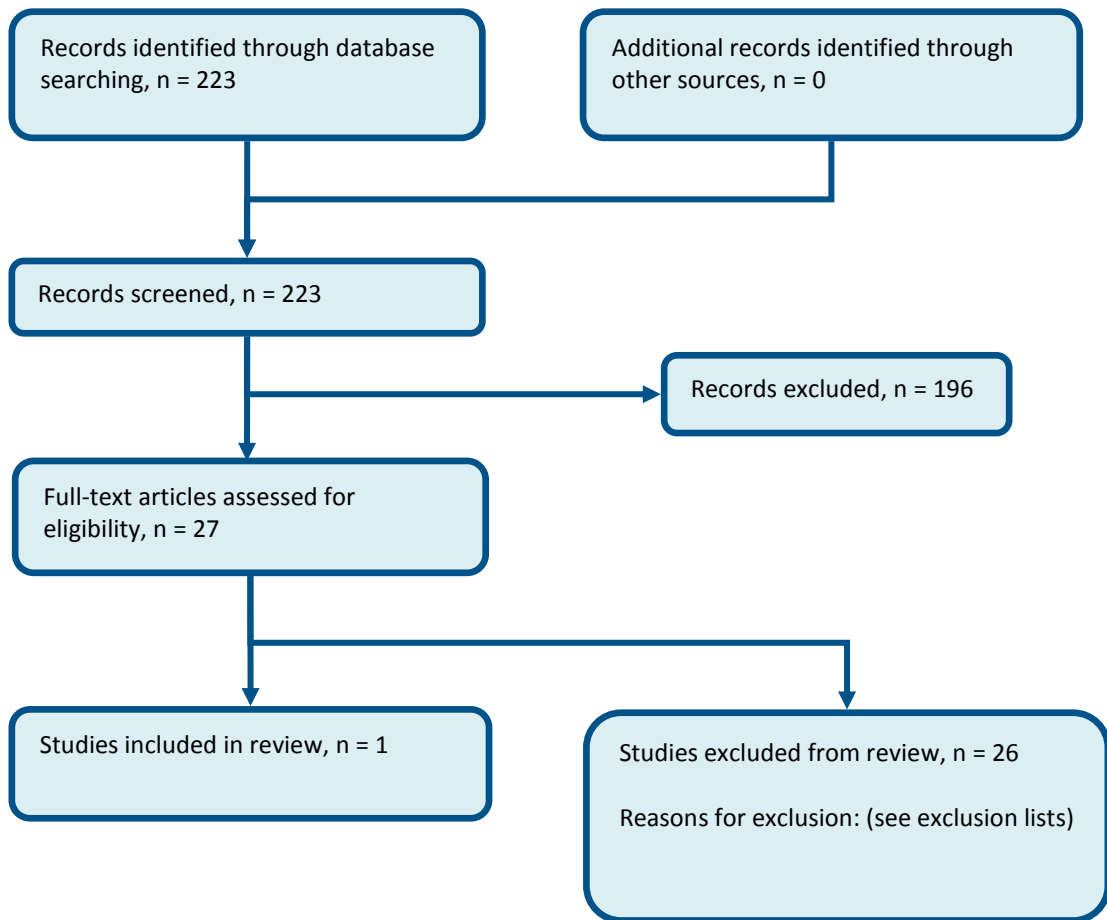
Figure 23: Flow chart of clinical article selection for the review of lactate levels



2

1 D.8 Warming

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

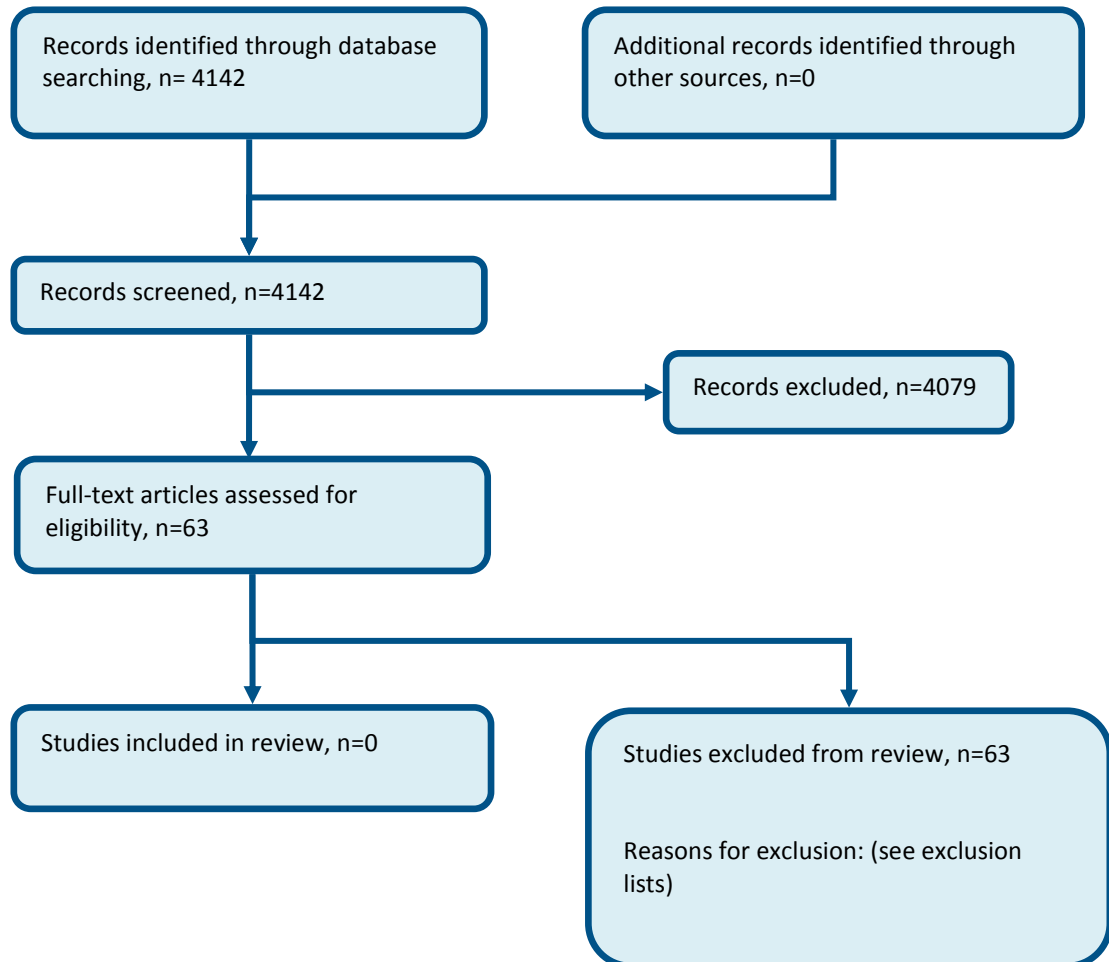


2

1 **D.9 Pain**

2 **D.9.1 Pain assessment**

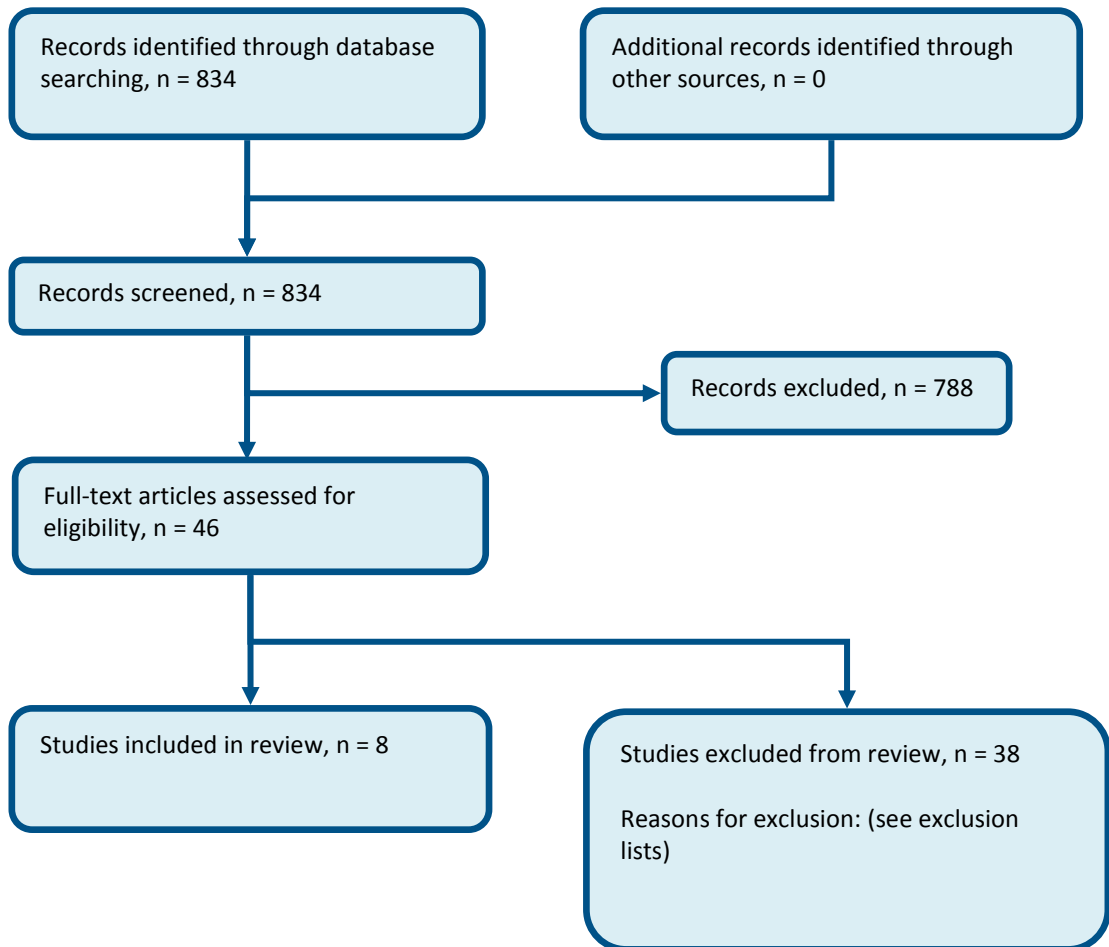
Figure 1: Flow chart of clinical article selection for the review of pain assessment



3

1 **D.9.2 Pain management**

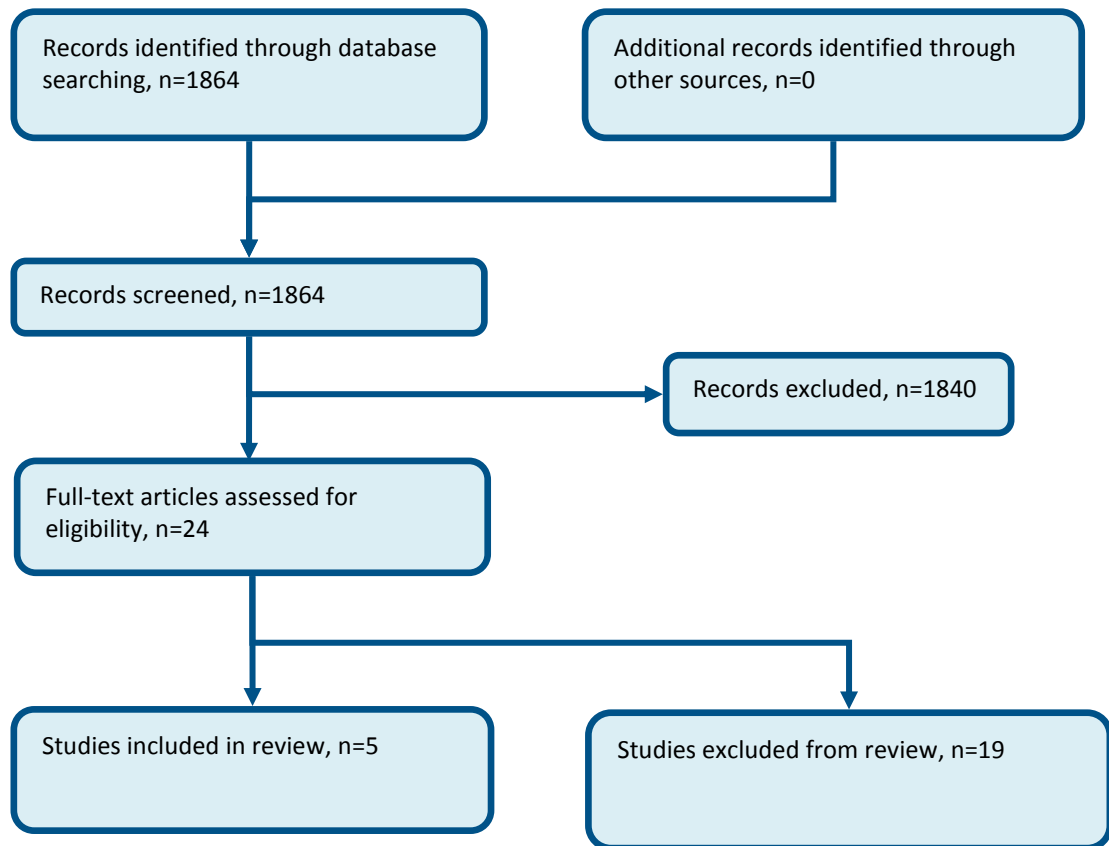
Figure 25: Flow chart of clinical article selection for the review of pain management



2

1 D.10 Documentation

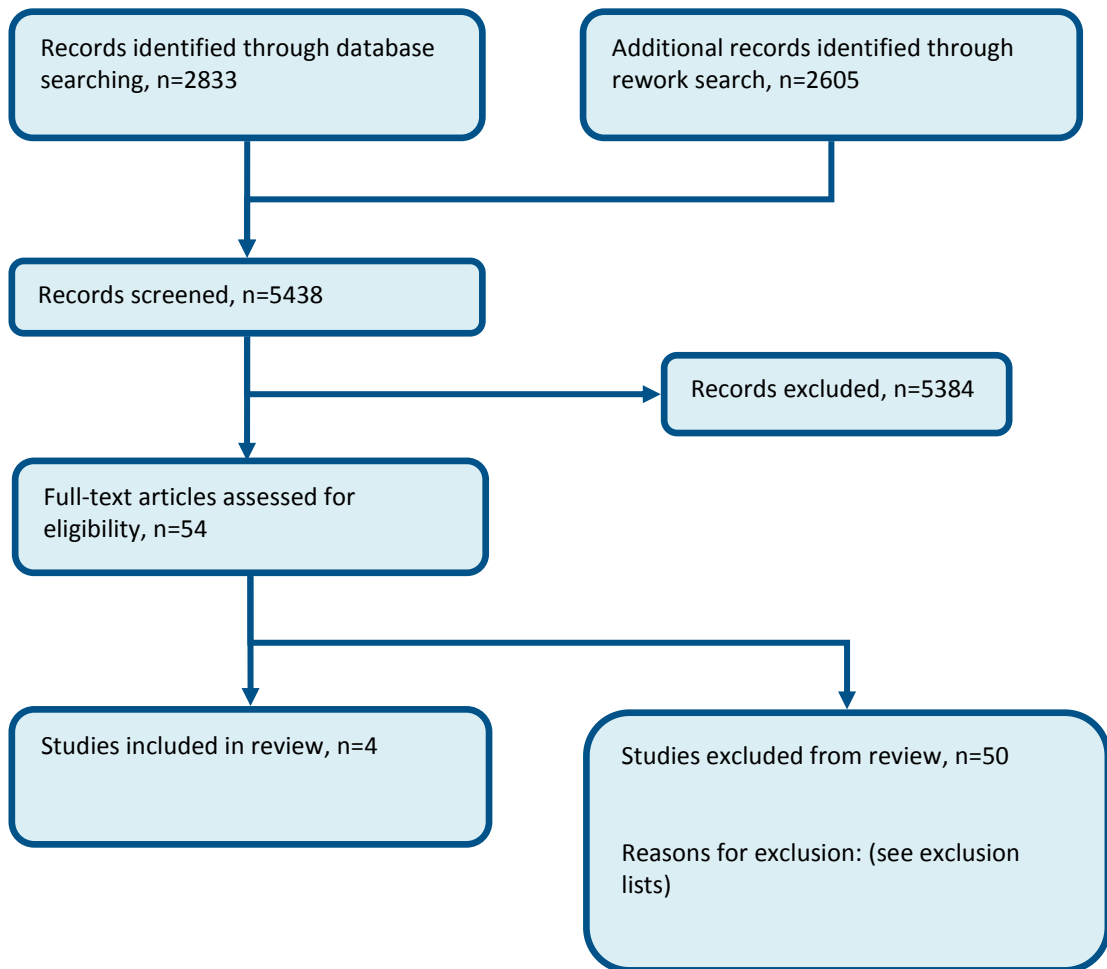
Figure 26: Flow chart of clinical article selection for the review of documentation



