

Trauma: Service delivery

Major trauma services: service delivery for major trauma

Service delivery guidance

Appendices A – F

August 2015

Draft for consultation

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

Disclaimer: Those responsible and accountable for commissioning trauma services should take this guideline fully into account. However, this guideline does not override the need for, and importance of, using professional judgement to make decisions appropriate to the circumstance.

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National Clinical Guideline Centre, 2015

Funding

National Institute for Health and Care Excellence

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Appendices

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Appendix A: Scope

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

SCOPE

1 Guidance title

Major trauma services: service delivery for major trauma

1.1 Short title

Major trauma services

2 The remit

The Department of Health has asked NICE: 'To produce guidance on the service delivery of trauma'.

NICE is developing 5 pieces of guidance relating to trauma, with expected publication dates in April 2016. Each piece of guidance will focus on a different aspect of trauma care.

- [Complex fractures: assessment and management of complex fractures](#)
- [Major trauma: assessment and management of airway, breathing and ventilation, circulation, haemorrhage and temperature control](#)
- [Non-complex fractures: diagnosis, management and follow-up of non-complex fractures](#)
- [Spinal injury assessment: assessment and imaging and early management for spinal injury \(spinal column or spinal cord injury\)](#)

• and

- Major trauma services: service delivery for major trauma

NICE has commissioned the National Clinical Guideline Centre (NCGC) to develop the trauma guidance.

3

3 Need for guidance

3.1 *Epidemiology*

- a) Major trauma is defined as an injury or combination of injuries that are life-threatening and could be life changing because it may result in long-term disability.
- b) In the UK, there are approximately 15,000 deaths caused by accidents every year. Road traffic accidents form a considerable proportion of these fatalities. Major trauma is the leading cause of death and a major cause of disability in people aged under 45.
- c) 'Prompt identification and effective treatment of major trauma can save lives, prevent complications, speed recovery and allow an earlier return to active life'.
- d) The estimated annual lost economic output from deaths and serious injuries from major trauma is between £3.3 and £3.7 billion.

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 suffered major trauma, 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) 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) Care of patients with major trauma is divided into 3 overlapping phases: pre-hospital, hospital and rehabilitation.

- d) There is no systematic approach to care throughout these 3 overlapping phases and there is a lack of involvement of senior healthcare professionals, particularly in teams receiving patients with major trauma. Major trauma is most likely to occur at night and at weekends, when senior staff are not normally in the emergency department. A very small minority of hospitals have 24-hour consultant cover 7 days a week. Lack of involvement of senior healthcare professionals can result in poor or inappropriate decision-making and delays in treatment.
- e) To address this lack of a systematic approach, regional trauma networks are being implemented across England. Trauma networks are organised groups of services with agreed protocols that coordinate pre-hospital, hospital and rehabilitation care and ensure that people are treated at the right time, in the right place and by the most experienced healthcare professionals.
- f) Care of patients with major trauma is carried out in major trauma centres, trauma units and, more rarely, local hospitals. Major trauma centres are specialist hospitals responsible for the care of patients with major trauma across a region. Trauma units are hospitals that receive patients with major trauma who need resuscitation or stabilisation before transfer to the major trauma centre. Local hospitals do not normally receive patients with major trauma.

4 The guidance

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

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

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

4.1 Population

Major trauma is defined as an injury or a combination of injuries that are life-threatening and could be life changing because it may result in long-term disability.

4.1.1 Groups that will be covered

- a) Adults, young people and children (0-16yrs) who present with a major traumatic injury or a suspected major traumatic injury.

4.1.2 Groups that will not be covered

- a) People who do not have a suspected or confirmed major traumatic injury.
- b) People with burns.
- c) People with spinal injuries (this will be covered in the NICE guideline on [spinal injury assessment](#)).

4.2 Setting

- a) All settings in which NHS funded care is received.

4.3 Service delivery

4.3.1 Key issues that will be covered:

- a) Access to the services needed to provide care for people with suspected or confirmed major trauma.
- b) Direct and indirect transfer to appropriate destination:
 - application of triage tools
 - travel times and quality of transfer
 - pre-alert.
- c) Location of services:

- outreach and on-site services
- d) Competence of pre-hospital provider and receiving trauma team:
 - skills needed to initially manage major trauma
 - tiered trauma teams
 - training for paediatric trauma.
- e) Continuity of care:
 - trauma coordinators
 - multidisciplinary team management of ongoing care and shared care.
- f) Rehabilitation assessment.
- g) Patient documentation and transfer of information.
- h) National audit systems to improve performance.
- i) Provision of information and support for families and carers.

4.3.2 Issues that will not be covered

- a) Prevention of trauma.
- b) Major trauma resulting from burns.
- c) Management and follow-up of pathological conditions (such as osteoporosis).

4.4 Main outcomes

- a) Health-related quality of life.
- b) Mortality.
- c) Functional scales that measure level of disability.
- d) Return to normal functioning.
- e) Number and length of healthcare contacts.

- f) Time to treatment.
- g) Length of hospital stay.
- h) Place of residence at 90 days.
- i) Staff views and satisfaction.
- j) Patients views and satisfaction

4.5 Economic aspects

Developers will take into account both clinical and cost effectiveness when making recommendations involving a choice between alternative services. 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, including where NICE's standard health economic approaches may not apply, can be found in the Interim methods guide for developing service guidance and the guidelines manual.

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 December 2013.

5 Related NICE guidance

5.1 Published guidance

- [Falls](#). NICE clinical guideline 161 (2013).
- [Osteoporosis](#). NICE clinical guideline 146 (2012).

- [Patient experience in adult NHS services](#). NICE clinical guidance 138 (2012).
- [Organ donation](#). NICE clinical guideline 135 (2011).
- [Hip fracture](#). NICE clinical guideline 124 (2011).
- [Venous thromboembolism: reducing the risk](#). NICE clinical guideline 92 (2010).
- [When to suspect child maltreatment](#). NICE clinical guideline 89 (2009).
- [Head injury](#). NICE clinical guideline 56 (2007).
- [Post-traumatic stress disorder \(PTSD\)](#). NICE clinical guideline 26 (2005).
- [Pre-hospital initiation of fluid replacement therapy in trauma](#). NICE technology appraisal guidance 74 (2004).

5.2 Guidance under development

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

- [Intravenous fluid therapy in adults in hospital](#). NICE clinical guideline. Publication expected December 2013.
- [Head injury](#). NICE clinical guideline. Publication expected January 2014.
- [Transfusion](#). NICE clinical guideline. Publication expected May 2015.
- [Major trauma](#). NICE clinical guideline. Publication expected June 2015.
- [Intravenous fluid therapy in children and young people in hospital](#). NICE clinical guideline. Publication expected September 2015.
- [Non-complex fractures. NICE clinical guideline](#). Publication expected April 2016.
- [Complex fractures](#). NICE clinical guideline. Publication expected April 2016.
- [Spinal injury assessment](#). NICE clinical guideline. Publication expected April 2016.