2

1 D.11 Information and support

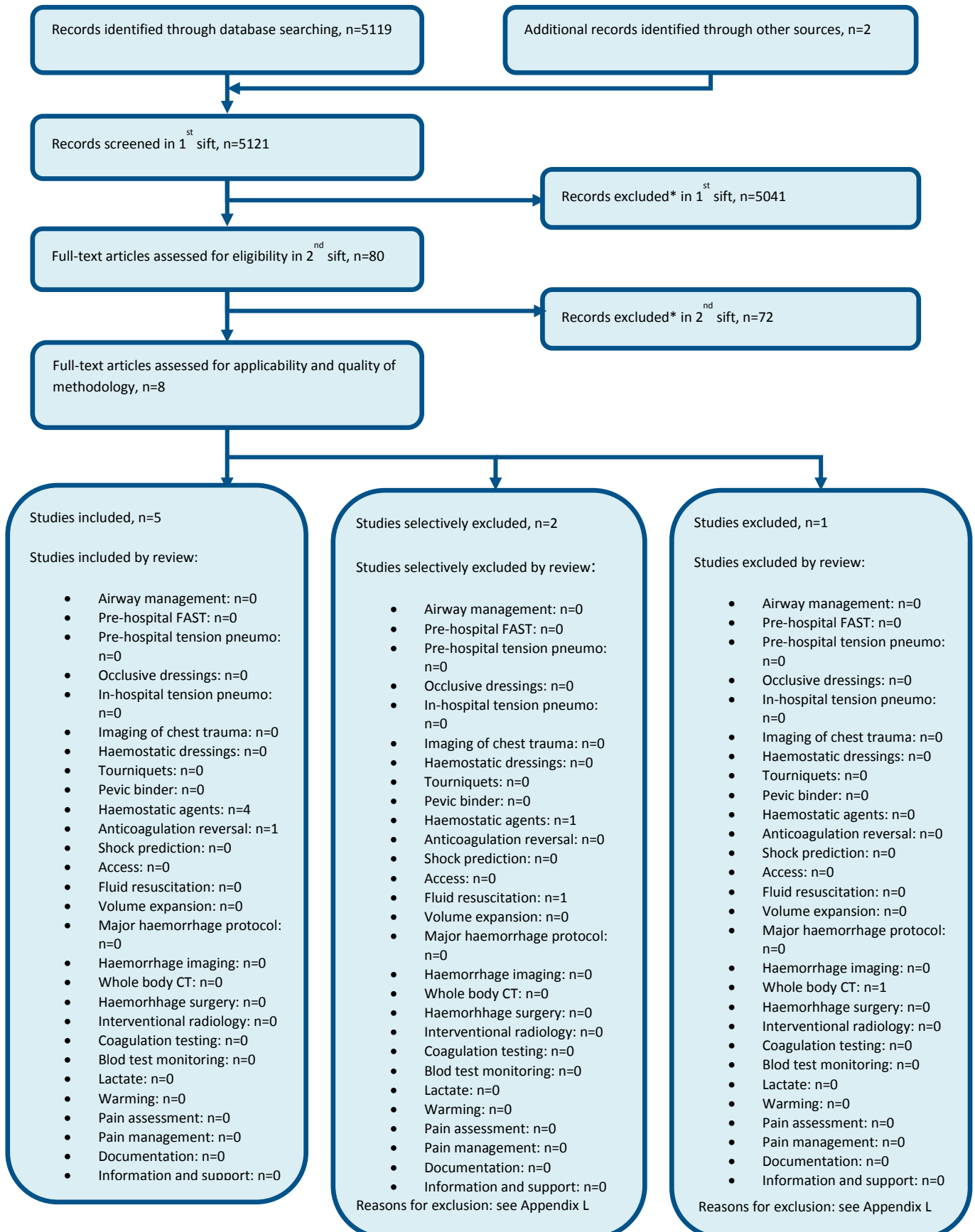
Figure 27: Flow chart of clinical article selection for the review of information and support



2
3

Appendix E: Economic article selection

Figure 28: Flow chart of economic article selection for the guideline



1 Appendix F: Literature search strategies

2 F.1 Contents

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F.3.7	Quality of life studies (QoL)
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F.4.23	Warming
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F.4.27	Information and support
Section F.5	Health economics searches
F.5.1	Health economic reviews
F.5.2	Quality of life reviews
F.5.3	Pelvic binders
Section Error! Reference source not found.	References

1 Search strategies used for the major trauma guideline are outlined below and were run in
2 accordance with the methodology in the NICE guidelines manual 2012.¹ Final searches were run up
3 between **18th March and 26th April 2015** (see individual questions for exact date). Any studies added
4 to the databases after this date (even if they were published prior to this date) were not included
5 unless specifically stated in the text. We do not routinely search for electronic, ahead of print or
6 'online early' publications. Where possible searches were limited to retrieve material published in
7 English.

8 **Table 161: Database date parameters**

Database	Dates searched
Medline	1946 to between 18/03 to 26/04/2015
Embase	1980 to between 18/03 to 26/04/2015
The Cochrane Library	Cochrane Reviews to 2015 either Issue 3 of 12 or 4 of 12 CENTRAL to 2015 either Issue 2 of 12 or 3 of 12 DARE, HTA and NHSEED to 2015 Issue 1 of 4

9 Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane
10 Library (Wiley). The information and support search was run in CINAHL (EBSCO) as well F.4.27.

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

16 Searches for the health economic reviews were run in Medline (OVID), Embase (OVID), the NHS
17 Economic Evaluations Database (NHS EED), the Health Technology Assessment (HTA) database and
18 the Health Economic Evaluation Database (HEED). NHS EED and HTA databases were hosted by the
19 Centre for Research and Dissemination (CRD). Searches in NHS EED, HTA and HEED were constructed
20 using population terms only. The Health Economic Evaluation Database (HEED) ceased production in
21 2014 with access ceasing in January 2015. For the final dates of HEED searches, please see individual
22 economic questions. For Medline and Embase an economic filter (instead of a study type filter) was
23 added to the same clinical search strategy.

1 F.2 Population search strategies

2 The standard major population search was used for most searches. The haemorrhage and chest
3 trauma searches were added to this for some searches.

4 F.2.1 Standard major trauma population

5 For the searches on information and support (question F.4.27), in Medline and Embase lines 1,2,5,6
6 and 7 were searched by title (ti) only and in Cochrane lines 2,3,10,11 and 12 were searched by title
7 (ti) only.

8 Medline search terms

1.	(trauma* or polytrauma*).ti,ab.
2.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*)).ti,ab.
3.	multiple trauma/
4.	wounds, gunshot/ or wounds, stab/ or accidents, traffic/ or accidental falls/ or blast injuries/ or accidents, aviation/
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*)).ti,ab.
6.	(mvas or mva or rtas or rta).ti,ab.
7.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger).ti,ab.
8.	or/1-7

9 Embase search terms

1.	(trauma* or polytrauma*).ti,ab.
2.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*)).ti,ab.
3.	multiple trauma/
4.	gunshot injury/ or stab wound/ or traffic accident/ or falling/ or blast injury/ or aircraft accident/
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*)).ti,ab.
6.	(mvas or mva or rtas or rta).ti,ab.
7.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger).ti,ab.
8.	or/1-7

10 Cochrane search terms

#1.	MeSH descriptor: [multiple trauma] this term only
#2.	(trauma* or polytrauma*).ti,ab
#3.	((serious* or severe* or major) near/3 (accident* or injur* or fall*)).ti,ab
#4.	MeSH descriptor: [wounds, gunshot] this term only
#5.	MeSH descriptor: [wounds, stab] this term only
#6.	MeSH descriptor: [accidents, traffic] this term only
#7.	MeSH descriptor: [accidental falls] this term only
#8.	MeSH descriptor: [blast injuries] this term only
#9.	MeSH descriptor: [accidents, aviation] this term only

#10.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike*) near/3 (accident* or crash* or collision* or smash*)):ti,ab
#11.	(mvas or mva or rtas or rta):ti,ab
#12.	(stabbed or stabbing or stab or gunshot or gun or gunfire or firearm* or bullet or knife* or knives or dagger or shot):ti,ab
#13.	{or #1-#12}

1

Cinahl search terms

S1.	(trauma* or polytrauma*)
S2.	((serious* or severe* or major or life threaten*) and (accident* or injur* or fall*)) ¹
S3.	(MH "trauma") or (MH "multiple trauma")
S4.	(MH "wounds, gunshot")
S5.	(MH "wounds, stab")
S6.	(MH "accidents, traffic")
S7.	(MH "accidental falls")
S8.	(MH "blast injuries")
S9.	(MH "accidents, aviation")
S10.	((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) and (accident* or crash* or collision* or smash*))
S11.	(mvas or mva or rtas or rta)
S12.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger)
S13.	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12

2 F.2.2 Haemorrhage population

3

Medline search terms

1.	hemorrhage/ or exsanguination/ or shock/ or shock, hemorrhagic/ or shock, traumatic/ or Hypovolemia/
2.	(hypovol?em* or shock or exsanguin* or olig?em* or h?emorrhag* or hypoperfus*).ti,ab.
3.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
4.	(bleed* or bloodloss*).ti,ab.
5.	(blood* adj3 loss*).ti,ab.
6.	or/1-5

4

Embase search terms

1.	exp *hypovolemia/ or *hemorrhagic shock/ or *traumatic shock/ or exp *bleeding/ or *exsanguination/
2.	(haemorrhag* or hemorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or h?emorrhag* or hypoperfus*).ti,ab.
3.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
4.	(bleed* or bloodloss*).ti,ab.
5.	(blood adj2 loss*).ti,ab.
6.	or/1-6

5

Cochrane search terms

#1.	MeSH descriptor: [hemorrhage] this term only
#2.	MeSH descriptor: [exsanguination] this term only
#3.	MeSH descriptor: [shock] this term only

#4.	MeSH descriptor: [shock, traumatic] this term only
#5.	MeSH descriptor: [shock, hemorrhagic] this term only
#6.	MeSH descriptor: [hypovolemia] this term only
#7.	(haemorrhag* or hemorrhag* or hypovolem* or hypovolaem* or shock or exsanguin* or oligem* or oligam* or hypoperfus*):ti,ab
#8.	(coagulopath* or (abnormal* near/2 coagulation) or hyperfibrinolysis):ti,ab
#9.	(bleed* or bloodloss*):ti,ab
#10.	blood* near/3 loss*:ti,ab
#11.	{or #1-#10}

1 F.2.3 Chest trauma

2 Medline search terms

1.	pericardial effusion/ or heart injuries/ or aortic rupture/
2.	thoracic injuries/ or lung injury/ or flail chest/
3.	cardiac tamponade/ or hemopneumothorax/ or hemothorax/ or pneumothorax/
4.	(flail* adj2 chest*).ti,ab.
5.	((rib or thoracic) adj1 fracture*).ti,ab.
6.	(paradoxical adj2 (breathing or motion* or movement*)).ti,ab.
7.	((pericardial or cardiac) adj4 (tamponade* or effusion or fluid* or liquid*)).ti,ab.
8.	(pneumothora* or hemothora* or haemothora* or hemopneumothora* or haemopneumothora* or haematothora* or hematothora* or hematopneumothora* or haematopneumothora* or hemopericardium).ti,ab.
9.	((aortic or aorta or heart or cardiac) adj4 (disrupt* or transect* or dissect*)).ti,ab.
10.	((pulmonary or lung*) adj4 collaps*).ti,ab.
11.	((chest or pulmonary or thora* or lung* or aorta or aortic or cardiac or myocardial or tracheobronchial) adj6 (injur* or damag* or contus* or lesion* or ruptur* or lacerat* or tearing or tear or torn or trauma*)).ti,ab.
12.	or/1-11

3 Embase search terms

1.	thorax injury/
2.	flail chest/
3.	pericardial effusion/ or heart injury/ or aorta rupture/ or heart tamponade/
4.	lung injury/ or hematopneumothorax/ or hematothorax/ or pneumothorax/
5.	(pneumothora* or hemothora* or haemothora* or hemopneumothora* or haemopneumothora* or haematothora* or hematothora* or hematopneumothora* or haematopneumothora* or hemopericardium).ti,ab.
6.	((pericardial or cardiac) adj4 (tamponade* or effusion or fluid* or liquid*)).ti,ab.
7.	((pulmonary or lung*) adj4 collaps*).ti,ab.
8.	(flail* adj2 chest*).ti,ab.
9.	((rib or thoracic) adj1 fracture*).ti,ab.
10.	(paradoxical adj2 (breathing or motion* or movement*)).ti,ab.
11.	((aortic or aorta or heart or cardiac) adj4 (disrupt* or transect* or dissect*)).ti,ab.
12.	((chest or pulmonary or thora* or lung* or aorta or aortic or cardiac or myocardial or tracheobronchial) adj6 (injur* or damag* or contus* or lesion* or ruptur* or lacerat* or tearing or tear or torn or trauma* or disrupt*)).ti,ab.
13.	or/1-12

1

Cochrane search terms

#1.	MeSH descriptor: [pericardial effusion] this term only
#2.	MeSH descriptor: [heart injuries] this term only
#3.	MeSH descriptor: [aortic rupture] this term only
#4.	MeSH descriptor: [thoracic injuries] this term only
#5.	MeSH descriptor: [lung injury] this term only
#6.	MeSH descriptor: [flail chest] this term only
#7.	MeSH descriptor: [cardiac tamponade] this term only
#8.	MeSH descriptor: [hemopneumothorax] this term only
#9.	MeSH descriptor: [hemothorax] this term only
#10.	MeSH descriptor: [pneumothorax] this term only
#11.	(flail* near/2 chest*):ti,ab
#12.	((rib or thoracic) near/1 fracture*):ti,ab
#13.	(paradoxical near/2 (breathing or motion* or movement*)):ti,ab
#14.	((pericardial or cardiac) near/4 (tamponade* or effusion or fluid* or liquid*)):ti,ab
#15.	(pneumothora* or hemothora* or haemothora* or hemopneumothora* or haemopneumothora* or haematothora* or hematothora* or hematopneumothora* or haematopneumothora* or hemopericardium):ti,ab
#16.	((aortic or aorta or heart or cardiac) near/4 (disrupt* or transect* or dissect*)):ti,ab
#17.	((pulmonary or lung*) near/4 collaps*):ti,ab
#18.	((chest or pulmonary or thora* or lung* or aorta or aortic or cardiac or myocardial or tracheobronchial) near/6 (injur* or damag* or contus* or lesion* or ruptur* or lacerat* or tearing or tear or torn or trauma*)):ti,ab
#19.	{or #1-#18}

2 F.3 Study filter search terms

3 F.3.1 Systematic review (SR) search terms

4 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

5 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 psychlit 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

1 F.3.2 Randomised controlled trials (RCTs) search terms

2 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

3 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

4 F.3.3 Observational studies (OBS) search terms

5 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

1

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

2 **F.3.4 Qualitative studies (QUAL) search terms**

3

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

4

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

5

Cinahl search terms

S1.	(MH "qualitative studies+")
S2.	(MH "qualitative validity+")
S3.	(MH "interviews+") or (MH "focus groups") or (MH "surveys") or (MH "questionnaires+")

S4.	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*)
S5.	(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*)
S6.	S1 or S2 or S3 or S4 or S5

1 **F.3.5 Diagnostic accuracy studies (DIAG) search terms**

2 **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* adj3 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
9.	gold standard.ab.
10.	or/1-9

3 **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* adj3 (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

4 **F.3.6 Health economics (HE) search terms**

5 **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

1

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

2 F.3.7 Quality of life (QoL) search terms

3

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

1

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

2 F.3.8 Excluded study designs and publication types

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

5 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

1

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

2

CINAHL search terms

S1.	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
-----	--

3 **F.4 Searches for specific questions**

4 **F.4.1 Airway management**

5 1. What is the most clinically and cost effective strategy of airway management in patients with
6 major trauma pre-hospital?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1) AND Emergency settings (terms included below)	Airway management	n/a	n/a	See Table 161 Date of last search: 18/03/2015 English only Exclusion filter applied in

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

1

Medline search terms

1.	<i>standard trauma population (see F.2.1)</i>
2.	emergency medical services/ or advanced trauma life support care/ or emergency service, hospital/ or triage/
3.	(prehospital* or pre hospital* or roadside* or road side* or triage* or triaging).ti,ab.
4.	((accident* or trauma) adj2 (site* or scene* or location*)).ti,ab.
5.	((outside or out) adj2 hospital).ti,ab.
6.	((in or on) adj2 field).ti,ab.
7.	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon*).ti,ab.
8.	(transport* or transfer* or transit or extricat*).ti,ab.
9.	(extract* adj2 (patient* or casual*)).ti,ab.
10.	or/2-9
11.	airway management/ or intubation, intratracheal/ or laryngeal masks/
12.	intubat*.ti,ab.
13.	((emergenc* or manag* or stabili* or drug assist*) adj3 (airway* or ventilat*)).ti,ab.
14.	((tracheal or endotracheal) adj3 tube*).ti,ab.
15.	(rapid* adj3 sequence* adj3 induction*).ti,ab.
16.	rsi.ti,ab.
17.	((supralaryngeal or supraglottic or supra glottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal) adj3 (airway* or device* or mask* or tube* or sealer* or ventilat*)).ti,ab.
18.	(igel or proseal or combitube or preshaped sealers or king lt-d or king lts-d or king lad or king lt).ti,ab.
19.	(surgical adj3 (airway* or ventilat*)).ti,ab.
20.	(cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*).ti,ab.
21.	or/11-20
22.	1 and 10 and 21

2

Embase search terms

1.	<i>standard trauma population (see F.2.1)</i>
2.	emergency care/ or emergency health service/ or rescue personnel/ or emergency patient/ or emergency treatment/
3.	(prehospital* or pre hospital* or roadside* or road side* or triage* or triaging).ti,ab.
4.	((accident* or trauma) adj2 (site* or scene* or location*)).ti,ab.
5.	((outside or out) adj2 hospital).ti,ab.
6.	((in or on) adj2 field).ti,ab.
7.	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon*).ti,ab.
8.	(transport* or transfer* or transit or extricat*).ti,ab.
9.	(extract* adj2 (patient* or casual*)).ti,ab.
10.	or/2-9

11.	respiration control/ or intubation/ or exp respiratory tract intubation/ or laryngeal mask/ or tracheotomy/
12.	intubat*.ti,ab.
13.	((emergenc* or manag* or stabili* or drug assist*) adj3 (airway* or ventilat*)).ti,ab.
14.	((tracheal or endotracheal) adj3 tube*).ti,ab.
15.	(rapid* adj3 sequence* adj3 induction*).ti,ab.
16.	rsi.ti,ab.
17.	((supralaryngeal or supraglottic or supra glottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal) adj3 (airway* or device* or mask* or tube* or sealer* or ventilat*)).ti,ab.
18.	(igel or proseal or combitube or preshaped sealers or king lt-d or king lts-d or king lad or king lt).ti,ab.
19.	(surgical adj3 (airway* or ventilat*)).ti,ab.
20.	(cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*).ti,ab.
21.	or/11-20
22.	1 and 10 and 21