6 Further information

Information on the guidance 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: 5th edition](#)
- [Interim methods guide for developing service guidance.](#)
- [The guidelines manual.](#)

Information on the progress of the guidance 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	

1

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	

1

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	

1

Table 13: McPherson, Simon

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

GDG meeting	Declaration of Interests	Action taken
Second GDG meeting 17 January 2014	Did not attend	
Third GDG meeting 10 April 2014	Did not attend	
Fourth GDG meeting 3 September 2014	Did not attend	
Fifth GDG meeting 4 September 2014	Did not attend	
Sixth GDG meeting 22 October 2014	Did not attend	
Seventh GDG meeting 23 October 2014	Did not attend	
Eighth GDG meeting 4 December 2014	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 14: Morris, Craig

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

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

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	

1

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) 	<p>Conflict of interest:</p> <p>Withdrew from recommendation making discussions on coagulation testing.</p>
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: <ul style="list-style-type: none"> • My father is a registered practising 	No action taken

GDG meeting	Declaration of Interests	Action taken
	<p>pharmacist working for Bayer Medical Affairs with pharmaceutical industry. He also holds shares in AstraZeneca.</p> <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	
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 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 2015	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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 14 October	Did not attend	

GDG meeting	Declaration of Interests	Action taken
2014		
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	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 31 July 2014	No change in declaration	

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	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	
Eighth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 30 July 2014		
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 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	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: <ul style="list-style-type: none"> • Director of Trauma Nursing Ltd. 	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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 2013	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
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
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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	
Sixteenth GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 7 May 2015		

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 GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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	
Thirteenth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 13 January 2015		
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	
Eleventh GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 14 October 2014		
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 31 July 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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 14 May 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	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	
Fifth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 13 March 2014		
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 meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
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: <ul style="list-style-type: none"> • Member of the British orthopaedic 	No action taken

GDG meeting	Declaration of Interests	Action taken
	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	
Sixteenth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
7 May 2015		

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 GDG meeting 25 March 2015	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
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 12 March 2015	No change in declaration	

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

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

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.
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

Table 55: Foster, Judith

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal non-pecuniary interest:</p> <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	<p>Personal non-pecuniary interest:</p> <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 meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth	No change in declaration	

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

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

2

Table 58: Henman, Philip

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	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	Personal family interest: <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. 	No action taken

GDG meeting	Declaration of Interests	Action taken
	Personal non-pecuniary interest: <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 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	
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	

2

Table 61: Ingram, Mike

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	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 62: Jackson, Michael

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
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 funded study into trauma triage. 	No action taken
Second GDG meeting	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
16 January 2014		
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: <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	No change in declaration	

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	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: <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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	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
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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	

1

Table 67: Silvester, Lucy

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 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	
Third GDG	Personal non-pecuniary interest:	No action taken

GDG meeting	Declaration of Interests	Action taken
meeting 9 April 2014	<ul style="list-style-type: none"> DS has been appointed to work on the TARN database. 	
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	
Fourth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 21 May 2014		
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	
Fifth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 22 May 2014		
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	
Sixth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 2 July 2014		
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	
Seventh GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 3 July 2014		
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	
Eighth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 13 August 2014		
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	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:	No action taken

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> HJ is a member of the Department of Health 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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	employer 5% of her salary • 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: • 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	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	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	

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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	

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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	

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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	

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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	

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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	

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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	

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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	

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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	

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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	

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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	

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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		

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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	

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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	

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1 Appendix C: Review protocols

2 C.1 Pre-hospital triage to the appropriate destination

3 **Table 128: Review protocol: Triage Tools**

Review question	What is the triage accuracy of ambulance triage methods in people with major trauma?
Objectives	<p>To identify which prediction tools are the most accurate at predicting a safe outcome when the patient is received by a trauma team.</p> <p>To identify what tools exist to categorise people according to their potential need for an MTC.</p> <p>To identify what tools can most accurately categorise patients according to the severity which determines whether a patient would benefit from MTC services?</p>
Population	Children , young people and adults experiencing trauma
Index test	<p>Clinical Triage Tools: Circulation, Respiration, Abdominal Motor and Speech Scale The trauma score.</p> <p>The current London ‘major trauma decision tool’ (the Healthcare for London Major Trauma Programme Pre- Hospital Care Group in 2010). American College on Surgeons Committee on Trauma Field Decision Tool. American College of Surgeons triage decision scheme Clinical assessments GAP (GCS, BP, age) MGAP (“mech of injury)</p> <p>Include studies that compare the different tools:</p> <p>Above Plus/minus Clinical judgement</p> <p>Advanced Paramedic Ambulance technician</p>
Reference test	Later clinical findings – ISS Score, Mortality, ICU admission, combinative clinical findings
Outcomes	<p>Diagnostic Accuracy Accuracy to predict injury severity: Did it identify major trauma patients by ISS (>8, and >15) % patients transferred on after arrival to TU (within 24 hours) or onwards to MTC Appropriateness of initial destination Appropriateness of staff presence for treatment required (i.e. number of additional staff called to resuscitation).</p>
Exclusion	<p>None stated Tools only internally validated</p>
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library Date: All years</p>

Review question	What is the triage accuracy of ambulance triage methods in people with major trauma?
	Language: Restrict to English only Study designs: RCT, drop down to observational
The review strategy	Diagnostic meta-analysis if >5 studies. Otherwise narrative results reported separately for each study

1 C.2 Pre-alert processes

2 **Table 129: Review protocol: pre-alert**

Review question	What is the diagnostic accuracy of pre-alert?
Objectives	To identify whether pre-alert accurately identifies whether patients need to be direct to a major trauma unit NOTE: A pre-alert is activated based on a triage tool. This review was designed to capture studies which reported on the accuracy of pre-alert without reference to the triage tool used or if a number of triage tools had been used
Population	Children, young people and adults experiencing trauma
Index test	Pre-alert
Reference test	Later clinical findings – ISS Score, Mortality, ICU admission, combinative clinical findings
Outcomes	Diagnostic Accuracy (over or under triage) Appropriateness of initial destination Appropriateness of staff presence for treatment required (i.e. number of additional staff called to resuscitation).
Exclusion	None stated Tools only internally validated
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only Study designs: Observational
The review strategy	Results reported separately for each study

3 C.3 Receiving trauma teams

4 **Table 130: Review protocol: Tiered trauma teams in ED**

Review question	What is the clinical and cost effectiveness of providing a tiered response to patients arriving at a MTC or TU?
Guideline condition and its definition	Major trauma. Definition: People with a life threatening condition or loss or a major limb
Review population	Adults 18 years or over Children 17 years or under Adults and children
Interventions and comparators:	Trauma teams; Basic Trauma teams; Standard Trauma teams; Advanced (All interventions will be compared with each other, unless otherwise stated)

Review question	What is the clinical and cost effectiveness of providing a tiered response to patients arriving at a MTC or TU?
Outcomes	<ul style="list-style-type: none"> • Quality of life (Continuous) CRITICAL • Mortality (Dichotomous) CRITICAL • Complication rates (Dichotomous) CRITICAL • Delays to transfer (Continuous) CRITICAL • Time in ED (Continuous) CRITICAL • Time to CT (Continuous) CRITICAL • Missed/delayed diagnosis of injury (Dichotomous) CRITICAL • Trauma team member time (Continuous) CRITICAL
Study design	Systematic Review RCT Quasi-RCT Prospective cohort study Retrospective cohort study Non-randomised study Before and after study
Population stratification	Adults 18 years or older Children 17 years or under People treated at a trauma unit People treated at a major trauma centre
Subgroup	By triaging tool: Triage tools varying in accuracy of detecting which patients require advanced trauma team
Search criteria	Databases: Date limits for search: Language:

1 C.4 Transfer between emergency departments

2 **Table 131: Review protocol: Retrieval teams**

Review question	Is it clinically and cost effective to provide a retrieval service?
Guideline condition and its definition	Major trauma
Objectives	To determine whether it is clinically and cost effective to provide a dedicated trauma retrieval service to transfer patients from ED to further care
Review population	Critically injured trauma patients (that is, those who would trigger an advanced response at a Major Trauma Centre)
Interventions	Retrieval service for secondary transfer
Comparisons	Transfer by trauma unit clinical team
Outcomes	Critical: Mortality up to 12months Health-related quality of life Time taken to transfer Delay to admission at MTC Complications during transfer/due to transfer Important: Length of hospital stay
Study design	RCTs or systematic reviews of RCTs; cohorts if no RCTs retrieved

Review question	Is it clinically and cost effective to provide a retrieval service?
	Within-study confounders to consider (if cohorts used) Age, injury severity, depth of shock
Subgroup analyses	Age (children and adults): child (0-15 years); young people (16-17 years); adults (18-65 years; >65 years)
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: All years Language: Restrict to English only

1 C.5 A trauma service providing continuity of care

2 **Table 132: Review protocol: Multidisciplinary ward care**

Review question	Is there a benefit of multidisciplinary ward care versus specialist ward care?
Guideline condition and its definition	Major trauma
Objectives	To determine what is the most effective model of ward care for major trauma patients
Review population	Children, young people and adults who have suspected or confirmed major trauma and use trauma services
Interventions	Multidisciplinary trauma ward (trauma consultant) Multidisciplinary trauma ward (sub-speciality consultant) Speciality ward
Comparisons	A comparison of the above Non-speciality/general ward
Outcomes	Critical: Mortality Health-related quality of life Time to definitive treatment Important: Length of hospital stay Readmission to ICU and to hospital Unscheduled re-operation Patient and carer experience
Study design	RCTs or systematic reviews of RCTs; cohorts if no RCTs retrieved
Subgroup	None
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: All years Language: Restrict to English only

3 C.6 Continuity of care: the trauma coordinator role

4 **Table 133: Review protocol: Trauma Co-ordinators**

Review question	What trauma coordination approach is the most clinically and cost effective?
Guideline condition and its definition	Trauma. Definition:
Objectives	To determine if there is evidence to support the use of a trauma coordinator within major trauma services
Review population	People who have suspected major trauma and use trauma healthcare services

Review question	What trauma coordination approach is the most clinically and cost effective?
	Overall Adults Children
	Line of therapy not an inclusion criterion
Interventions and comparators: generic/class; specific/drug (All interventions will be compared with each other, unless otherwise stated)	Trauma coordinator; Administrative (including governance) Trauma coordinator; Clinical Trauma coordinator; Acute setting Trauma coordinator; Whole pathway (on-going care) Trauma coordinator; Named case manager (in hospital) Trauma coordinator; Named case manager (post-discharge) Trauma coordinator; Coordinator (unclear type) No trauma coordinator
Outcomes	Critical outcomes: Mortality Health-related quality of life (immediate and long term) Ongoing consequential morbidity Important outcomes: Metrics of continuity of care Length of stay (LOS [total across transfers, MTC]) Adverse incident report severity (red, amber, green) Time in acute setting Number of procedures Time to rehab prescription ICU LOS Impact of traumatic event on concurrent morbidities Patient and carer satisfaction Staff satisfaction
Study design	RCTs or systematic reviews of RCTs; cohorts if no RCTs retrieved
Subgroup	Injury severity (Low injury severity (ISS, GCS, RTS); Moderate injury severity (ISS, GCS, RTS); High injury severity (ISS, GCS, RTS); Overall/mixed); Patients may need different care at different levels of injury severity Service set-up (MTC; Trauma unit); May influence the efficacy of the trauma coordinator role Healthcare system (UK; Private healthcare system; Combi national and private healthcare); May influence the efficacy of the trauma coordinator role Stage of trauma network development (Pre- trauma network implementation; Post- trauma network implementation); Trauma coordinator role may vary between stages of the network Concurrent care delivery (MDT care; Not MDT care); May influence the efficacy of the trauma coordinator role
Search criteria	Databases: Medline, Embase, The Cochrane Library, CINAHL Date limits for search: No restrictions Language: English language only

1 C.7 Documentation and transfer of information

2 **Table 134: Review protocol: Documentation**

Review question	What are the barriers to the transfer of information and documentation from a) pre-hospital to the ED b) from the ED to surgery/other departments?
Objective	Documentation and transfer of information is assumed to improve quality of care. If relevant information required to proceed with care is not available in a timely manner, onward care may be delayed or inappropriate decisions regarding onward management may be made.
Population and setting	Trauma service staff in both pre-hospital and in hospital settings.
Exclusions	None
Search strategy	The databases to be searched are Medline, Embase, The Cochrane Library, CINAHL, PsychINFO Studies will be restricted to English language only.
Search terms	Databases: Medline, Embase, the Cochrane Library Date: All years Language: Restrict to English only
The review strategy	Study designs to be considered: Qualitative studies (for example, interviews, focus groups, observations) Review strategy: Population size and directness: No limitations on sample size Studies with indirect populations will not be considered Appraisal of methodological quality The methodological quality of each study will be assessed using NCGC modified NICE checklists and the quality of the evidence will be assessed by a modified GRADE approach for each outcome. Data synthesis Meta-synthesis of themes identified in papers will be conducted and findings presented.

3 C.8 Trauma audit

4 **Table 135: Review protocol: Audit**

Review question	Is audit and feedback effective for improving health provider performance and healthcare outcomes?
Objectives	To determine how national audit systems could improve performance by identifying which type of information is critical to collect. The review hopes to assist recommendations regarding how a national audit systems could be used and/or improved from UK current practice of audit in the UK for performance improvement and future decision making regarding the improvement of services Links to service model: Audit and documentation of the patient' journey has potential to provide vital information to parameterise system modelling. Undertaking system modelling within the guideline may assist recognition of essential gaps in the data routinely collected to improve performance and inform future decisions regarding trauma services.

Review question	Is audit and feedback effective for improving health provider performance and healthcare outcomes?
	Links to other aspects of service delivery interventions within this guideline There is a critical link to patient documentation and transfer of information. Important link to trauma coordinators (as a potential means to implement these service interventions).
Criteria for considering studies in the review	
Study design	RCTs, cohort studies
Population	Children and adults with suspected trauma
Intervention	Audit and feedback (alone) compared with usual care Audit and feedback as the core/essential feature of a multifaceted intervention compared with usual care.
Comparison	Standard care
Outcomes	Critical: Compliance with desired practice Patient outcomes
Setting	Any
Search Strategy	Databases: Medline, Embase, Cinahl Language: Restrict to English only
Review Strategy	Population size and directness: No limitations on sample size Appraisal of methodological quality: The methodological quality of each study will be assessed using NICE checklists. Stratify by age: Not applicable Subgroups: None

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Table 136: Review protocol: Audit

Scope topic area	National audit systems to improve performance
Objective	To determine how national audit systems could improve performance by identifying which type of information is critical to collect. The review hopes to assist recommendations regarding how a national audit systems could be used and/or improved from UK current practice of audit in the UK for performance improvement and future decision making regarding the improvement of services Links to service model: Audit and documentation of the patient' journey has potential to provide vital information to parameterise system modelling. Undertaking system modelling within the guideline may assist recognition of essential gaps in the data routinely collected to improve performance and inform future decisions regarding trauma services. Links to other aspects of service delivery interventions within this guideline There is a critical link to patient documentation and transfer of information. Important link to trauma coordinators (as a potential means to implement these service interventions).
Review question	What features are needed in a national audit system to ensure that audit improves service performance as measured by patient outcomes
Population and setting	Any population and setting for national audit
Context	Example UK audits: National Diabetes Audit Adults National Diabetes Audit Paediatrics

Scope topic area	National audit systems to improve performance
	<p>Falls and Fragility Fractures</p> <p>Chronic Obstructive Pulmonary Disease (COPD) - Secondary Care clinical audit</p> <p>Mental Health CORP - Organisational features of mental health trusts and suicide rates</p> <p>National Vascular Registry (NVR)</p> <p>Chronic Kidney Disease in primary care</p> <p>Medical and Surgical CORP - Gastrointestinal Haemorrhage</p> <p>Head and Neck Cancer</p> <p>Sentinel Stroke National Audit</p> <p>Stroke Improvement National Audit Programme</p> <p>National audit of continence care</p> <p>Familial Hypercholesterolemia Register and Audit</p> <p>Myocardial Ischaemia National Audit Project (MINAP)</p> <p>National audit for services with multiple sclerosis</p> <p>National Care of the Dying Audit of Hospitals</p> <p>National Lung Cancer Audit</p> <p>National Audit of Dementia update</p>
Search strategy	<p>PRAMS/PROMS</p> <p>Databases: Medline, Embase, the Cochrane Library, Cinahl</p> <p>Date: All years</p> <p>Language: Restrict to English only</p>
The review strategy	<p>Study designs to be considered:</p> <p>Qualitative studies (for example, interviews, focus groups, observations)</p> <p>Surveys</p> <p>Population size and directness:</p> <p>No limitations on sample size</p> <p>Appraisal of methodological quality:</p> <p>The methodological quality of each study will be assessed using NCGC modified NICE checklists and the quality of the evidence will be assessed by a modified GRADE approach for each outcome.</p>
Analysis	<p>Meta-synthesis of qualitative research:</p> <p>Thematic analysis - information synthesised into themes and sub-themes. Results presented diagrammatically and as narrative.</p>