1

Cochrane search terms

#1.	<i>standard trauma population (see F.2.1)</i>
#2.	MeSH descriptor: [emergency medical services] this term only
#3.	MeSH descriptor: [advanced trauma life support care] this term only
#4.	MeSH descriptor: [emergency service, hospital] this term only
#5.	MeSH descriptor: [triage] this term only
#6.	(prehospital* or pre hospital* or roadside* or road side* or triage* or triaging):ti,ab
#7.	((accident* or trauma) near/2 (site* or scene* or location*)):ti,ab
#8.	((outside or out) near/2 hospital):ti,ab
#9.	((in or on) near/2 field):ti,ab
#10.	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon*):ti,ab
#11.	(transport* or transfer* or transit or extricat*):ti,ab
#12.	(extract* near/2 (patient* or casual*)):ti,ab
#13.	{or #2-12}
#14.	MeSH descriptor: [airway management] this term only
#15.	MeSH descriptor: [intubation, intratracheal] this term only
#16.	MeSH descriptor: [laryngeal masks] this term only
#17.	intubat*:ti,ab
#18.	((emergenc* or manag* or stabili* or drug assist*) near/3 (airway* or ventilat*)):ti,ab
#19.	((tracheal or endotracheal) near/3 tube*):ti,ab
#20.	(rapid* near/3 sequence* near/3 induction*):ti,ab
#21.	rsi:ti,ab
#22.	((supralaryngeal or supraglottic or supra glottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal) near/3 (airway* or device* or mask* or tube* or sealer* or ventilat*)):ti,ab
#23.	(igel or proseal or combitube or preshaped sealers or king lt-d or king lts-d or king lad or king lt):ti,ab
#24.	(surgical near/3 (airway* or ventilat*)):ti,ab

#25.	(cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*):ti,ab
#26.	{or #14-#25}
#27.	#1 and #13 and #26

1 **F.4.2 Imaging assessment of chest trauma – search 1**

2 2. What is the clinical and cost effectiveness of performing FAST compared to clinical examination
3 pre-hospital in people who have suffered suspected major chest trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1) AND Chest trauma (F.2.3)F.2.3	Clinical examination	n/a	The following filters were used in Medline and Embase only: DIAG, OBS, RCT, SR	See Table 161 Date of last search: 27/03/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	physical examination/
2.	symptom assessment/
3.	needs assessment/
4.	((clinical* or physical* or patient* or field* or clinician* or paramedic* or road*) adj4 (assess* or examin* or evaluat* or diagnos*)):ti,ab.
5.	(emergenc* adj2 (medic* or service*) adj4 (assess* or examin* or evaluat* or diagnos*)):ti,ab.
6.	((no or 'not' or without) adj2 (image* or imaging*)):ti,ab.
7.	or/1-6

7 **Embase search terms**

1.	physical examination/
2.	symptom assessment/
3.	needs assessment/
4.	((clinical* or physical* or patient* or field* or clinician* or paramedic* or road*) adj4 (assess* or examin* or evaluat* or diagnos*)):ti,ab.
5.	(emergenc* adj2 (medic* or service*) adj4 (assess* or examin* or evaluat* or diagnos*)):ti,ab.
6.	((no or 'not' or without) adj2 (image* or imaging*)):ti,ab.
7.	or/1-6

8 **Cochrane search terms**

#1.	MeSH descriptor: [physical examination] this term only
#2.	MeSH descriptor: [symptom assessment] this term only
#3.	MeSH descriptor: [needs assessment] this term only
#4.	((clinical* or physical* or patient* or field* or clinician* or paramedic* or road*) near/4 (assess* or examin* or evaluat* or diagnos*)):ti,ab
#5.	(emergenc* near/2 (medic* or service*) near/4 (assess* or examin* or evaluat* or

	diagnos*)):ti,ab
#6.	((no or 'not' or without) near/2 (image* or imaging*)):ti,ab
#7.	{or #1-#6}

1 F.4.3 Imaging assessment of chest trauma – search 2

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

- 3 3. What is the diagnostic accuracy of performing FAST compared to clinical examination pre-hospital
4 in people who have suffered suspected major chest trauma?
- 5 4. What is the diagnostic accuracy of clinical examination pre-hospital in people who have suspected
6 major chest trauma?
- 7 5. What is the diagnostic accuracy of hospital imaging strategies in identifying the following injuries,
8 tension pneumothorax, haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion,
9 flail chest and aortic injury in people with major trauma on initial presentation?
- 10 6. What are the most clinically and cost effective strategies for assessing tension pneumothorax,
11 haemothorax, cardiac tamponade, pneumothorax, pulmonary contusion, flail chest and aortic
12 injury in people with major trauma on initial presentation?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (A.2.1) AND Chest trauma (F.2.3)	Imaging techniques	n/a	The following filters were used in Medline and Embase only: DIAG, OBS, RCT, SR	See Table 161 Date of last search: 26/03/2015 English only Exclusion filter applied in Medline and Embase

15 Medline search terms

1.	radiography/ or tomography/ or exp tomography, x-ray/ or ultrasonography/ or exp ultrasonography, doppler/ or whole body imaging/
2.	(x ray* or xray* or mdct* or ct or radiograph*).ti,ab.
3.	(cat adj2 (scan or imag*)).ti,ab.
4.	(compute* adj2 tomograph*).ti,ab.
5.	(fast or sonograph* or ultrasonograph* or ultrasound* or efast or e-fast).ti,ab.
6.	echocardiography/
7.	echo*.ti,ab.
8.	or/1-7

16 Embase search terms

1.	radiography/
2.	tomography/
3.	ultrasound/
4.	echography/
5.	doppler echography/
6.	echocardiography/

7.	whole body imaging/
8.	(x ray* or xray* or mdct* or ct or radiograph*).ti,ab.
9.	(cat adj2 (scan or imag*)).ti,ab.
10.	(compute* adj2 tomograph*).ti,ab.
11.	(fast or sonograph* or ultrasonography* or ultrasound* or echo* or efast or e-fast).ti,ab.
12.	echocardiography/
13.	or/1-12

1

Cochrane search terms

#1.	MeSH descriptor: [radiography] this term only
#2.	MeSH descriptor: [tomography] this term only
#3.	MeSH descriptor: [tomography, x-ray] explode all trees
#4.	MeSH descriptor: [ultrasonography] this term only
#5.	MeSH descriptor: [ultrasonography, doppler] explode all trees
#6.	MeSH descriptor: [whole body imaging] this term only
#7.	(x ray* or xray* or mdct* or ct or radiograph*).ti,ab
#8.	(cat near/2 (scan* or imag*)):ti,ab
#9.	compute* near/2 tomograph*:ti,ab
#10.	(fast or sonograph* or ultrasonography* or ultrasound*):ti,ab
#11.	MeSH descriptor: [echocardiography] this term only
#12.	echo*:ti,ab
#13.	{or #1-#12}

2 F.4.4 Tension pneumothoraces

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

4 7. What is the most clinically and cost effective treatment for tension pneumothoraces in the pre-
5 hospital setting?

6 8. What is the most effective technique to manage tension pneumothoraces?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Pneumothoraces AND Needle decompression, thoracostomy or drainage	n/a	n/a	See Table 161 Date of last search: 26/03/2015 English only Exclusion filter applied in Medline and Embase

9

Medline search terms

1.	pneumothorax/
2.	pneumothor*.ti,ab.
3.	((chest or wound) adj4 suck*).ti,ab.
4.	pulmonary atelectasis/

5.	(collaps* adj4 lung*).ti,ab.
6.	atelectasis.ti,ab.
7.	or/1-6
8.	decompression, surgical/
9.	thoracostomy/
10.	needles/
11.	chest tubes/
12.	((chest or intercostal or thorac* or pleura*) adj2 (tube* or drain* or catheter* or canula* or cannula*)).ti,ab.
13.	thoracostom*.ti,ab.
14.	needle*.ti,ab.
15.	drainage/
16.	or/8-15
17.	7 and 16

1

Embase search terms

1.	(pneumothorax or pneumothoraces).ti,ab.
2.	exp *pneumothorax/
3.	*atelectasis/
4.	atelectas*.ti,ab.
5.	(collaps* adj4 lung*).ti,ab.
6.	((chest or wound) adj4 suck*).ti,ab.
7.	or/1-6
8.	*decompression surgery/
9.	*thorax drainage/
10.	exp *needle/
11.	exp *chest tube/
12.	*drainage catheter/
13.	((chest or intercostal or thorac* or pleura*) adj2 (tube* or drain* or catheter* or canula* or cannula*)).ti,ab.
14.	thoracostom*.ti,ab.
15.	needle*.ti,ab.
16.	or/8-15
17.	7 and 16

2

Cochrane search terms

#1.	(pneumothorax or pneumothoraces):ti,ab,kw
#2.	atelectas*:ti,ab,kw
#3.	(collaps* near/4 lung*):ti,ab
#4.	((chest or wound) near/4 suck*):ti,ab
#5.	{or #1-#4}

3 F.4.5 Open pneumothoraces - occlusive dressings

- 4 9. Which occlusive dressing used in the pre-hospital setting is the most clinically and cost effective in
5 improving outcomes for patients with open pneumothoraces as a part of major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Pneumothoraces AND Occlusive dressings	n/a	n/a	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

3 **Medline search terms**

1.	pneumothorax/
2.	pneumothor*.ti,ab.
3.	((chest or wound) adj4 suck*).ti,ab.
4.	pulmonary atelectasis/
5.	(collaps* adj4 lung*).ti,ab.
6.	atelectasis.ti,ab.
7.	or/1-6
8.	(dress* or bandag* or barrier* or seal* or gauze*).ti,ab.
9.	occlusive*.ti,ab.
10.	(bolin or halo or h&h or sherman or hyfin or russell or sam* or sentinel or asherman).ti,ab.
11.	occlusive dressings/
12.	exp bandages/
13.	or/8-12
14.	chest tubes/
15.	drainage/
16.	((chest or intercostal or thorac* or pleural) adj2 (tube* or drain* or catheter*)).ti,ab.
17.	or/14-16
18.	7 and (13 or 17)

4 **Embase search terms**

1.	(pneumothorax or pneumothoraces).ti,ab.
2.	exp *pneumothorax/
3.	*atelectasis/
4.	atelectas*.ti,ab.
5.	(collaps* adj4 lung*).ti,ab.
6.	((chest or wound) adj4 suck*).ti,ab.
7.	or/1-6
8.	(dress* or bandag* or barrier* or seal* or gauze*).ti,ab.
9.	occlusive*.ti,ab.
10.	(bolin or halo or h&h or sherman or hyfin or russell or sam* or sentinel or asherman).ti,ab.
11.	occlusive dressing/
12.	exp "bandages and dressings"/
13.	or/8-12

14.	((chest or intercostal or thorac* or pleural) adj2 (tube* or drain* or catheter*)).ti,ab.
15.	drainage catheter/
16.	chest tube/
17.	or/14-16
18.	7 and (13 or 17)

1

Cochrane search terms

#1.	(pneumothorax or pneumothoraces):ti,ab,kw
#2.	atelectas*:ti,ab,kw
#3.	(collaps* near/4 lung*):ti,ab
#4.	((chest or wound) near/4 suck*):ti,ab
#5.	{or #1-#4}
#6.	(dress* or bandag* or barrier* or seal* or gauze*):ti,ab
#7.	occlusive*:ti,ab
#8.	(bolin or halo or h&h or sherman or hyfin or russell or sam* or sentinel or asherman):ti,ab
#9.	MeSH descriptor: [occlusive dressings] this term only
#10.	MeSH descriptor: [bandages] explode all trees
#11.	{or #6-#10}
#12.	MeSH descriptor: [chest tubes] this term only
#13.	MeSH descriptor: [drainage] this term only
#14.	((chest or intercostal or thorac* or pleural) near/2 (tube* or drain* or catheter*)):ti,ab
#15.	{or #12-#14}
#16.	#11 or #15
#17.	#5 and #16

2 F.4.6 Haemostatic dressings

3 10.Are haemostatic dressings clinically and cost effective in improving outcomes in patients with
4 haemorrhage in major trauma compared to non-haemostatic dressings?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Haemostatic dressings	n/a	n/a	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

7

Medline search terms

1.	factor concentrator*.ti,ab.
2.	dehydrator*.ti,ab.
3.	mucoadhes*.ti,ab.
4.	procoagulant supplementor*.ti,ab.

5.	(quickclot or quikclot).ti,ab.
6.	traumadex.ti,ab.
7.	((haemostatic or hemostatic) adj3 polymer*).ti,ab.
8.	celox.ti,ab.
9.	woundstat.ti,ab.
10.	hemcon.ti,ab.
11.	chitoflex.ti,ab.
12.	rapid deployment hemostat*.ti,ab.
13.	syvek.ti,ab.
14.	insta clot.ti,ab.
15.	bloodstop.ti,ab.
16.	(super qr or sqr or super quick relief).ti,ab.
17.	fast act.ti,ab.
18.	seraseal.ti,ab.
19.	tachocomb.ti,ab.
20.	combat-gauze.ti,ab.
21.	x-sponge.ti,ab.
22.	((gelatamp or gelatin* or clot* or chitosan) adj sponge*).ti,ab.
23.	polymem.ti,ab.
24.	alpha bandage*.ti,ab.
25.	kaltostat.ti,ab.
26.	trauma gauze.ti,ab.
27.	chitogauze.ti,ab.
28.	rapid gauze.ti,ab.
29.	kaolin.ti,ab.
30.	chitin/ or chitosan/
31.	kaolin/ or zeolites/
32.	silicon dioxide/
33.	fibrin tissue adhesive/
34.	chitin.ti,ab.
35.	chitosan.ti,ab.
36.	smectite.ti,ab.
37.	zeolite*.ti,ab.
38.	silica.ti,ab.
39.	silicon dioxide.ti,ab.
40.	acet* glucosamine.ti,ab.
41.	(fibrin adj2 (sealant or dress* or glue* or adhesive*)).ti,ab.
42.	dfsd.ti,ab.
43.	(rdh or mrdh).ti,ab.
44.	(haemosta* or hemosta*).ti,ab.
45.	hemostasis/ or hemostatic techniques/ or hemostatics/
46.	or/44 or 45
47.	bandages/
48.	46 and 47
49.	((hemosta* or haemosta*) adj4 (pad* or powder* or paste* or sponge* or solution* or dress*

	or textile* or MeSH* or salt* or granul* or adhesive* or bandage* or gauze* or patch* or gel* or barrier*)).ti,ab.
50.	or/1-43,48,49

1

Embase search terms

1.	factor concentrator*.ti,ab.
2.	dehydrator*.ti,ab.
3.	mucoadhes*.ti,ab.
4.	procoagulant supplementor*.ti,ab.
5.	(quickclot or quikclot).ti,ab.
6.	traumadex.ti,ab.
7.	((haemostatic or hemostatic) adj3 polymer).ti,ab.
8.	celox.ti,ab.
9.	woundstat.ti,ab.
10.	hemcon.ti,ab.
11.	chitoflex.ti,ab.
12.	rapid deployment hemostat*.ti,ab.
13.	syvek.ti,ab.
14.	insta clot.ti,ab.
15.	bloodstop.ti,ab.
16.	(super qr or sqr or super quick relief).ti,ab.
17.	fast act.ti,ab.
18.	seraseal.ti,ab.
19.	tachocomb.ti,ab.
20.	combat-gauze.ti,ab.
21.	x-sponge.ti,ab.
22.	((gelatamp or gelatin* or clot* or chitosan) adj sponge*).ti,ab.
23.	polymem.ti,ab.
24.	alpha bandage*.ti,ab.
25.	kaltostat.ti,ab.
26.	trauma gauze.ti,ab.
27.	chitogauze.ti,ab.
28.	rapid gauze.ti,ab.
29.	kaolin.ti,ab.
30.	chitin/ or chitosan/
31.	kaolin/ or zeolites/
32.	silicon dioxide/
33.	fibrin glue/
34.	chitin.ti,ab.
35.	chitosan.ti,ab.
36.	smectite.ti,ab.
37.	zeolite*.ti,ab.
38.	silica.ti,ab.
39.	silicon dioxide.ti,ab.
40.	acet* glucosamine.ti,ab.
41.	(fibrin adj2 (sealant or dress* or glue* or adhesive*)).ti,ab.

42.	dfsd.ti,ab.
43.	(rdh or mrdh).ti,ab.
44.	(haemosta* or hemosta*).ti,ab.
45.	hemostasis/
46.	hemostatic agent/
47.	or/44-46
48.	bandage/ or wound dressing/
49.	47 and 48
50.	((hemosta* or haemosta*) adj4 (pad* or powder* or paste* or sponge* or solution* or dress* or textile* or MeSH* or salt* or granul* or adhesive* or bandage* or gauze* or patch* or gel* or barrier*)).ti,ab.
51.	or/1-43,49,50

1

Cochrane search terms

#1.	(factor next concentrator*):ti,ab
#2.	dehydrator*:ti,ab
#3.	mucoadhes*:ti,ab
#4.	(procoagulant next supplementor*):ti,ab
#5.	(quickclot or quikclot):ti,ab
#6.	traumadex:ti,ab
#7.	((haemostatic or hemostatic) near/3 polymer*):ti,ab
#8.	celox:ti,ab
#9.	woundstat:ti,ab
#10.	hemcon:ti,ab
#11.	chitoflex:ti,ab
#12.	(rapid next deployment next hemostat*):ti,ab
#13.	syvek:ti,ab
#14.	insta clot:ti,ab
#15.	bloodstop:ti,ab
#16.	super quick relief:ti,ab
#17.	super qr:ti,ab
#18.	sqr:ti,ab
#19.	fast act:ti,ab
#20.	seraseal:ti,ab
#21.	tachocomb:ti,ab
#22.	combat gauze:ti,ab
#23.	x-sponge:ti,ab
#24.	((gelatamp or gelatin* or clot* or chitosan) next sponge*):ti,ab
#25.	polymem:ti,ab
#26.	(alpha next bandage*):ti,ab
#27.	kaltostat:ti,ab
#28.	trauma gauze:ti,ab
#29.	chitogauze:ti,ab
#30.	rapid gauze:ti,ab
#31.	kaolin:ti,ab
#32.	MeSH descriptor: [chitin] this term only

#33.	MeSH descriptor: [chitosan] this term only
#34.	MeSH descriptor: [kaolin] this term only
#35.	MeSH descriptor: [zeolites] this term only
#36.	MeSH descriptor: [fibrin tissue adhesive] this term only
#37.	MeSH descriptor: [silicon dioxide] this term only
#38.	chitin:ti,ab
#39.	chitosan:ti,ab
#40.	smectite:ti,ab
#41.	zeolite*:ti,ab
#42.	silica:ti,ab
#43.	silicon dioxide:ti,ab
#44.	(acet* next glucosamine):ti,ab
#45.	(fibrin near/2 (sealant or dress* or glue* or adhesive*)):ti,ab
#46.	dfsd:ti,ab
#47.	(rdh or mrdh):ti,ab
#48.	(haemosta* or hemosta*):ti,ab
#49.	MeSH descriptor: [hemostasis] this term only
#50.	MeSH descriptor: [hemostatic techniques] this term only
#51.	MeSH descriptor: [hemostatics] this term only
#52.	{or #48-#51}
#53.	MeSH descriptor: [bandages] this term only
#54.	#52 and #53
#55.	((hemosta* or haemosta*) next/4 (pad* or powder* or paste* or sponge* or solution* or dress* or textile* or MeSH* or salt* or granul* or adhesive* or bandage* or gauze* or patch* or gel* or barrier*)):ti,ab
#56.	{or #1-#47, #54, #55}

1 **F.4.7 Tourniquets**

2 11. Is the use of pneumatic or mechanical tourniquets clinically and cost effective in improving
3 outcomes in patients with haemorrhage in major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Tourniquets	n/a	n/a	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	tourniquets/
2.	tourniquet*.ti,ab.

3.	or/1-2
----	--------

1 **Embase search terms**

1.	exp tourniquet/
2.	tourniquet*.ti,ab.
3.	or/1-2

2 **Cochrane search terms**

#1.	MeSH descriptor: [tourniquets] this term only
#2.	tourniquet*.ti,ab
#3.	{or #1-#2}

3 **F.4.8 Pelvic binders**

4 12. Is the application of pelvic binders pre-hospital in patients suspected of pelvic fracture clinically
5 and cost effective in improving outcomes?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Pelvic fractures (included below)	Pelvic binders	n/a	n/a	See Table 161 Date of last search: 02/04/2015 English only Exclusion filter applied in Medline and Embase

8 **Medline search terms**

1.	exp pelvic bones/
2.	fractures, bone/
3.	1 and 2
4.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
5.	3 or 4
6.	(binding* or binder* or pccd or inflatable garment* or niecs or sheet* or c clamp*).ti,ab.
7.	((circumferen* or external or compression) adj5 (device* or belt* or sling*)).ti,ab.
8.	(brim or pelvigrip or pelvicbinder or t pod or t pod).ti,ab.
9.	(mast or pasg or pneumatic anti-shock garment*).ti,ab.
10.	(sam adj3 sling*).ti,ab.
11.	or/6-10
12.	5 and 11

9 **Embase search terms**

1.	exp pelvis fracture/
2.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) adj3 (fracture* or break or breaks or

	broken or crack* or frx)).ti,ab.
3.	or/1-2
4.	(binding* or binder* or pccd or inflatable garment* or niecs or sheet* or c clamp*).ti,ab.
5.	((circumferen* or external or compression) adj5 (device* or belt* or sling*)).ti,ab.
6.	(brim or pelvigrip or pelvicbinder or t pod or tpod).ti,ab.
7.	(mast or pasg or pneumatic anti-shock garment*).ti,ab.
8.	(sam adj3 sling*).ti,ab.
9.	or/4-8
10.	3 and 9

1 **Cochrane search terms**

#1.	MeSH descriptor: [pelvic bones] explode all trees
#2.	MeSH descriptor: [fractures, bone] this term only
#3.	#1 or #2
#4.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) near/3 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#5.	#3 or #4
#6.	(binding* or binder* or pccd or inflatable garment* or niecs or sheet* or c clamp*):ti,ab
#7.	((circumferen* or external or compression) near/5 (device* or belt* or sling*)):ti,ab
#8.	(brim or pelvigrip or pelvicbinder or t pod or tpod):ti,ab
#9.	(mast or pasg or pneumatic anti-shock garment*):ti,ab
#10.	(sam near/3 sling*):ti,ab
#11.	{or #6-#10}
#12.	#5 and #11

2 **F.4.9 Haemostatic agents**

3 13.Is the use of systemic haemostatic agents clinically and cost effective in improving outcomes in
4 patients with haemorrhage in major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1) AND Haemorrhage (F.2.2)	Haemostatic agents	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 161 Date of last search: 01/04/2015 English only Exclusion filter applied in Medline and Embase

7 **Medline search terms**

1.	blood coagulation factors/
2.	factor vii/
3.	factor viia/
4.	(factor vii* or factor 7 or novo 7 or novoseven or aryoseven or fvii* or rfvii*).ti,ab.

5.	tranexamic acid/
6.	(tranexamic acid* or TXA).ti,ab.
7.	(cyklokapron or transamin or cyclo-f or femstrual).ti,ab.
8.	(transcam or traxyl or espercil or kapron).ti,ab.
9.	fibrinogen/
10.	(fibrinogen or riastap).ti,ab.
11.	prothrombin/
12.	(prothrombin adj2 (complex* or concentrate*)).ti,ab.
13.	PCC.ti,ab.
14.	(beriplex or octaplex or kcentra or cofact).ti,ab.
15.	antifibrinolytic agents/ or aminocaproic acid/ or alpha-2-antiplasmin/
16.	(antifibrinolytic* or anti-fibrinolytic*).ti,ab.
17.	ethamsylate/
18.	(dicynene or dicynone or etamsylate or ethamsylate).ti,ab.
19.	(aminocaproic acid or amicar or aminohexanoic acid).ti,ab.
20.	(haemostatic* adj2 agent*).ti,ab.
21.	(anti-h?emorrhagic* or antih?emorrhagic*).ti,ab.
22.	hemostatics/
23.	or/1-22

1

Embase search terms

1.	*blood clotting factor 7/ or *blood clotting factor 7a/
2.	(factor vii* or factor 7 or novo 7 or novoseven or aryoseven or FVII* or rFVII*).ti,ab.
3.	(cyklokapron or transamin or cyclo-f or femstrual).ti,ab.
4.	(transcam or traxyl or espercil or kapron).ti,ab.
5.	*fibrinogen/
6.	(fibrinogen or riastap).ti,ab.
7.	*prothrombin/
8.	(prothrombin adj2 (complex* or concentrate*)).ti,ab.
9.	PCC.ti,ab.
10.	(beriplex or octaplex or kcentra or cofact).ti,ab.
11.	exp *antifibrinolytic agent/
12.	aprotinin.ti,ab.
13.	*aprotinin/
14.	*4 aminomethylbenzoic acid/
15.	aminomethylbenzoic acid.ti,ab.
16.	*tranexamic acid/
17.	(tranexamic acid* or TXA).ti,ab.
18.	*aminocaproic acid/
19.	(aminocaproic acid or amicar or aminohexanoic acid).ti,ab.
20.	(antifibrinolytic* or anti-fibrinolytic*).ti,ab.
21.	*thrombin activatable fibrinolysis inhibitor/
22.	(thrombin activable fibrinolysis inhibitor or thrombin activatable fibrinolysis inhibitor).ti,ab.
23.	*alpha 2 antiplasmin/
24.	((alpha-2 or alpha2) adj2 (inhibitor* or antiplasmin or plasmin)).ti,ab.

25.	trasylol.ti,ab.
26.	(PAMBA or aminobenzoic acid).ti,ab.
27.	(carboxypeptidase u or procarboxypeptidase u or TAFI).ti,ab.
28.	*ethamsylate/
29.	(dicynene or dicynone or etamsylate or ethamsylate).ti,ab.
30.	(haemostatic* adj2 agent*).ti,ab.
31.	(anti-h?emorrhagic* or antih?emorrhagic*).ti,ab.
32.	*hemostatic agent/
33.	or/1-32

1

Cochrane search terms

#1.	MeSH descriptor: [blood coagulation factors] this term only
#2.	MeSH descriptor: [factor vii] explode all trees
#3.	(factor next vii* or factor next 7 or novo next 7 or novoseven or aryoseven or FVII* or rFVII*):ti,ab
#4.	MeSH descriptor: [tranexamic acid] this term only
#5.	tranexamic next acid*:ti,ab
#6.	TXA.ti,ab
#7.	(cyklokapron or transamin or cyclo next f or femstrual):ti,ab
#8.	(transcam or traxyl or espercil or kapron):ti,ab
#9.	MeSH descriptor: [fibrinogen] this term only
#10.	(fibrinogen or riastap):ti,ab
#11.	MeSH descriptor: [prothrombin] this term only
#12.	(prothrombin near/2 (complex or concentrate)):ti,ab
#13.	PCC:ti,ab
#14.	(beriplex or octaplex or kcentra or cofact):ti,ab
#15.	MeSH descriptor: [antifibrinolytic agents] this term only
#16.	MeSH descriptor: [alpha-2-antiplasmin] this term only
#17.	MeSH descriptor: [aminocaproic acid] this term only
#18.	(antifibrinolytic* or anti next fibrinolytic*):ti,ab
#19.	MeSH descriptor: [ethamsylate] this term only
#20.	(dicynene or dicynone or etamsylate or ethamsylate):ti,ab
#21.	(aminocaproic next acid or amicar or aminohexanoic next acid):ti,ab
#22.	(haemostatic* near/2 agent*):ti,ab
#23.	anti next h?emorrhagic*:ti,ab
#24.	antih?emorrhagic*.ti,ab
#25.	MeSH descriptor: [hemostatics] this term only
#26.	{or #1-#25}

2 F.4.10 Anticoagulation reversal

3 14.What is the most clinically and cost effective regimen for reversal of pre-existing therapeutic
4 anticoagulation (laboratory effect) in major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
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Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Anticoagulants AND Reversal agents	n/a	The following filters were used in Medline and Embase only: RCT, SR	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

1

Medline search terms

1.	exp warfarin/
2.	(marevan or warfarin or apo-wafarin or couma* or wafar* or sofarin or aldocumar or gen-warfarin or tedicumar or jantoven or uniwarfin).ti,ab.
3.	exp acenocoumarol/
4.	(aceno#oum* or nicoumalon* or sint?rom* or syn#o?mar).ti,ab.
5.	(mini adj1 sintrom).ti,ab.
6.	exp phenindione/
7.	(phenindion* or pindion* or phenylin* or fenilin or phenylindandione or dindevan or hedulin).ti,ab.
8.	(apixaban or eliqu?s).ti,ab.
9.	(dabigatran or pradaxa or pradax or prazaxa).ti,ab.
10.	(rivaroxaban or xarel*).ti,ab.
11.	(clopidogrel or plavix).ti,ab.
12.	exp aspirin/
13.	(asprin or asa or dispril or polopiry* or zoeporin or colfarit or aloxiprimium or micristin or easprin or magnecyl or solprin or ecotrin or endosprin or acylpyrin or solopsan or acetysal).ti,ab.
14.	exp dalteparin/
15.	(dalteparin or tedelparin or fragmin*).ti,ab.
16.	exp enoxaparin/
17.	(enoxaparin or xaparin or clexan*).ti,ab.
18.	or/1-17
19.	exp fibrinogen/
20.	("factor i" or "factor1").ti,ab.
21.	(coagulation adj2 factor).ti,ab.
22.	("fibrinogen conc*" or haemocomplettan or riastrap).ti,ab.
23.	(cryoprecipitat* or ecryo or cryo).ti,ab.
24.	exp blood platelets/
25.	(platelet* or thrombolyte).ti,ab.
26.	(phytonadion* or phytomenadion*).ti,ab.
27.	exp vitamin k/
28.	("vitamin adj k" or konakion).ti,ab.
29.	(phyllohydroquinone or phylloquinone or mephton).ti,ab.
30.	exp plasma/
31.	exp blood component transfusion/

32.	(ffp or ((frozen or fresh) adj3 plasma)).ti,ab.
33.	(pcc* or ppsb or beriplex or "beriplex p n" or "beriplex b-n" or "beriplex p/n" or confidex or kaskadil or kcentra or octaplex or ocplex or cofact or prothar or pponc or "protein c concentrate").ti,ab.
34.	("prothrombin complex" adj2 (concentrate* or preparation)).ti,ab.
35.	("prothrombin convert*" adj2 (complex or enzyme)).ti,ab.
36.	exp factor viia/
37.	(factor adj2 vii).ti,ab.
38.	("factor viia" or "factor 7a").ti,ab.
39.	proconvertin.ti,ab.
40.	(revers* or correct* or antidote* or counteract*).ti,ab.
41.	or/19-40
42.	18 and 41

1

Embase search terms

1.	exp *warfarin/
2.	(marevan or warfarin or apo-warfarin or couma* or wafar* or sofarin or aldocumar or genwarfarin or tidicumar or jantoven or uniwarfarin).ti,ab.
3.	exp *acenocoumarol/
4.	(aceno#oum* or nicoumalon* or sint?rom* or syn#o?mar).ti,ab.
5.	(mini adj1 sintrom).ti,ab.
6.	exp *phenindione/
7.	(phenindion* or pindion* or phenylin* or fenilin or phenylindan?dione or dindevan or hedulin).ti,ab.
8.	(apixaban or xarel*).ti,ab.
9.	(clopidogrel or plavix).ti,ab.
10.	exp *acetylsalicylic acid/
11.	(asprin or asa or dispril or polopiry* or zoeporin or colfarit or aloxiprimum or micristin or easprin or magnecyl or solprin or ecotrin or endosprin or acylpyrin or solosan or acetysal).ti,ab.
12.	(rivaroxaban or xarel*).ti,ab.
13.	(dabigatran or praxada or pradax or prazaxa).ti,ab.
14.	exp *dalteparin/
15.	(dalteparin or tedelparin or fragmin*).ti,ab.
16.	exp *enoxaparin/
17.	(enoxaparin or xaparin or clexan*).ti,ab.
18.	or/1-17
19.	exp *fibrinogen/
20.	(factor i or factor 1).ti,ab.
21.	(coagulation adj2 factor).ti,ab.
22.	("fibrinogen conc*" or haemocomplettan or oriastrap).ti,ab.
23.	(cryoprecipitat* or ecryno or cryo).ti,ab.
24.	exp *thrombocyte/
25.	(platelet* or thrombolyte).ti,ab.
26.	(phytonadion* or phytomenadion*).ti,ab.
27.	exp *vitamin k group/
28.	("vitamin adj k" or kontaktion).ti,ab.
29.	(phyllohydroquinone or phylloquinone or mephton).ti,ab.

30.	exp *plasma/
31.	exp *blood component/
32.	(ffp or ((frozen or fresh) adj3 plasma)).ti,ab.
33.	(pcc* or ppsb or beriplex or "beriplex p n " or "beriplex b-n" or "beriplex p/n" or confodex or kaskadil or kcentra or octaplex or cofact or prothar or ppconc or "protein c concentrate").ti,ab.
34.	("prothrombin complex" adj2 (concentrate* or preparation)).ti,ab.
35.	("prothrombin convert" adj2 (complex or enzyme)).ti,ab.
36.	exp *blood clotting factor 7a/
37.	(factor adj2 vii).ti,ab.
38.	("factor viia" or "factor 7a").ti,ab.
39.	proconvertin.ti,ab.
40.	(revers* or correct* or antidote* or counteract*).ti,ab.
41.	or/19-40
42.	18 and 41

1

Cochrane search terms

#1.	MeSH descriptor: [warfarin] explode all trees
#2.	(marevan or warfarin or apo-wafarin or couma* or wafar* or sofarin or aldocumar or gen-warfarin or tedicumar or jantoven or uniwarfin):ti,ab
#3.	MeSH descriptor: [acenocoumarol] explode all trees
#4.	(acenocoum* or nicoumalon* or sint?rom* or synto?mar):ti,ab
#5.	mini near1/sintrom
#6.	MeSH descriptor: [phenindione] explode all trees
#7.	(phenindion* or pindion* or phenylin* or fenilin or phenylindan?dione or dindevan or hedulin):ti,ab
#8.	(apixaban or eliqu?s):ti,ab
#9.	(dabigatran or pradaxa or pradax or prazaxa):ti,ab
#10.	(rivaroxaban or xarel*):ti,ab
#11.	(clopidogrel or plavix):ti,ab
#12.	MeSH descriptor: [aspirin] explode all trees
#13.	(asprin or asa or dispril or polopiry* or zoeporin or colfarit or aloxiprimium or micristin or easprin or magnecyl or solprin or ecotrin or endosprin or acylpyrin or solopsan or acetysal):ti,ab
#14.	MeSH descriptor: [dalteparin] explode all trees
#15.	(dalteparin or tedelparin or fragmin*):ti,ab
#16.	MeSH descriptor: [enoxaparin] explode all trees
#17.	(enoxaparin or xaparin or clexan*):ti,ab
#18.	{or #1-#17}
#19.	MeSH descriptor: [fibrinogen] explode all trees
#20.	("factor i" or "factor1"):ti,ab
#21.	(coagulation near/2 factor):ti,ab
#22.	("fibrinogen conc*" or haemocomplettan or riastrap):ti,ab
#23.	(cryoprecipitat* or ecryo or cryo):ti,ab
#24.	MeSH descriptor: [blood platelets] explode all trees
#25.	(platelet* or thrombolyte):ti,ab
#26.	(phytonadion* or phytomenadion*):ti,ab
#27.	MeSH descriptor: [vitamin k] explode all trees

#28.	("vitamin near/ k" or konakion):ti,ab
#29.	(phyllohydroquinone or phylloquinone or mephton):ti,ab
#30.	MeSH descriptor: [plasma] explode all trees
#31.	MeSH descriptor: [blood component transfusion] explode all trees
#32.	(ffp or ((frozen or fresh) near/3 plasma)):ti,ab
#33.	(pcc* or ppsb or beriplex or "beriplex p n" or "beriplex b-n" or "beriplex p/n" or confidex or kaskadil or kcentra or octaplex or ocplex or cofact or prothar or pponc or "protein c concentrate"):ti,ab
#34.	("prothrombin complex" near/2 (concentrate* or preparation)):ti,ab
#35.	("prothrombin convert*" near/2 (complex or enzyme)):ti,ab
#36.	MeSH descriptor: [factor viia] explode all trees
#37.	(factor near/2 vii):ti,ab
#38.	("factor viia" or "factor 7a"):ti,ab
#39.	proconvertin:ti,ab
#40.	(revers* or correct* or antidote* or counteract*):ti,ab
#41.	{or #19-#40}
#42.	#18 and #41

1 **F.4.11 Haemorrhage shock prediction/risk tools**

2 15. What is the most accurate risk tool to predict the need for massive transfusion in patients with
3 major trauma (pre-hospital and hospital)?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Haemorrhage AND Shock prediction tools	n/a		See Table 161 Date of last search: 01/04/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	hemorrhage/ or exsanguination/ or shock/ or shock, hemorrhagic/ or shock, traumatic/ or hypovolemia/ or hypotension/
2.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus* or hypotensi* or low blood pressure).ti,ab.
3.	(bleed* or bloodloss*).ti,ab.
4.	(blood* adj3 loss*).ti,ab.
5.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
6.	blood transfusion/
7.	transfusion.ti,ab.
8.	or/1-7
9.	((transfusion or shock) adj3 (scor* or index* or classif* or predict* or tool* or risk*)).ti,ab.
10.	(risk adj3 (tool* or scor* or index* or predict*)).ti,ab.