1 C.9 Paediatric trauma training

2 **Table 137: Review protocol: Paediatric training**

Review question	What aspects (type and frequency) of paediatric training for trauma improve outcomes for providers which experience high volumes of adult trauma and experience of trauma in children?
Guideline condition and its definition	Trauma.
Objectives	To determine what training in paediatric trauma should be implemented
Review population	Children (aged 0 to 18 years)
Interventions and comparators: generic/class; specific/drug	<p>Paediatric training; PALS</p> <p>Paediatric training; ALST</p> <p>Paediatric training; No training</p>

Review question	What aspects (type and frequency) of paediatric training for trauma improve outcomes for providers which experience high volumes of adult trauma and experience of trauma in children?
(All interventions will be compared with each other, unless otherwise stated)	Paediatric training; standard care Paediatric training; Adult trauma specialists with APLS basic paediatric training Paediatric training; Adult trauma specialists + paediatric in-service training Paediatric training; Paediatric trauma specialists Paediatric training; General paediatrics training + trauma in service training
Outcomes	Critical Quality of life Time to intervention Important Length of stay Hospitalisation Mortality Time to diagnosis Time to transfer Skill delivery Skill retention Other clinical outcomes
Study design	RCT or cohort study if no RCTs retrieved
Other inclusions	Trauma in at least 25% of the sample
Subgroup analyses	Type of centre and frequency they see child trauma Type/number in team treating Level of experience leading the team.
Search criteria	Databases: Medline., Embase, Cochrane library, CINAHL Date limits for search: None Language: English

1 C.10 Information and support

2 Table 138: Review protocol: Provision of information and support

Review question	How should information and support be provided to families and carers?
Objectives	To determine what information and support should be provided to families and carers of people with major trauma
Population and setting	Families and carers of people with suspected or confirmed traumatic injury and who use trauma services or support services (community care, rehabilitation, social care services).
Context	Any way that of information and support has been provided as described by studies. Suggestions: <ul style="list-style-type: none"> • telemedicine • leaflets • designated person trauma nurse coordinator
Search strategy	The databases to be searched are Medline, Embase, The Cochrane Library, CINAHL, PsychINFO, PRAMS/PROMS Studies will be restricted to English language only.

Review Strategy	<p>Study designs to be considered:</p> <ul style="list-style-type: none"> • Qualitative studies (for example, interviews, focus groups, observations) • Surveys • Review strategy: • Population size and directness: • Sample size specification (for surveys) • Studies with indirect populations will not be considered for example, Patients receiving IV fluids • Appraisal of methodological quality <p>The methodological quality of each study will be assessed using NCGC modified NICE checklists and the quality of the evidence will be assessed by a modified GRADE approach for each outcome.</p> <p>Data synthesis</p> <p>Meta-synthesis of qualitative research: Thematic analysis - information synthesised into themes and sub-themes. Results presented diagrammatically and as narrative.</p> <p>Evidence may also be drawn from other reviews and consensus discussions in the guideline and the trauma suite of guidance (i.e. where developers have identified the need for consideration of families and carers specifically)</p>
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1 C.11 Rehabilitation

2 **Table 139: Review protocol: Rehabilitation**

Review question	What are the barriers to providing early rehabilitation following early rehabilitation assessment? What are the implications for service delivery?
Objective and rationale for question	<p>Objective:</p> <p>To identify the barriers to people with major trauma receiving early rehabilitation following early rehabilitation assessment.</p> <p>To identify the implications on service delivery of the barriers identified</p>
Review question	<p>What are the barriers to providing early rehabilitation following early rehabilitation assessment? What are the implications for service delivery?</p> <p>NOTE: If there is limited evidence on early rehabilitation assessment we will include papers that look at barriers to providing rehabilitation following assessment even if the assessment is not early</p>
Population	<p>People who have suspected major trauma and use trauma healthcare services.</p> <p>Indirect populations to be included if no evidence: Traumatic brain injury and spinal injury</p>
Intervention	Early rehabilitation (physiotherapists, OT, speech, mental health) following early rehabilitation assessment (within 72 hours)
Comparison	NA
Outcomes	<p>These will be the barriers identified in the papers for example:</p> <ul style="list-style-type: none"> • Inadequate assessment • Staff resources • Patients factors (severity of illness, pain/discomfort) <p>Implications for service delivery of the barriers identified</p>
Exclusion	None
Search strategy	The databases to be searched are Medline, Embase, The Cochrane Library, CINAHL.

Review question	What are the barriers to providing early rehabilitation following early rehabilitation assessment? What are the implications for service delivery?
	Studies will be restricted to English language only.
The review strategy	Qualitative studies
Analysis	Record information on: Who undertakes the rehab assessment and whether a tool was used. Note: National Clinical Audit Advisory Group has tendered for an audit of specialist rehabilitation. One of the first things they will focus on is variation and access across the country. How does acute care determine access to rehabilitation?

1 C.12 Access to services and the skills required to deliver the service

2 C.12.1 Airway

3 Table 140: Review protocol: Delay to intervention - airway

Review question:	What is the optimal timing of intubation or surgical airway
Objective:	To determine the differential impact on clinical outcomes of a delay to definitive treatment How does time from injury to definitive treatment impact outcomes? Impact of different pre-hospital competency on the relationship above Impact of the quality of transfer on the relationship above Impact of who receives the trauma patient in hospital on the relationship above Impact of who receives the trauma patient in hospital on the relationship above How may pre hospital competency, triaging decisions, quality of transfer, staffing arrangements and location of services, and use of pre alert systems impact on delay>
Population	Children, young people and adults who have experienced a traumatic incident.
Intervention	Intervention at different time points (as identified by the literature) to a maximum of 24 hours
Comparison	Comparison of the above
Outcomes	Critical: Mortality up to 12 months Health-related quality of life Functional outcomes Important Length of hospital stay Number of procedures Adverse events Amputation (for vascular compromise) Data to be collected: 'Survival' analysis data Important follow-up time points 4 hours, 24 hours, 7 days, 1 month, 1 year? Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.

Review question:	What is the optimal timing of intubation or surgical airway
Exclusion	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 (confounders: age, ISS, GCS, shock).
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	Stratification from outset MTC/TU (Where intervention was done) Presence of a given staff member (that is, a doctor) Pre-hospital intubation. Sub-groups if between-study heterogeneity exists Age (children and adults): child (0-15 years); young people (16-17 years); adults (18-65 years; >65 years) Within-study confounders to consider (if cohorts used) Age, injury severity, GCS and depth of shock,

1 C.12.2 Interventional radiology

2 Table 141: Review protocol: Timing of interventional radiology

Review question	What is the optimal timing of interventional radiology?
Guideline condition and its definition	Major trauma
Objectives	To determine the differential impact on clinical outcomes of a delay to definitive treatment with interventional radiology.
Review population	Children, young people and adults who have experienced a traumatic incident and require interventional radiology
Interventions	Interventional radiology at different time points, as identified by the literature, to a maximum of 24 hours.
Comparisons	A comparison of the above
Outcomes	Critical: Mortality Health-related quality of life Amputation (for vascular compromise) Important: Length of hospital stay Number of procedures Adverse events Data to be collected: Survival analysis data Important follow-up time points (4 hours, 24 hours, 7 days, 1 month, 1 year)
Study design	RCTs or systematic reviews of RCTs; cohorts if no RCTs retrieved

Review question	What is the optimal timing of interventional radiology?
	Within-study confounders to consider (if cohorts used) Age, injury severity, depth of shock
Subgroup analyses	Age (children and adults): child (0-15 years); young people (16-17 years); adults (18-65 years; >65 years)
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: All years Language: Restrict to English only