11.	abc.ti,ab.
12.	assessment of blood consumption.ti,ab.
13.	nunez.ti,ab.
14.	tash.ti,ab.
15.	trauma-associated severe h?emorrhage.ti,ab.
16.	pwh.ti,ab.
17.	prince of wales hospital.ti,ab.
18.	rainer.ti,ab.
19.	mclaughlin.ti,ab.
20.	emergency transfusion score.ti,ab.
21.	ets.ti,ab.
22.	vandromme.ti,ab.
23.	schreiber.ti,ab.
24.	lars?n.ti,ab.
25.	revised trauma score.ti,ab.
26.	rts.ti,ab.
27.	field triage score.ti,ab.
28.	fts.ti,ab.
29.	*risk/
30.	*risk assessment/
31.	*risk factors/
32.	or/9-31
33.	8 and 32

1

Embase search terms

1.	exp *hypovolemia/ or *hemorrhagic shock/ or *traumatic shock/ or exp *bleeding/ or *exsanguination/
2.	*hypotension/
3.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus* or hypotensi* or low blood pressure).ti,ab.
4.	(bleed* or bloodloss*).ti,ab.
5.	(blood* adj3 loss*).ti,ab.
6.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
7.	*blood transfusion/
8.	transfusion.ti,ab.
9.	or/1-8
10.	((transfusion or shock) adj3 (scor* or index* or classif* or predict* or tool* or risk*)).ti,ab.
11.	(risk adj3 (tool* or scor* or index* or predict*)).ti,ab.
12.	abc.ti,ab.
13.	assessment of blood consumption.ti,ab.
14.	nunez.ti,ab.
15.	tash.ti,ab.
16.	trauma-associated severe h?emorrhage.ti,ab.
17.	pwh.ti,ab.
18.	prince of wales hospital.ti,ab.
19.	rainer.ti,ab.

20.	emergency transfusion score.ti,ab.
21.	ets.ti,ab.
22.	vandromme.ti,ab.
23.	schreiber.ti,ab.
24.	lars?n.ti,ab.
25.	revised trauma score.ti,ab.
26.	rts.ti,ab.
27.	field triage score.ti,ab.
28.	fts.ti,ab.
29.	*risk assessment/ or *risk/ or *risk factor/
30.	or/10-29
31.	9 and 30

1

Cochrane search terms

#1.	MeSH descriptor: [hemorrhage] this term only
#2.	MeSH descriptor: [exsanguination] this term only
#3.	MeSH descriptor: [shock] this term only
#4.	shock, hemorrhagic
#5.	MeSH descriptor: [shock, traumatic] this term only
#6.	MeSH descriptor: [hypovolemia] this term only
#7.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus*):ti,ab
#8.	(bleed* or bloodloss* or blood loss*):ti,ab
#9.	(coagulopath* or (abnormal* near/2 coagulation) or hyperfibrinolysis):ti,ab
#10.	{or #1-#9}
#11.	((transfusion or shock) near/3 (scor* or index* or classif* or predict* or tool* or risk*)):ti,ab
#12.	(risk near/3 (tool* or scor* or index* or predict*)):ti,ab
#13.	abc:ti,ab
#14.	assessment of blood consumption:ti,ab
#15.	nunez:ti,ab
#16.	tash:ti,ab
#17.	trauma associated severe h?emorrhage:ti,ab
#18.	pwh:ti,ab
#19.	prince of wales hospital:ti,ab
#20.	rainer:ti,ab
#21.	mclaughlin:ti,ab
#22.	emergency transfusion score:ti,ab
#23.	ets:ti,ab
#24.	vandromme:ti,ab
#25.	schreiber:ti,ab
#26.	lars?n:ti,ab
#27.	revised trauma score:ti,ab
#28.	rts:ti,ab
#29.	field triage score:ti,ab
#30.	fts:ti,ab
#31.	MeSH descriptor: [risk] this term only

#32.	MeSH descriptor: [risk assessment] this term only
#33.	MeSH descriptor: [risk factors] this term only
#34.	{or #11-#33}
#35.	#10 and #34

1 **F.4.12 Intraosseous/Intravenous access**

2 16. What is the most clinically and cost effective technique for circulatory access in patients with
3 major trauma, including following a failed attempt at initial peripheral access?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	IO/IV access	n/a	n/a	See Table 161 Date of last search: 26/04/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	(intraosseous or intra osseous or io).ti,ab.
2.	(access* or device* or needle* or catheter* or canul* or infus* or admin* or line* or gun or inject*).ti,ab.
3.	1 and 2
4.	infusions, intraosseous/
5.	(fast1 or fast x or fast combat or fast responder or ez-io or bone injection gun or jamshidi or cook io or big 15g or big 18g).ti,ab.
6.	or/4-5
7.	3 or 6

7 **Embase search terms**

1.	(intraosseous or intra osseous or io).ti,ab.
2.	(access* or device* or needle* or catheter* or canul* or infus* or admin* or line* or gun or inject*).ti,ab.
3.	1 and 2
4.	intraosseous drug administration/
5.	(fast1 or fast x or fast combat or fast responder or ez-io or bone injection gun or jamshidi or cook io or big 15g or big 18g).ti,ab.
6.	or/4-5
7.	3 or 6

8 **Cochrane search terms**

#1.	(intraosseous or osseous or IO):ti,ab
#2.	MeSH descriptor: [infusions, intraosseous] this term only
#3.	(fast1 or "injection gun" or jamshidi or "fast x" or "fast combat" or "fast responder" or "ez-io" or "cook io" or "big 15g" or "big 18g"):ti,ab

#4.	{or #1-#3}
-----	------------

1 **F.4.13 Fluid resuscitation**

2 17. What are the most clinically and cost effective fluid resuscitation strategies in the major trauma
3 patient (hypotensive vs. normotensive)?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1) AND Haemorrhage (F.2.2)	Fluid resuscitation strategy	n/a	The following filters were used in Medline and Embase only: RCT, SR	See Table 161 Date of last search: 27/03/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	fluid therapy/
2.	((hypoten* or normoten* or euvo?emi* or normovo?emi* or hypovo?emi*) adj6 (permissive or resuscitat* or control*)):ti,ab.
3.	((fluid* or electrolyte*) adj6 (therap* or resuscitat* or administrat* or replace*)):ti,ab.
4.	((novel or hybrid) adj6 resuscitat*):ti,ab.
5.	((control* or restrict* or delay* or limit* or volume* or conserve or conservative) adj6 (iv or fluid* or electrolyte* or resuscitat* or intravenous*)):ti,ab.
6.	rehydrat*.ti,ab.
7.	(resuscitat* adj6 (plan* or strateg* or polic* or order* or decision* or protocol*)):ti,ab.
8.	or/1-7

7 **Embase search terms**

1.	fluid resuscitation/
2.	*fluid therapy/
3.	((hypoten* or normoten* or euvo?emi* or normovo?emi* or hypovo?emi*) adj6 (permissive or resuscitat* or control*)):ti,ab.
4.	((Fluid* or electrolyte*) adj6 (therap* or resuscitat* or administrat* or replace*)):ti,ab.
5.	((novel or hybrid) adj6 resuscitat*):ti,ab.
6.	((control* or restrict* or delay* or limit* or volume* or conserve or conservative) adj6 (IV or fluid* or electrolyte* or resuscitat* or intravenous*)):ti,ab.
7.	rehydrat*.ti,ab.
8.	(resuscitat* adj6 (plan* or strateg* or polic* or order* or decision* or protocol*)):ti,ab.
9.	or/1-8

8 **Cochrane search terms**

#1.	MeSH descriptor: [fluid therapy] this term only
#2.	((hypoten* or normoten* or euvo?emi* or normovo?emi* or hypovo?emi*) near/6 (permissive or resuscitat* or control*)):ti,ab
#3.	((fluid* or electrolyte*) near/6 (therap* or resuscitat* or administrat* or replace*)):ti,ab

#4.	((novel or hybrid) near/6 resuscitat*):ti,ab
#5.	((control* or restrict* or delay* or limit* or volume* or conserve or conservative) near/6 (iv or fluid* or electrolyte* or resuscitat* or intravenous*)):ti,ab
#6.	rehydrat*:ti,ab
#7.	(resuscitat* near/6 (plan* or strateg* or polic* or order* or decision* or protocol*)):ti,ab
#8.	{or #1-#7}

1 **F.4.14 Fluid replacement**

2 18.What is the best volume expansion fluid to use in the resuscitation of haemorrhagic shock?

3 Search constructed by combining the columns in the following table using the AND Boolean operator.

4 Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1) AND haemorrhage	Volume expansion fluids	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 161 Date of last search: 26/03/2015 English only Exclusion filter applied in Medline and Embase

5 **Medline search terms**

1.	<i>standard trauma population (see F.2.1)</i>
2.	hemorrhage/ or exsanguination/ or shock/ or shock, hemorrhagic/ or shock, traumatic/ or hypovolemia/
3.	(hypovol?em* or shock or exsanguin* or olig?em* or h?emorrhag* or hypoperfus*).ti,ab.
4.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
5.	(bleed* or bloodloss*).ti,ab.
6.	(blood* adj3 loss*).ti,ab.
7.	or/2-6
8.	((red blood cell* or rbc or prbc or red cell* or blood or packed cell* or erythrocyte* or fluid* or volum* or plasma*) adj5 (therap* or transfus* or replac* or resuscita* or substitut* or restor* or deficien* or replenish*).ti,ab.
9.	exp plasma/
10.	(ffp or ((frozen or thawed or tp or fresh) adj3 plasma)).ti,ab.
11.	(albumin or zenalb or octaplas*).ti,ab.
12.	((lyophil?ed or freeze-dried or liquid or "not frozen" or "never frozen") adj3 plasma).ti,ab.
13.	(fdsp or fdp or lqp or lhp).ti,ab.
14.	exp freeze drying/ and plasma.ti,ab,sh.
15.	exp sodium chloride/
16.	exp fluid therapy/
17.	exp rehydration solutions/
18.	exp plasma substitutes/
19.	exp isotonic solutions/
20.	(sodium or salin* or hartman* or ringer* or lactate* or acetate* or plasmalyte* or plasma-lyte*).ti,ab.

21.	(crystalloid* or isotonic).ti,ab.
22.	((balanced or physiologic*) adj2 (fluid* or solution*)).ti,ab.
23.	or/8-22
24.	1 and 7 and 23
25.	*blood transfusion/ or exp *blood component transfusion/ or *exchange transfusion, whole blood/ or *plasma exchange/
26.	24 or 25

1

Embase search terms

1.	<i>standard trauma population (see F.2.1)</i>
2.	exp *hypovolemia/ or *hemorrhagic shock/ or *traumatic shock/ or exp *bleeding/ or *exsanguination/
3.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus*).ti,ab.
4.	(bleed* or bloodloss*).ti,ab.
5.	(blood* adj3 loss*).ti,ab.
6.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
7.	or/2-6
8.	exp *blood transfusion/
9.	((red blood cell* or rbc or prbc or red cell* or blood or packed cell* or erythrocyte* or fluid* or volum*) adj3 (therap* or transfus* replac* or resuscita* or substitut* or restor* or deficien* or replenish*)).ti,ab.
10.	exp *plasma/
11.	exp *blood component therapy/
12.	exp *erythrocyte transfusion/
13.	(ffp or ((frozen or fresh or thawed or tp) adj3 plasma)).ti,ab.
14.	((lyophilised or freeze-dried or liquid or "not frozen" or "never frozen") adj 2 plasma).ti,ab.
15.	(fdsp or fdp or lqp or lhp).ti,ab.
16.	exp *freeze drying/ and plasma.ti,ab,sh.
17.	exp *sodium chloride/
18.	exp *fluid therapy/
19.	exp *rehydration solutions/
20.	exp *plasma substitutes/
21.	exp *isotonic solutions/
22.	(sodium or salin* or hartman* or ringer* or lactate* or acetate* or plasmalyte* or plasma-lyte*).ti,ab.
23.	(crystalloid* or isotonic).ti,ab.
24.	exp *crystalloid/
25.	((balanced or physiologic*) adj2 (fluid* or solution*)).ti,ab.
26.	or/8-25
27.	1 and 7 and 26

2

Cochrane search terms

#1.	<i>standard trauma population (see F.2.1)</i>
#2.	MeSH descriptor: [hemorrhage] this term only
#3.	MeSH descriptor: [exsanguination] this term only
#4.	MeSH descriptor: [shock] this term only
#5.	MeSH descriptor: [shock, traumatic] this term only

#6.	MeSH descriptor: [shock, hemorrhagic] this term only
#7.	MeSH descriptor: [hypovolemia] this term only
#8.	(haemorrhag* or hemorrhag* or hypovolem* or hypovolaem* or shock or exsanguin* or oligem* or oligam* or hypoperfus*):ti,ab
#9.	(coagulopath* or (abnormal* near/2 coagulation) or hyperfibrinolysis):ti,ab
#10.	(bleed* or bloodloss*):ti,ab
#11.	blood* near/3 loss*:ti,ab
#12.	{or #2-#11}
#13.	((red blood cell* or rbc or prbc or red cell* or blood or packed cell* or erythrocyte* or fluid* or volum* or plasma*) near/5 (therap* or transfus* or replac* or resuscita* or substitut* or restor* or deficien* or replenish*)):ti,ab
#14.	MeSH descriptor: [plasma] explode all trees
#15.	((ffp or frozen or thawed or tp or fresh) near/3 plasma):ti,ab
#16.	(albumin or zenalb or octaplas*) .ti,ab.
#17.	((lyophilized or freeze-dried or liquid or "not frozen" or "never frozen") near/3 plasma):ti,ab
#18.	(fdsp or fdp or lqp or lhp):ti,ab
#19.	((balanced or physiologic*) near/2 (fluid* or solution*)):ti,ab
#20.	(crystalloid* or isotonic):ti,ab
#21.	(sodium or salin* or hartman* or ringer* or lactate* or acetate* or plasmalyte* or plasma-lyte*):ti,ab
#22.	MeSH descriptor: [freeze drying] explode all trees
#23.	MeSH descriptor: [sodium chloride] explode all trees
#24.	MeSH descriptor: [fluid therapy] explode all trees
#25.	MeSH descriptor: [rehydration solutions] explode all trees
#26.	MeSH descriptor: [plasma substitutes] explode all trees
#27.	MeSH descriptor: [isotonic solutions] explode all trees
#28.	{or #13-#27}
#29.	#1 and #12 and #28
#30.	MeSH descriptor: [blood transfusion] this term only
#31.	MeSH descriptor: [blood component transfusion] explode all trees
#32.	MeSH descriptor: [exchange transfusion, whole blood] this term only
#33.	MeSH descriptor: [plasma exchange] this term only
#34.	{or #30-#33}
#35.	#29 or #34

1 F.4.15 Haemorrhage protocols

2 19.What type of major haemorrhage protocol is the most clinically and cost effective for improving
3 outcomes in patients with major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Major haemorrhage protocol	n/a	n/a	See Table 161 Date of last search: 31/03/2015 English only

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				Exclusion filter applied in Medline and Embase

1 **Medline search terms**

1.	clinical protocols/
2.	exp hemorrhage/ or exp blood transfusion/
3.	1 and 2
4.	((h?emorrhag* or transfus*) adj4 protocol*).ti,ab.
5.	(mhp* or mtp*).ti,ab.
6.	(strateg* adj3 transfus*).ti,ab.
7.	((target* or empiric*) adj3 (transfus* or h?emorrhag*)).ti,ab.
8.	or/4-7
9.	3 or 8

2 **Embase search terms**

1.	*clinical protocol/
2.	exp bleeding/ or exp blood transfusion/
3.	1 and 2
4.	((h?emorrhag* or transfus*) adj4 protocol*).ti,ab.
5.	(mhp* or mtp*).ti,ab.
6.	(strateg* adj3 transfus*).ti,ab.
7.	((target* or empiric*) adj3 (transfus* or h?emorrhag*)).ti,ab.
8.	or/4-7
9.	3 or 8

3 **Cochrane search terms**

#1.	MeSH descriptor: [clinical protocols] this term only
#2.	MeSH descriptor: [hemorrhage] explode all trees
#3.	MeSH descriptor: [blood transfusion] explode all trees
#4.	{or #2-#3}
#5.	#1 and #4
#6.	((haemorrhag* or hemorrhag* or transfus*) near/4 protocol*).ti,ab
#7.	(mhp* or mtp*).ti,ab
#8.	(strateg* near/3 transfus*).ti,ab
#9.	((target* or empiric*) near/3 (transfus* or haemorrhag* or hemorrhag*)).ti,ab
#10.	{or #6-#9}
#11.	#5 or #10

4 **F.4.16 Haemorrhage imaging**

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

6 20.What is the diagnostic accuracy of imaging strategies for detecting life threatening internal
7 haemorrhage in major trauma patients?

1 21.What are the most clinically and cost effective imaging strategies for detecting life threatening
2 internal haemorrhage in major trauma patients?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Haemorrhage AND Imaging	n/a	The following filters were used in Medline and Embase only: DIAG, OBS, RCT, SR	See Table 161 Date of last search: 01/04/2015 English only Exclusion filter applied in Medline and Embase

5 **Medline search terms**

1.	hemorrhage/ or exsanguination/ or shock/ or shock, hemorrhagic/ or shock, traumatic/ or hypovolemia/
2.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus*).ti,ab.
3.	(blood* adj3 loss*).ti,ab.
4.	(bleed* or bloodloss*).ti,ab.
5.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
6.	aortic rupture/
7.	vascular system injuries/
8.	((aort* or arter* or vessel*) adj3 (rupture* or disrupt* or injur* or trans?ct* or tear or torn or dissect*).ti,ab.
9.	((venous or vascular) adj injur*).ti,ab.
10.	or/1-9
11.	radiography/ or tomography/ or exp tomography, x-ray/ or ultrasonography/ or exp ultrasonography, doppler/ or whole body imaging/
12.	(x ray* or xray* or mdct* or ct or radiograph*).ti,ab.
13.	(cat adj (scan* or imag*)).ti,ab.
14.	(compute* adj2 tomograph*).ti,ab.
15.	(fast or sonograph* or ultrasonography* or ultrasound* or efast or e-fast).ti,ab.
16.	or/11-15
17.	10 and 16

6 **Embase search terms**

1.	exp *hypovolemia/ or *hemorrhagic shock/ or *traumatic shock/ or exp *bleeding/ or *exsanguination/
2.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus*).ti,ab.
3.	(bleed* or bloodloss*).ti,ab.
4.	(blood* adj3 loss*).ti,ab.
5.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
6.	aortic rupture/
7.	vascular system injuries/
8.	((aort* or arter* or vessel*) adj3 (rupture* or disrupt* or injur* or trans?ct* or tear or torn or dissect*).ti,ab.

9.	((venous or vascular) adj injur*).ti,ab.
10.	or/1-9
11.	exp *radiodiagnosis/
12.	(x ray* or xray* or mdct* or ct or radiograph*).ti,ab.
13.	(cat adj (scan* or imag*)).ti,ab.
14.	(compute* adj2 tomograph*).ti,ab.
15.	(fast or sonograph* or ultrasonography* or ultrasound* or efast or e-fast).ti,ab.
16.	or/11-15
17.	10 and 16

1

Cochrane search terms

#1.	MeSH descriptor: [hemorrhage] this term only
#2.	MeSH descriptor: [exsanguination] this term only
#3.	MeSH descriptor: [shock] this term only
#4.	MeSH descriptor: [shock, hemorrhagic] this term only
#5.	MeSH descriptor: [shock, traumatic] this term only
#6.	MeSH descriptor: [hypovolemia] this term only
#7.	(haemorrhag* or hemorrhag* or hypovolem* or hypovolaem* or shock or exsanguin* or oligem* or oligam* or hypoperfus*):ti,ab
#8.	(bleed* or bloodloss*):ti,ab
#9.	blood* near/3 loss*:ti,ab
#10.	(coagulopath* or hyperfibrinolysis):ti,ab
#11.	abnormal* near/2 coagulation:ti,ab
#12.	MeSH descriptor: [aortic rupture] this term only
#13.	MeSH descriptor: [vascular system injuries] this term only
#14.	((aort* or arter* or vessel*) near/33 (rupture* or disrupt* or injur* or trans?ct* or tear or torn or dissect*)):ti,ab
#15.	((venous or vascular) next injur*):ti,ab
#16.	{or #1-#15}
#17.	MeSH descriptor: [radiography] explode all trees
#18.	(x ray* or xray* or mdct* or ct or radiograph*).ti,ab
#19.	(cat near/2 (scan* or imag*)):ti,ab
#20.	(compute* near/2 tomograph*):ti,ab
#21.	(fast or sonograph* or ultrasonography* or ultrasound* or efast or e next fast):ti,ab
#22.	{or #17-#21}
#23.	#16 and #22

2 F.4.17 Whole body CT

3 22.What is the clinical and cost-effectiveness of whole-body CT in the initial management of major
4 trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Whole body imaging	n/a	n/a	See Table 161 Date of last

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				search: 25/02/2015 English only Exclusion filter applied in Medline and Embase

1

Medline search terms

1.	exp tomography, x-ray computed/
2.	(cat adj (scan* or imag*)).ti,ab.
3.	(compute* adj2 tomograph*).ti,ab.
4.	(mdct* or ct).ti,ab.
5.	or/1-4
6.	((full or whole or total or entire or complete or head to toe) adj2 (body or bodies or patient* or casual*)).ti,ab.
7.	pan.ti,ab.
8.	or/6-7
9.	5 and 8
10.	whole body imaging/
11.	fbct.ti,ab.
12.	((full or whole or total or pan or head to toe or entire or complete) adj6 (mdct* or ct or tomograph* or cat scan*)).ti,ab.
13.	or/10-12
14.	9 or 13

2

Embase search terms

1.	exp computer assisted tomography/
2.	(cat adj (scan* or imag*)).ti,ab.
3.	(compute* adj2 tomograph*).ti,ab.
4.	(mdct* or ct).ti,ab.
5.	or/1-4
6.	((full or whole or total or entire or complete or head to toe) adj2 (body or bodies or patient* or casual*)).ti,ab.
7.	pan.ti,ab.
8.	or/6-7
9.	5 and 8
10.	whole body imaging/
11.	fbct.ti,ab.
12.	((full or whole or total or pan or head to toe or entire or complete) adj6 (mdct* or ct or tomograph* or cat scan*)).ti,ab.
13.	or/10-12
14.	9 or 13

3

Cochrane search terms

#1.	MeSH descriptor: [tomography, x-ray computed] explode all trees
#2.	(cat near/2 (scan* or imag*)).ti,ab

#3.	(compute* near/2 tomograph*):ti,ab
#4.	(mdct* or ct):ti,ab
#5.	{or #1-#4}
#6.	((full or whole or total or entire or complete) near/2 (body or bodies or patient* or casual*)):ti,ab
#7.	pan:ti,ab
#8.	{or #6-#7}
#9.	#5 and #8
#10.	MeSH descriptor: [whole body imaging] this term only
#11.	fbct:ti,ab
#12.	((full or whole or total or pan or entire or complete) near (mdct* or ct or tomograph* or cat scan*)):ti,ab
#13.	{or #10-#12}
#14.	#9 or #13

1 **F.4.18 Damage control surgery**

2 23. What are the most clinically and cost effective surgical intervention strategies in the major trauma
3 patient with active haemorrhage (damage control versus definitive surgery)?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Surgical interventions strategy	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 161 Date of last search: 26/03/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	(damage adj3 control*).ti,ab.
2.	((control* or manag* or stop* or decreas* or minimis* or fix* or reduc* or less* or ease*) adj4 (haemorrhag* or hemorrhag* or bleed* or bloodloss* or blood loss* or coagulopath*) adj4 (lap?rotom* or surg*)):ti,ab.
3.	(abbrev* adj4 (lap?rotom* or surg*)):ti,ab.
4.	(abdom* adj4 (repack* or re-pack* or pack* or clos*)):ti,ab.
5.	or/1-4

7 **Embase search terms**

1.	(damage adj3 control*).ti,ab.
2.	((control* or manag* or stop* or decreas* or minimis* or fix* or reduc* or less* or ease*) adj4 (haemorrhag* or hemorrhag* or bleed* or bloodloss* or blood loss* or coagulopath*) adj4 (lap?rotom* or surg*)):ti,ab.
3.	(abbrev* adj4 (lap?rotom* or surg*)):ti,ab.
4.	(abdom* adj4 (repack* or re-pack* or pack* or clos*)):ti,ab.
5.	or/1-4

1

Cochrane search terms

#1.	damage near/3 control*.ti,ab
#2.	((control* or manag* or stop* or decreas* or minimis* or fix* or reduc* or less* or ease*) near/4 (haemorrhag* or hemorrhag* or bleed* or bloodloss* or blood loss* or coagulopath*) near/4 (lap?rotom* or surg*)):ti,ab
#3.	(abbrev* near/4 (lap?rotom* or surg*)):ti,ab
#4.	abdom* adj4 (repack* or re-pack* or pack* or clos*) .ti,ab.
#5.	{or #1-#4}

2 F.4.19 Interventional radiology

3 24.Is the use of interventional radiology for definitive haemorrhage control in major trauma patients
4 clinically and cost effective?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1) AND Haemorrhage or pelvic or abdominal injuries	Interventional radiology	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

7

Medline search terms

1.	<i>standard trauma population (see F.2.1)</i>
2.	hemorrhage/ or exsanguination/ or shock/ or shock, hemorrhagic/ or shock, traumatic/ or hypovolemia/
3.	(hypovol?em* or shock or exsanguin* or olig?em* or h?emorrhag* or hypoperfus*).ti,ab.
4.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
5.	(bleed* or bloodloss*).ti,ab.
6.	(blood* adj3 loss*).ti,ab.
7.	aortic rupture/
8.	vascular system injuries/
9.	((venous or arterial or vascular* or circulat*) adj3 (injur* or problem* or compromise*)):ti,ab.
10.	((aort* or arter* or vessel*) adj3 (rupture* or disrupt* or injur* or trans#ct* or tear or torn or dissect*)):ti,ab.
11.	pelvic bones/ and fractures, bone/
12.	((pelvic or pelvis) adj3 (trauma* or injur* or rupture* or tear*)):ti,ab.
13.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
14.	abdominal injuries/
15.	spleen/in [injuries]
16.	liver/in [injuries]

17.	kidney/in [injuries]
18.	((abdomen or abdominal or stomach or splen* or spleen* or diaphragm* or gastric* or kidney* or renal or liver* or hepatic or organ*) adj3 (trauma* or injur* or rupture* or tear*)).ti,ab.
19.	or/2-18
20.	radiology, interventional/ or embolization, therapeutic/ or radiography, interventional/
21.	((therapeutic* or vascular or surgical) adj3 (radiolog* or radiogra*)).ti,ab.
22.	(intervention* adj3 (radiolog* or radiogra* or therap* or treatment*)).ti,ab.
23.	catheterization/ or balloon occlusion/ or catheterization, central venous/
24.	angioplasty/ or exp angioplasty, balloon/
25.	mechanical thrombolysis/
26.	portasystemic shunt, transjugular intrahepatic/
27.	stents/
28.	(embolization* or embolotherap* or stent* or gelfoam or gel foam* or spongstan or plug* or balloon* or amplatzer or mechanic* occlu* or thrombin* or embolic* or coil or coiling or microcoil* or particle*).ti,ab.
29.	(polyvinyl alcohol or pva or microsphere* or tagm or embosphere* or embozene or bead block* or quadra spheres or hydrogel or n-butyl cyanoacrylate or ethylene vinyl alcohol copolymer).ti,ab.
30.	tae.ti,ab.
31.	(gelatin adj2 sponge*).ti,ab.
32.	percutaneous.ti,ab.
33.	(portasystemic shunt* or tips).ti,ab.
34.	thrombolys*.ti,ab.
35.	angioplast*.ti,ab.
36.	(catheter* or transcatheter* or microcatheter*).ti,ab.
37.	(minimally invasive or non-invasive or noninvasive).ti,ab.
38.	((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) adj2 guided).ti,ab.
39.	arteriogra*.ti,ab.
40.	angiography/
41.	angiogra*.ti,ab.
42.	endovascular procedures/
43.	endovascular.ti,ab.
44.	((venous or vascular or intravascular) adj3 access).ti,ab.
45.	endovenous.ti,ab.
46.	or/20-45
47.	1 and 19 and 46

1

Embase search terms

1.	<i>standard trauma population (see F.2.1)</i>
2.	exp *hypovolemia/ or *hemorrhagic shock/ or *traumatic shock/ or exp *bleeding/ or *exsanguination/
3.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus*).ti,ab.
4.	(bleed* or bloodloss*).ti,ab.
5.	(blood* adj3 loss*).ti,ab.
6.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
7.	*aorta rupture/

8.	*aorta injury/
9.	*blood vessel injury/
10.	((aort* or arter* or vessel*) adj3 (rupture* or disrupt* or injur* or trans#ct* or tear or torn or dissect*)).ti,ab.
11.	((venous or arterial or vascular* or circulat*) adj3 (injur* or problem* or compromise*)).ti,ab.
12.	exp pelvis fracture/
13.	((pelvic or pelvis) adj3 (trauma* or injur* or rupture* or tear*)).ti,ab.
14.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
15.	*abdominal injury/ or *abdominal blunt trauma/ or *abdominal organ rupture/ or *abdominal penetrating trauma/ or *spleen injury/ or *digestive system injury/ or *digestive system perforation/ or *digestive system rupture/ or *liver injury/ or *stomach injury/ or *kidney injury/
16.	((abdomen or abdominal or stomach or splen* or spleen* or diaphragm* or gastric* or kidney* or renal or liver* or hepatic or organ*) adj3 (trauma* or injur* or rupture* or tear*)).ti,ab.
17.	or/2-16
18.	nonsurgical invasive therapy/ or exp artificial embolism/ or balloon dilatation/ or interventional cardiovascular procedure/ or interventional radiology/
19.	*catheterization/ or *balloon embolectomy/ or exp *blood vessel catheterization/ or exp *endovascular surgery/ or *angiography/ or *arteriography/
20.	*stent/ or exp *cardiovascular stent/ or *metal stent/ or *nitinol stent/ or *plastic stent/ or *self expanding stent/
21.	angioplasty/ or patch angioplasty/
22.	transjugular intrahepatic portosystemic shunt/
23.	blood clot lysis/
24.	central venous catheterization/
25.	vein catheterization/ or blood vessel catheterization/
26.	vascular access/
27.	((therapeutic* or vascular or surgical) adj3 (radiolog* or radiogra*)).ti,ab.
28.	(intervention* adj3 (radiolog* or radiogra* or therap* or treatment*)).ti,ab.
29.	(emboli?ation* or embolotherap* or stent* or gelfoam or gel foam* or spongstan or plug* or balloon* or amplatzer or mechanic* occlu* or thrombin* or embolic* or coil or coiling or microcoil* or particle*).ti,ab.
30.	(polyvinyl alcohol or pva).ti,ab.
31.	(microsphere* or tagm or embosphere* or embozene or bead block* or quadra spheres or hydrogel).ti,ab.
32.	n-butyl cyanoacrylate.ti,ab.
33.	ethylene vinyl alcohol copolymer.ti,ab.
34.	tae.ti,ab.
35.	(gelatin adj2 sponge*).ti,ab.
36.	percutaneous.ti,ab.
37.	(portasystemic shunt* or tips).ti,ab.
38.	thrombolys*.ti,ab.
39.	angioplast*.ti,ab.
40.	(catheter* or transcatheter* or microcatheter*).ti,ab.
41.	(minimally invasive or non-invasive or noninvasive).ti,ab.

42.	((ct or ultrasound* or image or tomography or mdct or us or angiograph* or fluoroscop*) adj2 guided).ti,ab.
43.	arteriogra*.ti,ab.
44.	arteriography/
45.	angiogra*.ti,ab.
46.	angiography/
47.	endovascular.ti,ab.
48.	endovascular surgery/
49.	((venous or vascular or intravascular) adj3 access).ti,ab.
50.	endovenous.ti,ab.
51.	or/18-50
52.	1 and 17 and 51

1

Cochrane search terms

#1.	<i>standard trauma population (see F.2.1)</i>
#2.	MeSH descriptor: [hemorrhage] this term only
#3.	MeSH descriptor: [exsanguination] this term only
#4.	MeSH descriptor: [shock] this term only
#5.	MeSH descriptor: [shock, hemorrhagic] this term only
#6.	MeSH descriptor: [shock, traumatic] this term only
#7.	MeSH descriptor: [hypovolemia] this term only
#8.	(haemorrhag* or hemorrhag* or hypovolem* or hypovolaem* or shock or exsanguin* or oligem* or oligam* or hypoperfus*):ti,ab
#9.	(bleed* or bloodloss*):ti,ab
#10.	blood* near/3 loss*:ti,ab
#11.	(coagulopath* or hyperfibrinolysis):ti,ab
#12.	abnormal* near/2 coagulation:ti,ab
#13.	MeSH descriptor: [aortic rupture] this term only
#14.	MeSH descriptor: [vascular system injuries] this term only
#15.	((aort* or arter* or vessel*) near/3 (rupture* or disrupt* or injur* or transect* or transact* or tear or torn or dissect*)):ti,ab
#16.	((venous or arterial or vascular* or circulat*) near/3 (injur* or problem* or compromise*)) .ti,ab
#17.	MeSH descriptor: [pelvic bones] this term only
#18.	MeSH descriptor: [fractures, bone] this term only
#19.	((pelvic or pelvis) near/3 (trauma* or injur* or rupture* or tear*)):ti,ab
#20.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) near/3 (fracture* or break or breaks or broken or crack* or frx)):ti,ab
#21.	MeSH descriptor: [abdominal injuries] this term only
#22.	MeSH descriptor: [spleen] this term only and with qualifier(s): [injuries - in]
#23.	MeSH descriptor: [liver] this term only and with qualifier(s): [injuries - in]
#24.	MeSH descriptor: [kidney] this term only and with qualifier(s): [injuries - in]
#25.	((abdomen or abdominal or stomach or splen* or spleen* or diaphragm* or gastric* or kidney* or renal or liver* or hepatic or organ*) near/3 (trauma* or injur* or rupture* or tear*)):ti,ab
#26.	{or #2-#25}