1

2 C.13 Health Economic review protocol

3 **Table 142: Health economic review protocol**

Review question	All questions – health economic evidence
Objectives	To identify economic evaluations relevant to the review questions set out above.
Criteria	<ul style="list-style-type: none"> • Populations, interventions and comparators must be as specified in the individual review protocol. • 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 will also be excluded.</p> <p>Each study fulfilling the criteria above will be assessed for applicability and methodological limitations using the NICE economic evaluation checklist which can be found in Appendix H of the NICE guidelines manual (2014).²</p> <p>Inclusion and exclusion criteria</p> <ul style="list-style-type: none"> • If a study is rated as both ‘Directly applicable’ and with ‘Minor limitations’ then it will be included in the guideline. An economic evidence table will be completed and it will be included in the economic evidence profile. • If a study is rated as either ‘Not applicable’ or with ‘Very serious limitations’ then it will usually be excluded from the guideline. If it is excluded then an economic evidence table will not be completed and it will not be included in the economic evidence profile. • If a study is rated as ‘Partially applicable’, with ‘Potentially serious limitations’ or both then there is discretion over whether it should be included. <p>Where there is discretion</p> <p>The health economist will make a decision based on the relative applicability and</p>

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 K.

The health economist will be guided by the following hierarchies.

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 will have been excluded before being assessed for applicability and methodological limitations. Studies from the USA were checked on a case by case basis regarding their applicability, but where these studies were costings of resources use alone, these were excluded.

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 excluded 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.

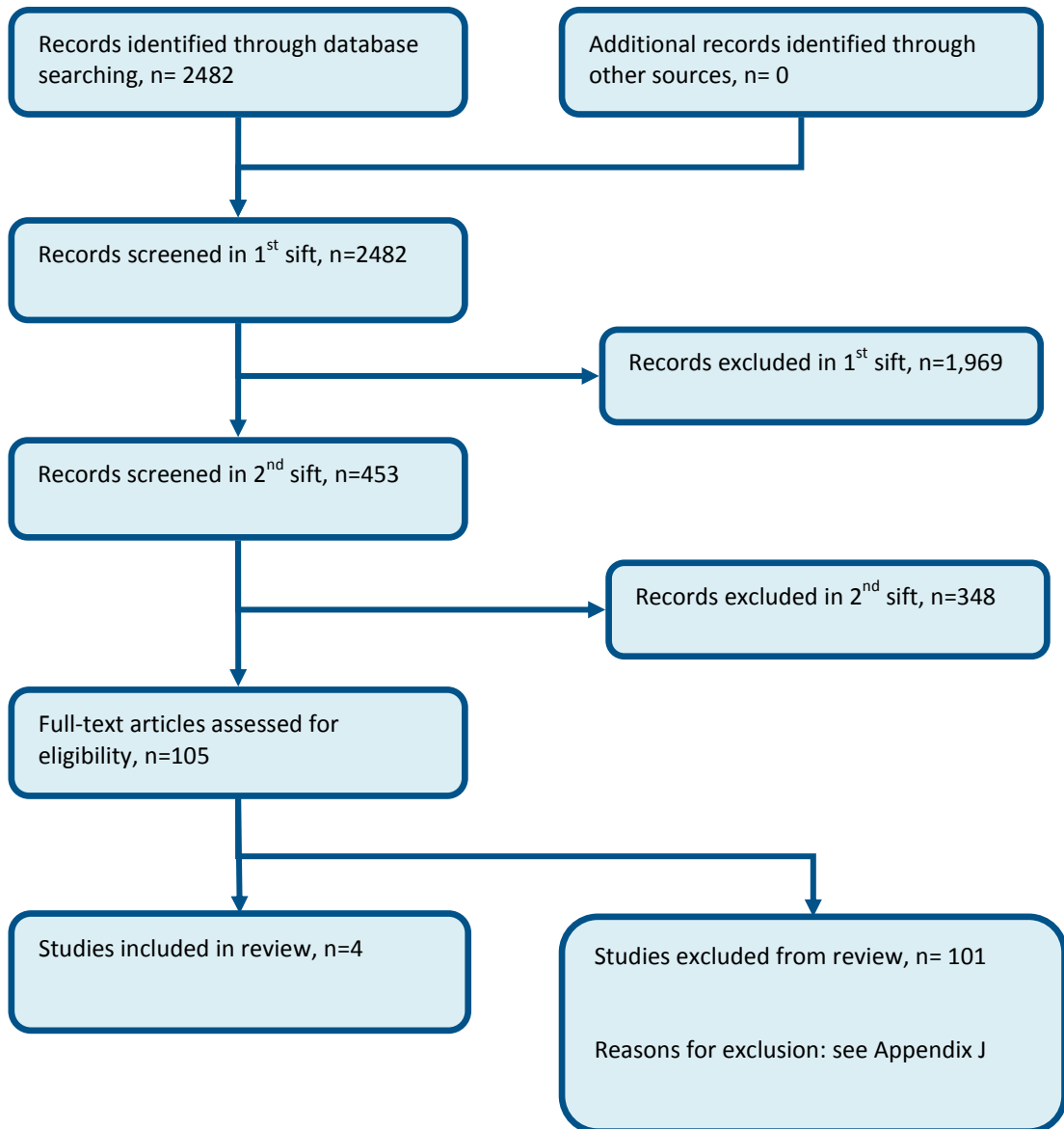
1

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1 Appendix D: Clinical article selection

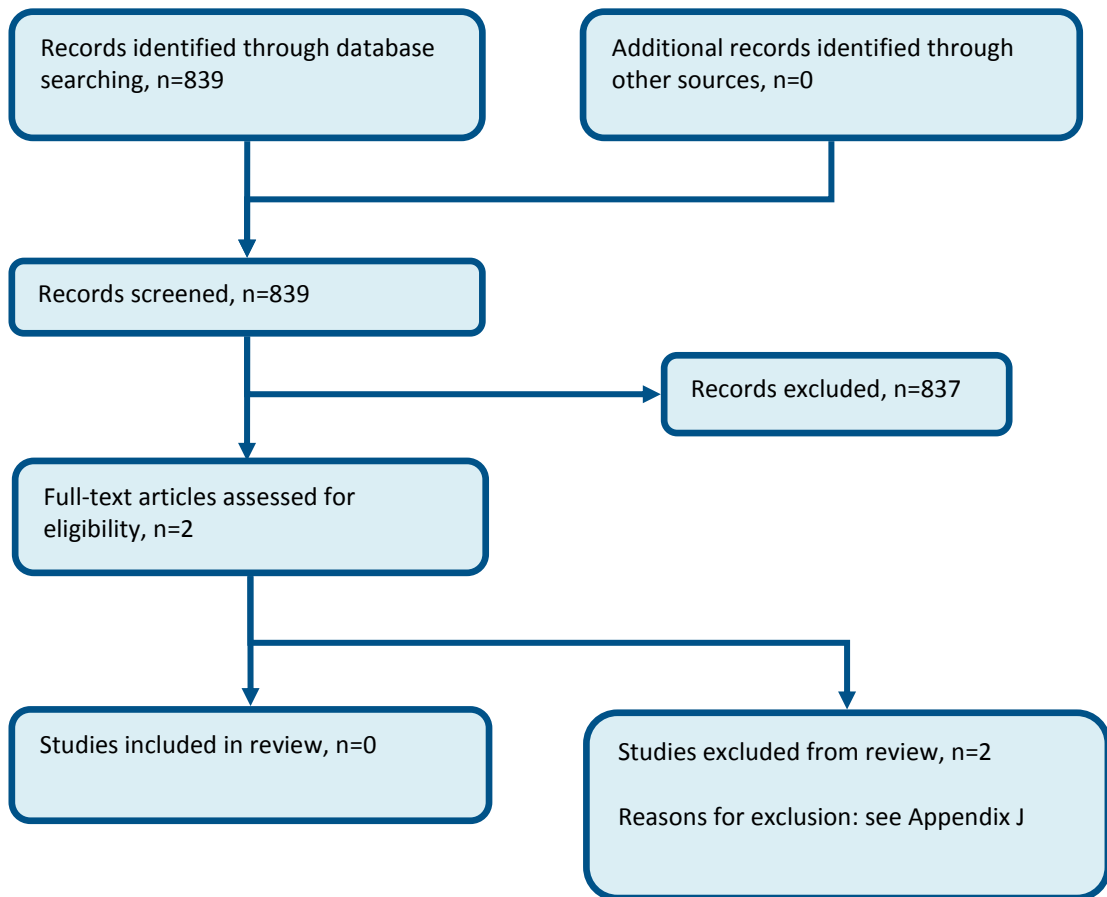
2 D.1 Pre hospital triage to the appropriate destination