#27.	MeSH descriptor: [radiology, interventional] this term only
#28.	MeSH descriptor: [embolization, therapeutic] this term only
#29.	MeSH descriptor: [radiography, interventional] this term only
#30.	((therapeutic* or vascular or surgical) near/3 (radiolog* or radiogra*)) .ti,ab.
#31.	(intervention* near/3 (radiolog* or radiogra* or therap* or treatment*)):ti,ab
#32.	MeSH descriptor: [catheterization] this term only
#33.	MeSH descriptor: [balloon occlusion] this term only
#34.	MeSH descriptor: [catheterization, central venous] this term only
#35.	MeSH descriptor: [angioplasty] this term only
#36.	MeSH descriptor: [angioplasty, balloon] explode all trees
#37.	MeSH descriptor: [mechanical thrombolysis] this term only
#38.	MeSH descriptor: [portasystemic shunt, transjugular intrahepatic] this term only
#39.	(emboli?ation* or embolotherap* or stent* or gelfoam or spongstan or plug* or balloon* or amplatzer or thrombin* or embolic* or coil or coiling or microcoil* or particle*):ti,ab
#40.	gel next foam*:ti,ab
#41.	mechanic* next occlu*:ti,ab
#42.	gelatin near/2 sponge*:ti,ab
#43.	percutaneous:ti,ab
#44.	(portasystemic shunt* or tips):ti,ab
#45.	thrombolys*:ti,ab
#46.	angioplast*:ti,ab
#47.	(catheter* or transcatheter* or microcatheter*):ti,ab
#48.	minimally next invasive:ti,ab
#49.	non next invasive:ti,ab
#50.	noninvasive:ti,ab
#51.	((ct or ultrasound* or image or tomography or mdct or us or angiograph* or fluoroscop*) near/2 (guided)):ti,ab
#52.	MeSH descriptor: [stents] this term only
#53.	angiogra*:ti,ab
#54.	arteriogra*:ti,ab
#55.	MeSH descriptor: [angiography] this term only
#56.	endovascular:ti,ab
#57.	MeSH descriptor: [endovascular procedures] this term only
#58.	((venous or vascular or intravascular) near/3 access):ti,ab
#59.	endovenous:ti,ab
#60.	{or #27-#59}
#61.	#1 and #26 and #60

1 **F.4.20 Coagulation testing**

2 25.Is the use of point of care coagulation testing versus laboratory coagulation testing clinically and
3 cost effective in patients with major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
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Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Coagulation testing	n/a	The following filters were used in Medline and Embase only: DIAG, OBS, RCT, SR	See Table 161 Date of last search: 27/03/2015 English only Exclusion filter applied in Medline and Embase

1

Medline search terms

1.	exp blood coagulation tests/
2.	(coagul* or anticoagul* or act).ti,ab.
3.	(international normali?ed ratio or inr).ti,ab.
4.	(partial thromboplastin time or ptt or aptt or pt).ti,ab.
5.	((prothrombin or bleed* or clot* or thrombin or blood) adj2 time).ti,ab.
6.	platelet count/
7.	(platelet* adj4 (count* or test* or assess* or function* or analys* or analyz* or check* or measure* or detect* or exam* or map*)).ti,ab.
8.	or/1-7
9.	(point of care or poc or poct).ti,ab.
10.	(bedside or bed side or hand-held or handheld or mobile or portable).ti,ab.
11.	((extra or satellite) adj2 (clinic or clinics or lab*)).ti,ab.
12.	(turnaround time or tat or ttat).ti,ab.
13.	on site.ti,ab.
14.	((near* or proxim* or close* or site) adj2 patient*).ti,ab.
15.	or/9-14
16.	8 and 15
17.	(thromboelast* or teg or rotem or rapidteg or r-teg or rteg).ti,ab.
18.	(rapidteg or kaolinteg or fibrinogenteg or ffteg).ti,ab.
19.	impact cone*.ti,ab.
20.	((viscoelastic or visco-elastic) adj4 (test* or assess* or check* or measure* or analys* or analyz* or detect* or exam*)).ti,ab.
21.	(multiplate or pfa-100 or verifynow or sonoclot or hemochron or hemotec or coagucheck or coaguchek or platelet works or coagusense or coagu-sense or hemachron or protime or inratio or actalyke or gem or act ii or hms or rapidpoint).ti,ab.
22.	(aggrogomet* adj4 (test* or assess* or check* or measure* or analys* or analyz* or detect* or exam*)).ti,ab.
23.	or/17-22
24.	16 or 23

2

Embase search terms

1.	*blood clotting/
2.	*blood clotting test/
3.	*blood clotting parameters/ or *bleeding time/ or *blood clotting time/ or *international normalized ratio/ or *partial thromboplastin time/ or *prothrombin time/ or *thrombin time/ or *thromboplastin time/

4.	(coagul* or anticoagul* or act).ti,ab.
5.	(international normali?ed ratio or inr).ti,ab.
6.	(partial thromboplastin time or ptt or aptt or pt).ti,ab.
7.	((prothrombin or bleed* or clot* or thrombin or blood) adj2 time).ti,ab.
8.	thrombocyte count/
9.	(platelet* adj4 (count* or test* or assess* or function* or analys* or analyz* or check* or measure* or detect* or exam* or map*)).ti,ab.
10.	or/1-9
11.	(point of care or poc or poct).ti,ab.
12.	(bedside or bed side or hand-held or handheld or mobile or portable).ti,ab.
13.	((extra or satellite) adj2 (clinic or clinics or lab*)).ti,ab.
14.	(turnaround time or tat or ttat).ti,ab.
15.	on site.ti,ab.
16.	((near* or proxim* or close* or site) adj2 patient*).ti,ab.
17.	or/11-16
18.	10 and 17
19.	(thromboelast* or teg or rotem or rapidteg or r-teg or rteg).ti,ab.
20.	(rapidteg or kaolinteg or fibrinogenteg or ffteg).ti,ab.
21.	impact cone*.ti,ab.
22.	((viscoelastic or visco-elastic) adj4 (test* or assess* or check* or measure* or analys* or analyz* or detect* or exam*)).ti,ab.
23.	(multiplate or pfa-100 or verifynow or sonoclot or hemochron or hemotec or coagucheck or coaguchek or platelet works or coagusense or coagu-sense or hemachron or protime or inratio or actalyke or gem or act ii or hms or rapidpoint).ti,ab.
24.	(aggrogemet* adj4 (test* or assess* or check* or measure* or analys* or analyz* or detect* or exam*)).ti,ab.
25.	or/19-24
26.	18 or 25

1

Cochrane search terms

#1.	MeSH descriptor: [blood coagulation tests] explode all trees
#2.	(coagul* or anticoagul* or act):ti,ab
#3.	(international next normalised next ratio or international next normalized next ratio):ti,ab
#4.	inr:ti,ab
#5.	"partial thromboplastin time":ti,ab
#6.	(ptt or aptt or pt):ti,ab
#7.	((prothrombin or bleed* or clot* or thrombin or blood) near/2 time):ti,ab
#8.	MeSH descriptor: [platelet count] this term only
#9.	(platelet* near/4 (count* or test* or assess* or function* or analys* or analyz* or check* or measure* or detect* or exam* or map*)).ti,ab
#10.	{or #1-#9}
#11.	(point of care or poc or poct):ti,ab
#12.	(bedside or bed side or hand-held or handheld or mobile or portable):ti,ab
#13.	((extra or satellite) near/2 (clinic or clinics or lab*)).ti,ab
#14.	(turnaround time or tat or ttat):ti,ab
#15.	on site:ti,ab
#16.	((near* or proxim* or close* or site) adj2 patient*) .ti,ab

#17.	{or #11-#16}
#18.	#10 and #17
#19.	(thromboelast* or teg or rotem or rapidteg or r-teg or rteg):ti,ab
#20.	(rapidteg or kaolinteg or fibrinogenteg or ffteg):ti,ab
#21.	impact next (cone or cones):ti,ab
#22.	(plate* next (analyzer or analyser)):ti,ab
#23.	((viscoelastic or visco-elastic) near/4 (test* or assess* or check* or measure* or analys* or analyz* or detect* or exam*)):ti,ab
#24.	(multiplate or verifynow or sonoclot or hemochron or hemotec or coagucheck or coaguchek or coagusense or hemachron or protime or inratio or actalyke or gem or hms or rapidpoint):ti,ab
#25.	"platelet works":ti,ab
#26.	"coagu-sense":ti,ab
#27.	"pfa-100":ti,ab
#28.	"act ii":ti,ab
#29.	(aggrogomet* near/4 (test* or assess* or check* or measure* or analys* or analyz* or detect* or exam*)):ti,ab
#30.	{or #19-#29}
#31.	#18 or #30

1 **F.4.21 Frequency of blood testing**

2 26.Does greater frequency of monitoring blood tests (including coagulation point of care versus
3 laboratory tests) result in improved outcomes for people with suspected haemorrhage following a
4 major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Blood monitoring tests	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

7 **Medline search terms**

1.	exp blood coagulation tests/
2.	blood coagulation/
3.	bleeding time/
4.	((coagul* or anticoagul* or act) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab.
5.	((international normali?ed ratio or inr) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab.
6.	((partial thromboplastin time or ptt or aptt or pt or aptr) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or

	verif* or assay or monitor* or detect*).ti,ab.
7.	((prothrombin or clot* or thrombin or bleed*) adj2 time* adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
8.	((thromboelastography or teg) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
9.	platelet count/
10.	((platelet count or thrombocyte count) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
11.	hemoglobins/
12.	((hemoglobin* or haemoglobin*) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
13.	hematocrit/
14.	(volume* adj2 (red cell or erythrocyte) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
15.	((hematocrit* or haematocrit*) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
16.	lactic acid/
17.	((lactate or lactic) adj3 (analys* or analyze* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay).ti,ab.
18.	acid-base equilibrium/
19.	acid-base imbalance/
20.	blood gas analysis/
21.	(base adj (imbalance or balance or equilibrium or excess or deficit) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
22.	(blood adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
23.	hematologic tests/
24.	((haematolog* or hematolog*) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
25.	hemostasis/
26.	((hemostasis or haemostasis) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*).ti,ab.
27.	or/1-26
28.	time factors/ or (timing or time* or frequency or frequent* or regular* or rate* or constant* or hour* or minute* or sequen* or stage*).ti,ab.
29.	27 and 28

1

Embase search terms

1.	exp *blood clotting test/
2.	*blood clotting/
3.	exp *blood clotting parameters/

4.	*thrombocyte count/
5.	*thromboelastography/
6.	((coagul* or anticoagul* or act) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
7.	((international normali?ed ratio or inr) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
8.	((partial thromboplastin time or ptt or aptt or pt or aprt) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
9.	((prothrombin or clot* or thrombin or bleed*) adj2 time* adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
10.	((thromboelastography or teg) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
11.	((platelet count or thrombocyte count) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
12.	*hemoglobin/
13.	((hemoglobin* or haemoglobin*) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
14.	*hematocrit/
15.	(volume* adj2 (red cell or erythrocyte) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
16.	((hematocrit* or haematocrit*) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
17.	*lactic acid/
18.	((lactate or lactic) adj3 (analys* or analyze* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay)).ti,ab.
19.	*acid base balance/
20.	*"disorders of acid base balance"/
21.	*blood gas analysis/
22.	(base adj (imbalance or balance or equilibrium or excess or deficit) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
23.	*blood examination/
24.	*hemostasis/
25.	(blood adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
26.	((haematolog* or hematolog*) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
27.	((hemostasis or haemostasis) adj3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)).ti,ab.
28.	or/1-27

29.	exp time/ or (timing or time* or frequency or frequent* or regular* or rate* or constant* or hour* or minute* or sequen* or stage*).ti,ab.
30.	28 and 29

1

Cochrane search terms

#1.	MeSH descriptor: [blood coagulation tests] explode all trees
#2.	MeSH descriptor: [blood coagulation] this term only
#3.	MeSH descriptor: [bleeding time] this term only
#4.	((coagul* or anticoagul* or act) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#5.	((thromboelastography or teg) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#6.	((international normali?ed ratio or inr) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#7.	((partial thromboplastin time or ptt or aptt or pt or aprt) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#8.	((prothrombin or clot* or thrombin or bleed*) near/2 time* near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#9.	MeSH descriptor: [platelet count] this term only
#10.	((platelet count or thrombocyte count) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#11.	MeSH descriptor: [hemoglobins] this term only
#12.	((hemoglobin* or haemoglobin*) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#13.	MeSH descriptor: [hematocrit] this term only
#14.	(volume* near/2 (red cell or erythrocyte) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#15.	((hematocrit* or haematocrit*) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#16.	MeSH descriptor: [lactic acid] this term only
#17.	((lactate or lactic) near/3 (analys* or analyze* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay)):ti,ab
#18.	MeSH descriptor: [acid-base equilibrium] this term only
#19.	MeSH descriptor: [acid-base imbalance] this term only
#20.	MeSH descriptor: [blood gas analysis] this term only
#21.	((base) next (imbalance or balance equilibrium or excess or deficit) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#22.	(blood near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#23.	MeSH descriptor: [hematologic tests] this term only
#24.	((haematolog* or hematolog*) near/3 (analys* or analyz* or test* or investigat* or evaluat* or

	examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#25.	MeSH descriptor: [hemostasis] this term only
#26.	((hemostasis or haemostasis) near/3 (analys* or analyz* or test* or investigat* or evaluat* or examin* or check* or assess* or measur* or diagnos* or identif* or verif* or assay or monitor* or detect*)):ti,ab
#27.	{or #1-#26}
#28.	(timing or time* or frequency or frequent* or regular* or rate* or constant* or hour* or minute* or sequen* or stage*):ti,ab
#29.	MeSH descriptor: [time factors] explode all trees
#30.	{or #28-#29}
#31.	#27 and #30

1 **F.4.22 Lactate levels**

2 27.Does monitoring of lactate levels to guide management of hypovolaemic shock improve
3 outcomes?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1) AND Haemorrhage (F.2.2)	Monitoring lactate levels	n/a		See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	lactic acid/
2.	(lactic* or lactate*).ti,ab.
3.	or/1-2

7 **Embase search terms**

1.	lactic acid/
2.	(lactic* or lactate*).ti,ab.
3.	or/1-2

8 **Cochrane search terms**

#1.	MeSH descriptor: [lactic Acid] this term only
#2.	(lactic* or lactate*):ti,ab
#3.	{or #1-#2}

9 **F.4.23 Warming**

10 28.Is warming clinically and cost effective in people who have experienced major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Warming	n/a	The following filters were used in Medline and Embase only: RCT, SR	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

1 **Medline search terms**

1.	rewarming/
2.	(rewarm* or re-warm* or warm*).ti,ab.
3.	1 or 2

2 **Embase search terms**

1.	(rewarm* or re-warm* or warm*).ti,ab.
2.	*warming/
3.	1 or 2

3 **Cochrane search terms**

#1.	MeSH descriptor: [rewarming] this term only
#2.	(rewarm* or warm* or re next warm or re-warm):ti,ab
#3.	{or #1-#2}

4 **F.4.24 Pain assessment**

5 29.What is the most appropriate pain assessment tool (pre-hospital and hospital) in patients with
6 major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Pain assessment tools	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 161 Date of last search: 26/03/2015 English only Exclusion filter applied in Medline and Embase

9 **Medline search terms**

1.	pain measurement/
2.	((((illustrative or faces or numeric or visual or pictorial or verbal or nonverbal or multidimensional or behaviour* or behavior* or subjective or numeric* or visual) adj4 (scale* or score* or scoring or rating or rate* or tool* or instrument* or question*))) and pain).ti,ab.
3.	(pain adj4 (assess* or evaluat* or measur* or scoring or score* or scale* or rating* or tool* or instrument* or testing or test or tests or question* or checklist* or inventor*).ti,ab.

4.	(pain adj4 (self report* or patient* report*)).ti,ab.
5.	((wong-baker or "wong and baker") and pain).ti,ab.
6.	numeric pain intensity.ti,ab.
7.	((color analog scale* or color analogue scale* or colour analogue scale* or colour analog scale*) and pain).ti,ab.
8.	((alder hey triage or ahttps) and pain).ti,ab.
9.	brief pain inventory.ti,ab.
10.	(functional activity score* and pain).ti,ab.
11.	or/1-10

1

Embase search terms

1.	pain assessment/
2.	(pain adj4 (assess* or evaluat* or measur* or scoring or score* or scale* or rating* or tool* or instrument* or testing or test or tests or question* or checklist* or inventor*)).ti,ab.
3.	((illustrative or faces or numeric or visual or pictorial or verbal or nonverbal or multidimensional or behaviour* or behavior* or subjective or numeric* or visual) adj4 (scale* or score* or scoring or rating or rate* or tool* or instrument* or question*)) and pain).ti,ab.
4.	(pain adj4 (self report* or patient* report*)).ti,ab.
5.	((wong-baker or "wong and baker") and pain).ti,ab.
6.	numeric pain intensity.ti,ab.
7.	((color analog scale* or color analogue scale* or colour analogue scale* or colour analog scale*) and pain).ti,ab.
8.	((alder hey triage or ahttps) and pain).ti,ab.
9.	brief pain inventory.ti,ab.
10.	(functional activity score* and pain).ti,ab.
11.	or/1-10

2

Cochrane search terms

#1.	MeSH descriptor: [pain measurement] explode all trees
#2.	(pain near/4 (assess* or evaluat* or measure* or scoring or score* or scale* or rating* or tool* or instrument* or testing or test or tests or question* or checklist* or inventor*)):ti,ab
#3.	((illustrative or faces or numeric or visual or pictorial or verbal or nonverbal or multidimensional or behaviour* or behavior* or subjective or numeric* or visual) near/4 (scale* or score* or scoring or rating or rate* or tool* or instrument* or question*)) and pain):ti,ab
#4.	(pain near/4 (self next report*)):ti,ab
#5.	(pain near/4 (patient* next report*)):ti,ab
#6.	"wong-baker" and pain:ti,ab
#7.	"wong and baker" and pain:ti,ab
#8.	"numeric pain intensity":ti,ab
#9.	((functional next activity next score*) and pain):ti,ab
#10.	"alder hey triage" and pain:ti,ab
#11.	ahttps and pain:ti,ab
#12.	((color next analog next scale* or color next analogue next scale* or colour next analogue next scale* or colour next analog next scale*) and pain):ti,ab
#13.	{or #1-#12}

1 **F.4.25 Pain management**

2 30.What are the most clinically and cost effective first line pharmacological pain management
3 strategies (pre-hospital and hospital) in patients with major trauma?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Pain management	n/a	The following filters were used in Medline and Embase only: RCT, SR	See Table 161 Date of last search: 24/03/2015 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1.	fentanyl/
2.	(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.
3.	heroin/
4.	(diamorphine or heroin or diamorf or diacetylmorphine or diagesil).ti,ab.
5.	alfentanil/
6.	(alfentanil or rapifen or alfenta).ti,ab.
7.	ketamine/
8.	(ketamine or ketalar or calipsol or ketanest or ketaset or calypso or kalipsol).ti,ab.
9.	nitrous oxide/
10.	(nitrous oxide or nitronox or entonox or equanox or "gas and air" or laughing gas).ti,ab.
11.	acetaminophen/
12.	(paracetamol or panadol or perfalgan or acetaminophen or tylenol or acamol).ti,ab.
13.	or/1-12

7 **Embase search terms**

1.	fentanyl/
2.	(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.
3.	diamorphine/
4.	(diamorphine or heroin or diamorf or diacetylmorphine or diagesil).ti,ab.
5.	alfentanil/
6.	(alfentanil or rapifen or alfenta).ti,ab.
7.	ketamine/
8.	(ketamine or ketalar or calipsol or ketanest or ketaset or calypso or kalipsol).ti,ab.
9.	nitrous oxide/
10.	(nitrous oxide or nitronox or entonox or equanox or "gas and air" or laughing gas).ti,ab.
11.	paracetamol/
12.	(paracetamol or panadol or perfalgan or acetaminophen or tylenol or acamol).ti,ab.
13.	or/1-12

1

Cochrane search terms

#1.	MeSH descriptor: [morphine] this term only
#2.	(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
#3.	MeSH descriptor: [fentanyl] this term only
#4.	(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
#5.	MeSH descriptor: [heroin] this term only
#6.	(diamorphine or heroin or diamorf or diacetylmorphine or diagesil):ti,ab
#7.	MeSH descriptor: [alfentanil] this term only
#8.	(alfentanil or rapifen or alfenta):ti,ab
#9.	MeSH descriptor: [ketamine] this term only
#10.	(ketamine or ketalar or calipsol or ketanest or ketaset or calypso or kalipsol):ti,ab
#11.	MeSH descriptor: [nitrous oxide] this term only
#12.	(nitrous oxide or nitronox or entonox or equanox):ti,ab
#13.	MeSH descriptor: [acetaminophen] this term only
#14.	(paracetamol or panadol or perfalgan or acetaminophen or tylenol or acamol):ti,ab
#15.	{or #1-#14}

2 F.4.26 Documentation

3 31.What aspects of the injury and patient’s clinical course must be documented within the patient
4 record? (pre-hospital and in hospital – transfer of information).