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



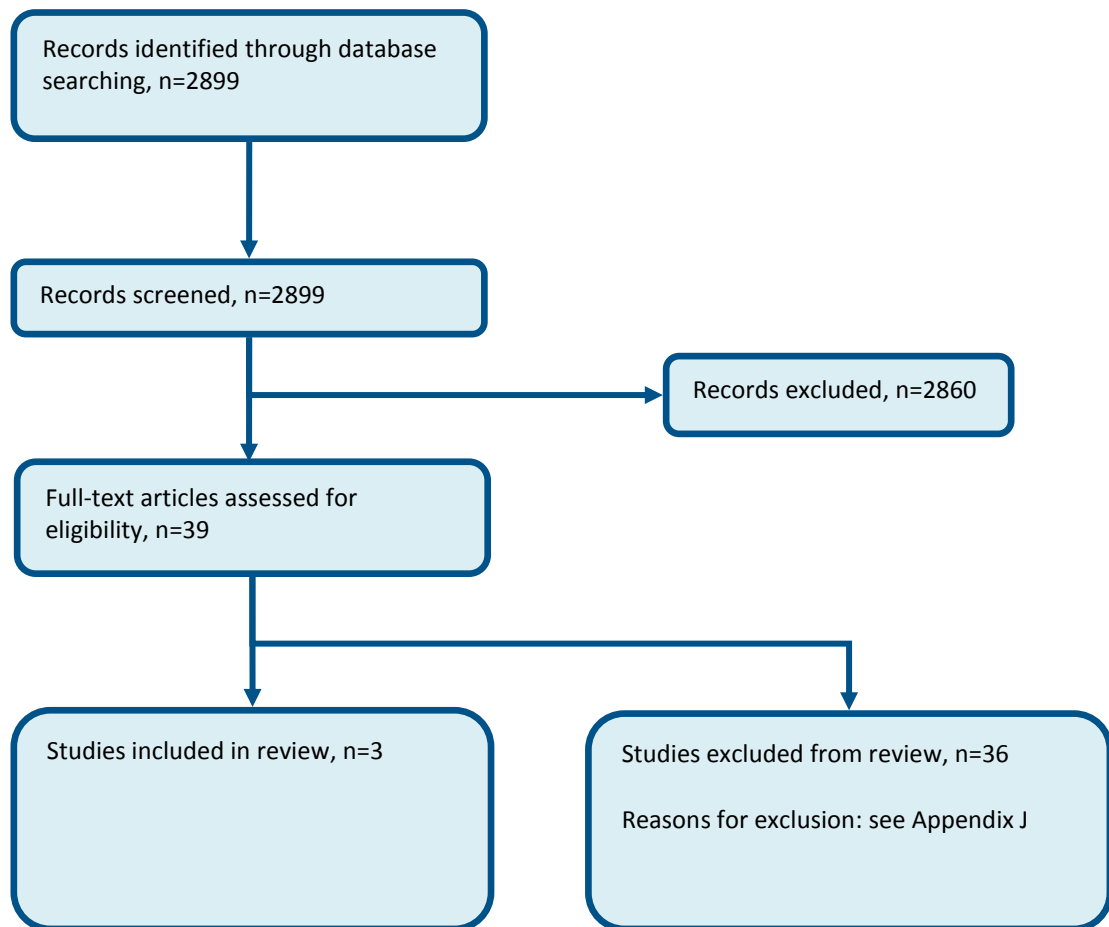
1 D.2 Pre-alert processes

Figure 2: Flow chart of clinical article selection for the review of pre-alert



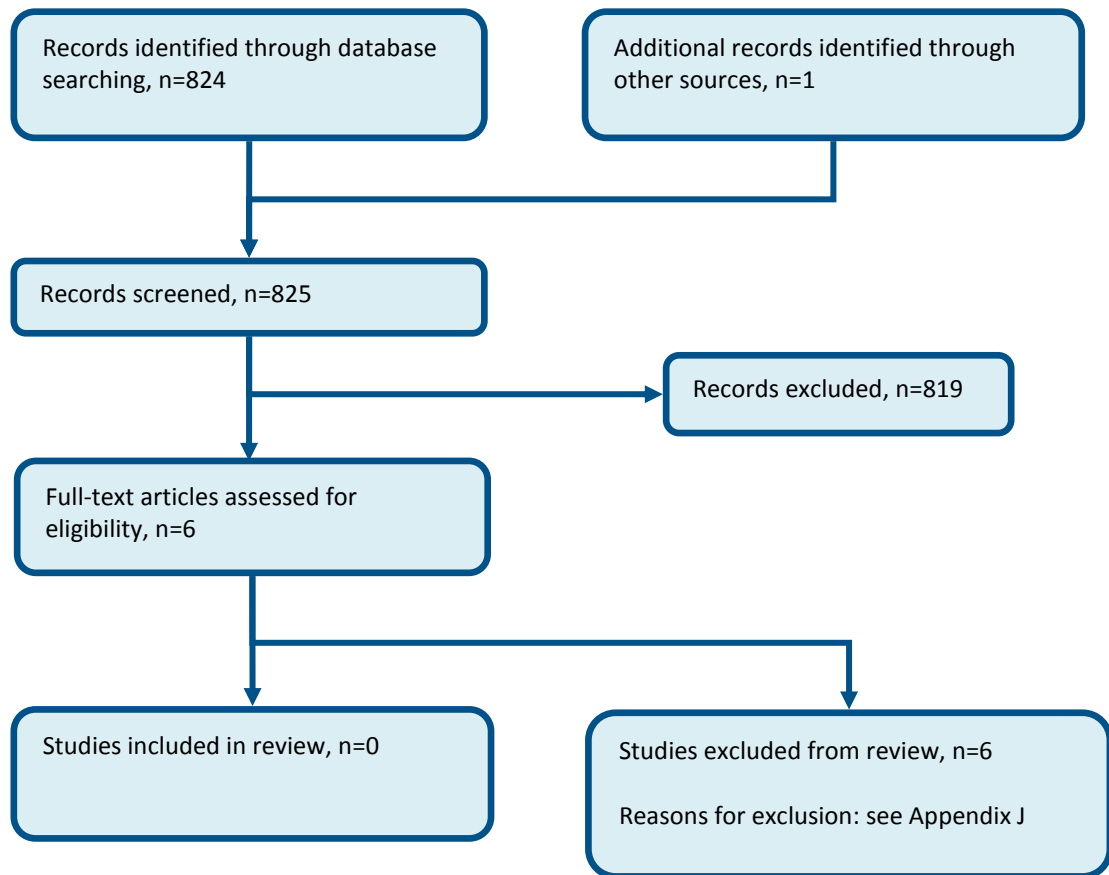
1 D.3 Receiving trauma teams

Figure 3: Flow chart of clinical article selection for the review of the clinical and cost effectiveness of tiered trauma teams