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Patient documentation	n/a	The following filters were used in Medline* and Embase only: OBS, QUAL, RCT, SR *Medline In Process database was also searched without any filters	Medline and Embase 2004 – 01/04/2015 Cochrane Reviews 2004 to 2015 Issue 3 of 12 CENTRAL 2004 to 2015 Issue 2 of 12 DARE, HTA and NHSEED 2004 to 2015 Issue 1 of 4 English only Exclusion filter applied in Medline and Embase

7

Medline search terms

1.	((standard* or universal* or uniform* or harmoni?ed or structured) adj4 (form* or record* or report* or document* or checklist* or handover* or handoff* or proforma* or pro forma* or data*)).ti,ab.
2.	(transfer* adj2 information*).ti,ab.
3.	patient handoff/

4.	documentation/
5.	documentation/st
6.	*"forms and records control"/
7.	"forms and records control"/st
8.	exp *medical records/
9.	exp medical records/st
10.	*medical record linkage/
11.	medical record linkage/st
12.	exp *medical records systems, computerized/
13.	exp medical records systems, computerized/st
14.	*nursing records/
15.	nursing records/st
16.	*databases factual/
17.	databases factual/st
18.	*health information systems/
19.	health information systems/st
20.	*hospital information systems/
21.	hospital information systems/st
22.	(minimum adj2 (data set* or dataset)).ti,ab.
23.	clinical audit/ or medical audit/
24.	((clinical or medical or data) adj2 audit).ti,ab.
25.	or/1-24

1

Embase search terms

1.	((standard* or universal* or uniform* or harmoni?ed or structured) adj4 (form* or record* or report* or document* or checklist* or handover* or handoff* or proforma* or pro forma* or data*)).ti,ab.
2.	exp *clinical handover/
3.	(transfer* adj2 information*).ti,ab.
4.	exp *documentation/
5.	*factual database/
6.	*medical information system/
7.	*hospital information system/
8.	(minimum adj2 (data set* or dataset)).ti,ab.
9.	*medical audit/
10.	((clinical or medical or data) adj2 audit).ti,ab.
11.	or/1-10

2

Cochrane search terms

#1.	((standard* or universal* or uniform* or harmoni?ed or structured) near/4 (form* or record* or report* or document* or checklist* or handover* or handoff* or proforma* or pro forma* or data*)):ti,ab
#2.	MeSH descriptor: [patient handoff] this term only
#3.	transfer* near/2 information*:ti,ab
#4.	MeSH descriptor: [documentation] this term only
#5.	MeSH descriptor: [documentation] explode all trees and with qualifier(s): [standards - st]
#6.	MeSH descriptor: [forms and records control] this term only

#7.	MeSH descriptor: [forms and records control] explode all trees and with qualifier(s): [standards - st]
#8.	MeSH descriptor: [medical records] this term only
#9.	MeSH descriptor: [medical records] explode all trees and with qualifier(s): [standards - st]
#10.	MeSH descriptor: [medical record linkage] this term only
#11.	MeSH descriptor: [medical record linkage] explode all trees and with qualifier(s): [standards - st]
#12.	MeSH descriptor: [medical records systems, computerized] this term only
#13.	MeSH descriptor: [medical records systems, computerized] explode all trees and with qualifier(s): [standards - st]
#14.	MeSH descriptor: [nursing records] this term only
#15.	MeSH descriptor: [nursing records] explode all trees and with qualifier(s): [standards - st]
#16.	MeSH descriptor: [databases, factual] this term only
#17.	MeSH descriptor: [databases, factual] explode all trees and with qualifier(s): [standards - st]
#18.	MeSH descriptor: [health information systems] this term only
#19.	MeSH descriptor: [health information systems] explode all trees and with qualifier(s): [standards - st]
#20.	MeSH descriptor: [hospital information systems] this term only
#21.	MeSH descriptor: [hospital information systems] explode all trees and with qualifier(s): [standards - st]
#22.	((standard* or universal* or uniform* or harmoni?ed or structured) near/4 (form* or record* or report* or document* or checklist* or handover* or handoff* or proforma* or pro forma* or data*)):ti,ab
#23.	MeSH descriptor: [patient handoff] this term only
#24.	transfer* near/2 information*:ti,ab
#25.	(minimum near/2 (data set* or dataset)):ti,ab
#26.	MeSH descriptor: [clinical audit] explode all trees
#27.	MeSH descriptor: [medical audit] explode all trees
#28.	((clinical or medical or data) near/2 audit):ti,ab
#29.	{or #1-#28}

1 **F.4.27 Information and support**

2 32.What information and support do people with major trauma and their families/carers want in
3 hospital/on discharge from ED?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma (F.2.1)	Information and support	n/a	The following filters were used in Medline, Embase and CINAHL only: QUAL	See Table 161 Date of last search: 01/04/2015 English only Exclusion filter applied in Medline, Embase and CINAHL only

6 **Medline search terms**

1.	patients/ or inpatients/ or outpatients/
2.	caregivers/ or exp family/ or exp parents/ or exp legal-guardians/
3.	(patient* or carer* or famil*).ti,ab.
4.	or/1-3
5.	popular-works-publication-type/ or exp information-services/ or publications/ or books/ or pamphlets/ or counseling/ or directive-counseling/
6.	4 and 5
7.	(patient* adj3 (education or educate or educating or literature or leaflet* or booklet* or pamphlet* or information)).ti,ab.
8.	patient education as topic/
9.	consumer health information/
10.	(information* adj3 (patient* or need* or requirement* or support* or seek* or access* or disseminat* or barrier*)).ti,ab.
11.	(discharge* adj3 (information* or advice)).ti,ab.
12.	((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.
13.	((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.
14.	((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.
15.	((information* or educat*) adj2 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*)).ti,ab.
16.	exp consumer-satisfaction/ or personal-satisfaction/ or exp patient-acceptance-of-health-care/
17.	((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.
18.	((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.
19.	((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.
20.	((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.
21.	or/6-20

1

Embase search terms

1.	patient/ or hospital patient/ or outpatient/
2.	caregiver/ or exp family/ or exp parent/
3.	(patient* or carer* or famil*).ti,ab.
4.	or/1-3
5.	information service/ or information center/ or publication/ or book/ or counseling/ or directive counseling/
6.	4 and 5
7.	patient attitude/ or patient preference/ or patient satisfaction/ or consumer attitude/

8.	patient information/ or consumer health information/
9.	patient education/
10.	(patient* adj3 (education or educate or educating or information or literature or leaflet* or booklet* or pamphlet*)).ti,ab.
11.	(information* adj3 (need* or requirement* or support* or seek* or access* or disseminat* or barrier*)).ti,ab.
12.	(discharge* adj3 (information* or advice)).ti,ab.
13.	((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.
14.	((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.
15.	((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.
16.	((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.
17.	((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.
18.	((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.
19.	((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.
20.	((information* or educat*) adj2 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*)).ti,ab.
21.	or/6-20

1

Cochrane search terms

#1.	MeSH descriptor: [popular works] this term only
#2.	MeSH descriptor: [information services] explode all trees
#3.	MeSH descriptor: [publications] this term only
#4.	MeSH descriptor: [books] this term only
#5.	MeSH descriptor: [pamphlets] this term only
#6.	MeSH descriptor: [counseling] this term only
#7.	MeSH descriptor: [directive counseling] this term only
#8.	{or #1-#7}
#9.	(patient* near/3 (education or educate or educating or literature or leaflet* or booklet* or pamphlet* or information)):ti,ab
#10.	#8 and #9
#11.	MeSH descriptor: [patient education as topic] this term only
#12.	MeSH descriptor: [consumer health information] this term only
#13.	(information* near/3 (patient* or need* or requirement* or support* or seek* or access* or disseminat* or barrier*))):ti,ab
#14.	(discharge* near/3 (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*) near/2 (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*) near/2 (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.	"next or kin" near/2 (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
#18.	"next of kin" near/2 (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
#19.	((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*) near/2 (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
#20.	((information* or educat*) near/2 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*)):ti,ab
#21.	MeSH descriptor: [consumer satisfaction] explode all trees
#22.	MeSH descriptor: [personal satisfaction] this term only
#23.	MeSH descriptor: [patient acceptance of health care] explode all trees
#24.	((patient* or user* or carer* or famil* or parent* or father* or mother*) near/3 (attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or inform*)):ti,ab
#25.	((patient* or user* or carer* or famil* or parent* or father* or mother*) near/3 (knowledge or awareness or misconception* or understanding or misunderstanding)):ti,ab
#26.	((patient* or user* or carer* or famil* or parent* or father* or mother*) near/3 (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
#27.	((patient* or user* or carer* or famil* or parent* or father* or mother*) near/3 (need* or requirement* or support* or communication* or involvement)):ti,ab
#28.	{or #10-#27}

1

Cinahl search terms

S1.	(MM "patient education") or (MM "patient discharge education")
S2.	((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*))
S3.	((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*))
S4.	((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*))
S5.	((information* or educat*) n2 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*))
S6.	S1 or S2 or S3 or S4 or S5

S7.	MH patients or MH inpatients or MH outpatients or MH caregivers or MH family+ or MH parents+ or MH guardianship, legal
S8.	MH information services+ or MH books+ or MH pamphlets or MH counseling
S9.	S7 and S8
S10.	((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))
S11.	MH consumer satisfaction+ or MH consumer attitudes or MH personal satisfaction
S12.	(MH "patient attitudes") or (MH "family attitudes+")
S13.	(information* n3 (need* or requirement* or support* or seek* or access* or disseminat* or barrier*))
S14.	(discharge* n3 (information* or advice))
S15.	S10 or S11 or S12 or S13 or S14
S16.	S6 or S9 or S15

1 F.5 Health economics searches

2 F.5.1 Health economic (HE) reviews

3 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 (F.2.1)	n/a	n/a	The following filters were used in Medline and Embase only: HE	Medline and Embase 2012 – 02/04/2015 CRD EED and HTA Inception – 02/04/2015 HEED Inception – 05/11/2014 English only Exclusion filter applied in Medline and Embase

4 Medline and Embase search terms

5 See F.2.1

6 CRD search terms

#1.	MeSH descriptor multiple trauma
#2.	MeSH descriptor wounds, gunshot
#3.	MeSH descriptor wounds, stab
#4.	MeSH descriptor accidents, traffic
#5.	MeSH descriptor accidental falls
#6.	MeSH descriptor blast injuries
#7.	MeSH descriptor accidents, aviation

#8.	((trauma* or polytrauma*))
#9.	((serious* or severe* or major or life threaten*) near3 (accident* or injur* or fall*))
#10.	((mvas or mva or rtas or rta))
#11.	((stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger))
#12.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike*) near3 (accident* or crash* or collision* or smash*))
#13.	(#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12)

1

HEED search terms

1.	TI=serious* or severe* or major or life threatening or multiple
2.	AB=serious* or severe* or major or life threatening or multiple
3.	CS=1 or 2
4.	TI=accident* or injur* or fall or blood loss or bleeding or hemorrhag* or haemorrhag* or hematoma* or haematoma*
5.	AB=accident* or injur* or fall or blood loss or bleeding or hemorrhag* or haemorrhag* or hematoma* or haematoma*
6.	CS=4 or 5
7.	CS=3 and 6
8.	TI=trauma* or polytrauma*
9.	AB=trauma* or polytrauma*
10.	TI=stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger
11.	AB=stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger
12.	TI=motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike*
13.	AB=motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike*
14.	CS=12 or 13
15.	TI=accident* or crash* or collision* or smash*
16.	AB=accident* or crash* or collision* or smash*
17.	CS=15 or 16
18.	CS=14 and 17
19.	CS=7 or 8 or 9 or 10 or 11
20.	CS=18 or 19

2 F.5.2 Quality of life (QoL) reviews

3

Economic searches were conducted in Medline and Embase

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
Major trauma (terms included below)	n/a	n/a	The following filters were used in Medline and Embase only: QOL	Medline 1946 – 04/11/2013 Embase 1974 – 04/11/2013 English only Exclusion filter applied in Medline and

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

1 **Medline search terms**

1.	trauma*.ti,ab.
2.	multiple trauma/
3.	wounds, gunshot/ or wounds, stab/ or accidents, traffic/ or accidental falls/ or blast injuries/ or accidents, aviation/
4.	((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) adj2 (accident* or crash* or collision* or smash*)).ti,ab.
5.	(mvas or mva or rtas or rta).ti,ab.
6.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger).ti,ab.
7.	or/1-6

2 **Embase search terms**

1.	trauma*.ti,ab.
2.	multiple trauma/
3.	gunshot injury/ or stab wound/ or traffic accident/ or falling/ or blast injury/ or aircraft accident/
4.	((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) adj2 (accident* or crash* or collision* or smash*)).ti,ab.
5.	(mvas or mva or rtas or rta).ti,ab.
6.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger).ti,ab.
7.	or/1-6

3 **F.5.3 Pelvic binders**

4 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
Pelvic fractures (terms included below)	Pelvic binders	n/a	The following filters were used in Medline and Embase only: HE	Medline and Embase 2012 – 02/04/2015 CRD EED and HTA Inception – 02/04/2015 HEED 1981 – 15/11/2013 English only Exclusion filter applied in Medline and Embase

5 **Medline search terms**

1.	exp pelvic bones/
2.	fractures, bone/

3.	1 and 2
4.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
5.	3 or 4
6.	(binding* or binder* or pccd or inflatable garment* or niecs or sheet* or c clamp*).ti,ab.
7.	((circumferen* or external or compression) adj5 (device* or belt* or sling*)).ti,ab.
8.	(brim or pelvigrip or pelvicbinder or t pod or tpod).ti,ab.
9.	(mast or pasg or pneumatic anti-shock garment*).ti,ab.
10.	(sam adj3 sling*).ti,ab.
11.	or/6-10
12.	5 and 11

1

Embase search terms

1.	exp pelvis fracture/
2.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
3.	or/1-2
4.	(binding* or binder* or pccd or inflatable garment* or niecs or sheet* or c clamp*).ti,ab.
5.	((circumferen* or external or compression) adj5 (device* or belt* or sling*)).ti,ab.
6.	(brim or pelvigrip or pelvicbinder or t pod or tpod).ti,ab.
7.	(mast or pasg or pneumatic anti-shock garment*).ti,ab.
8.	(sam adj3 sling*).ti,ab.
9.	or/4-8
10.	3 and 9

2

CRD search terms

#1.	MeSH descriptor pelvic bones explode all trees
#2.	((((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney)))
#3.	(#1 or #2)
#4.	(((((binding* or binder* or pccd or inflatable or niecs or sheet* or clamp*)))
#5.	(((((circumferen* or external or compression) near5 (device* or belt* or sling*))))
#6.	(((((brim or pelvigrip or pelvicbinder or t pod or tpod)))
#7.	(((sam near3 sling*)))
#8.	(#4 or #5 or #6 or #7)
#9.	(#3 and #8)

3

HEED search terms

1.	TI=(pelvi* or ilium or ring or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney)
2.	AB=(pelvi* or ilium or ring or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney)
3.	CS=1 or 2
4.	TI=(binding* or binder* or pccd or niecs or sheet* or clamp*)
5.	AB=(binding* or binder* or pccd or niecs or sheet* or clamp*)
6.	TI=(circumferen* or external or compression)

7.	AB=(circumferen* or external or compression)
8.	TI=(brim or pelvigrip or pelvicbinder or t pod or tpod).ti,ab.
9.	AB=(brim or pelvigrip or pelvicbinder or t pod or tpod).ti,ab.
10.	CS=4 or 5 or 6 or 7 or 8 or 9
11.	CS=3 and 10

1

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References

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- 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/>