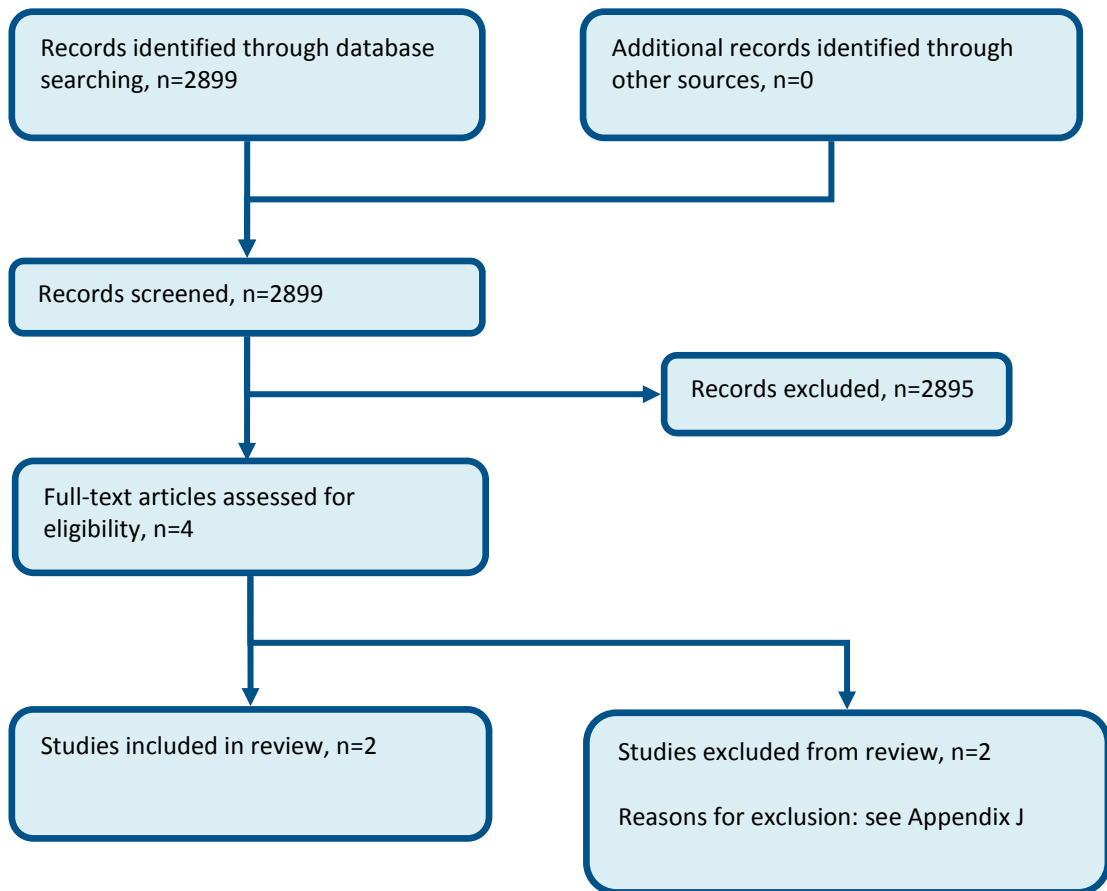
1 D.4 Transfer between emergency departments

Figure 4: Flow chart of clinical article selection for the review of retrieval teams



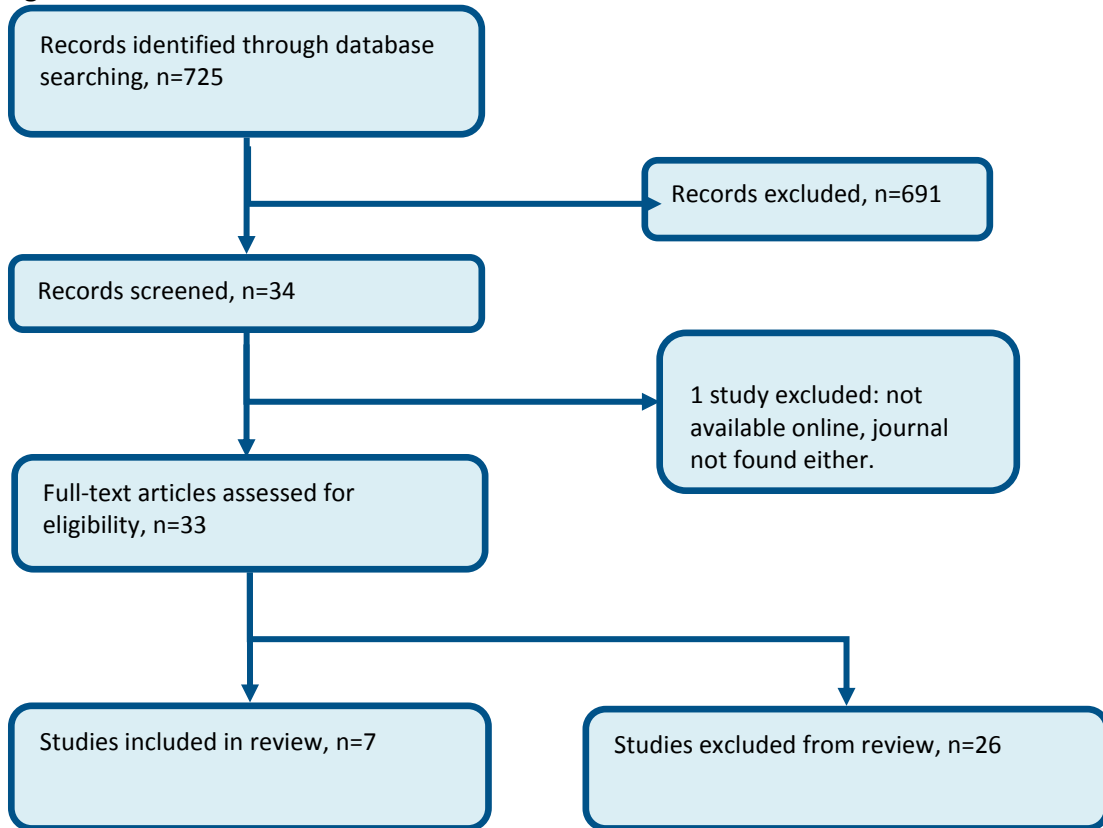
1 D.5 A trauma service providing continuity of care

Figure 5: Flow chart of clinical article selection for the review of multidisciplinary ward care



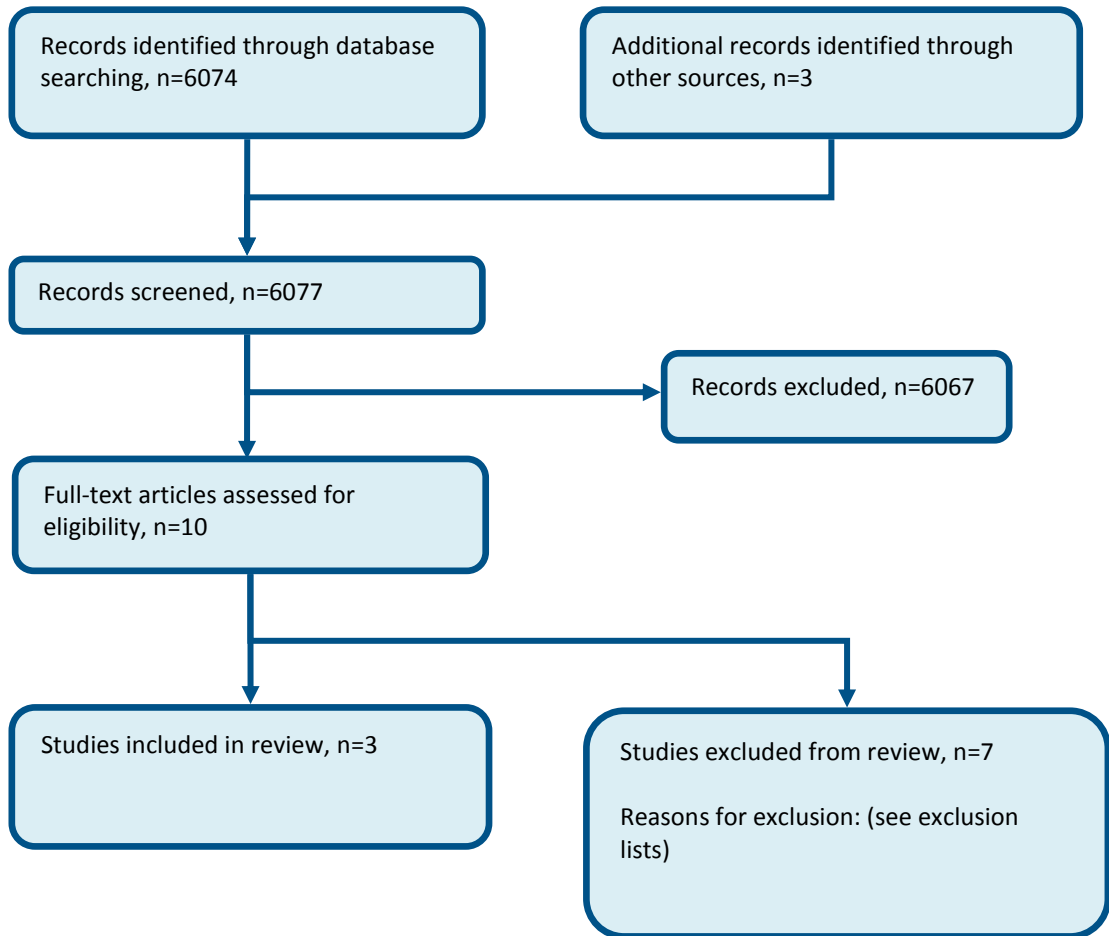
1 D.6 Continuity of care: the trauma coordinator role

Figure 6: Flow chart of clinical article selection for the review of trauma coordinators



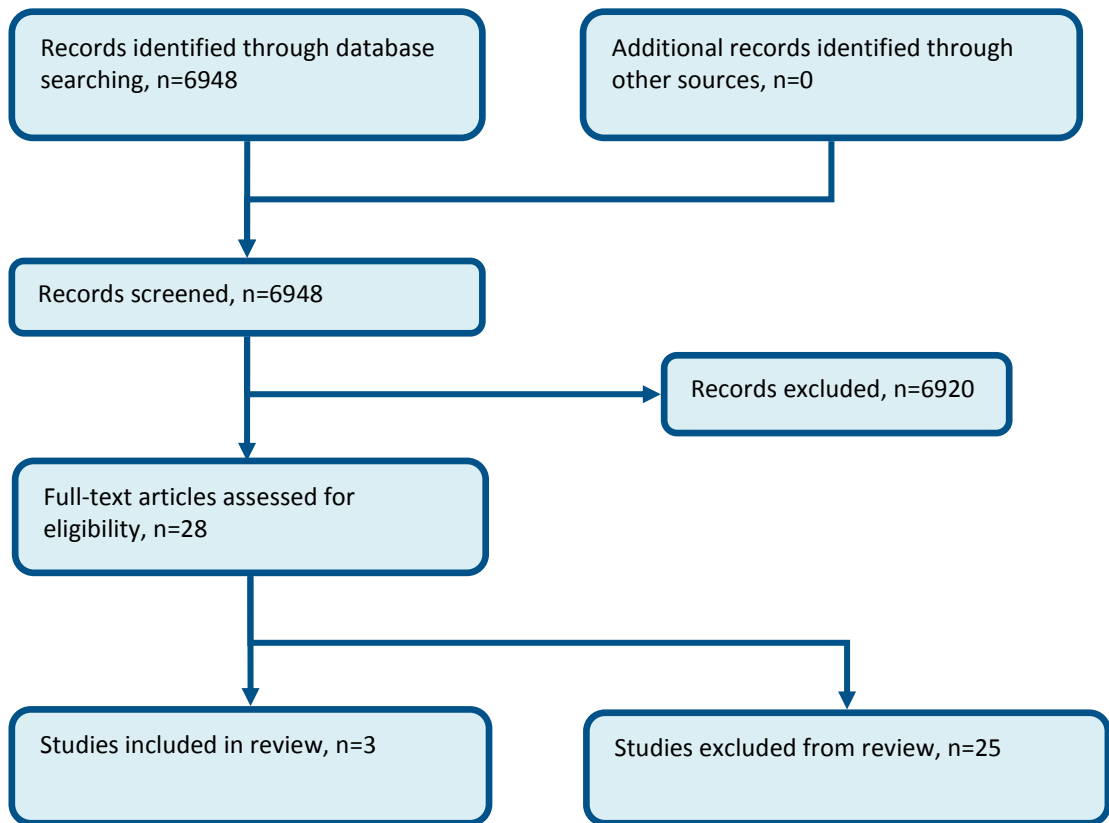
1 D.7 Documentation and transfer of information

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



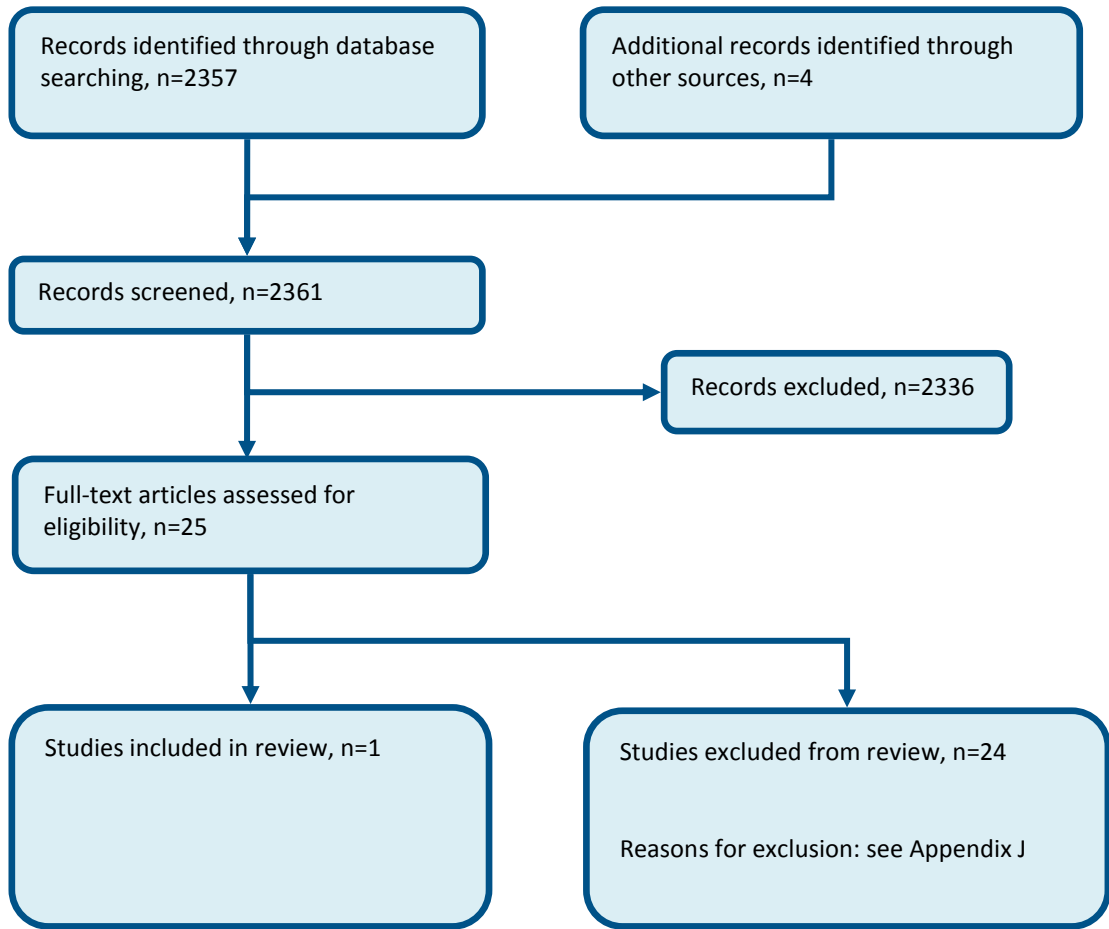
1 D.8 Trauma audit

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



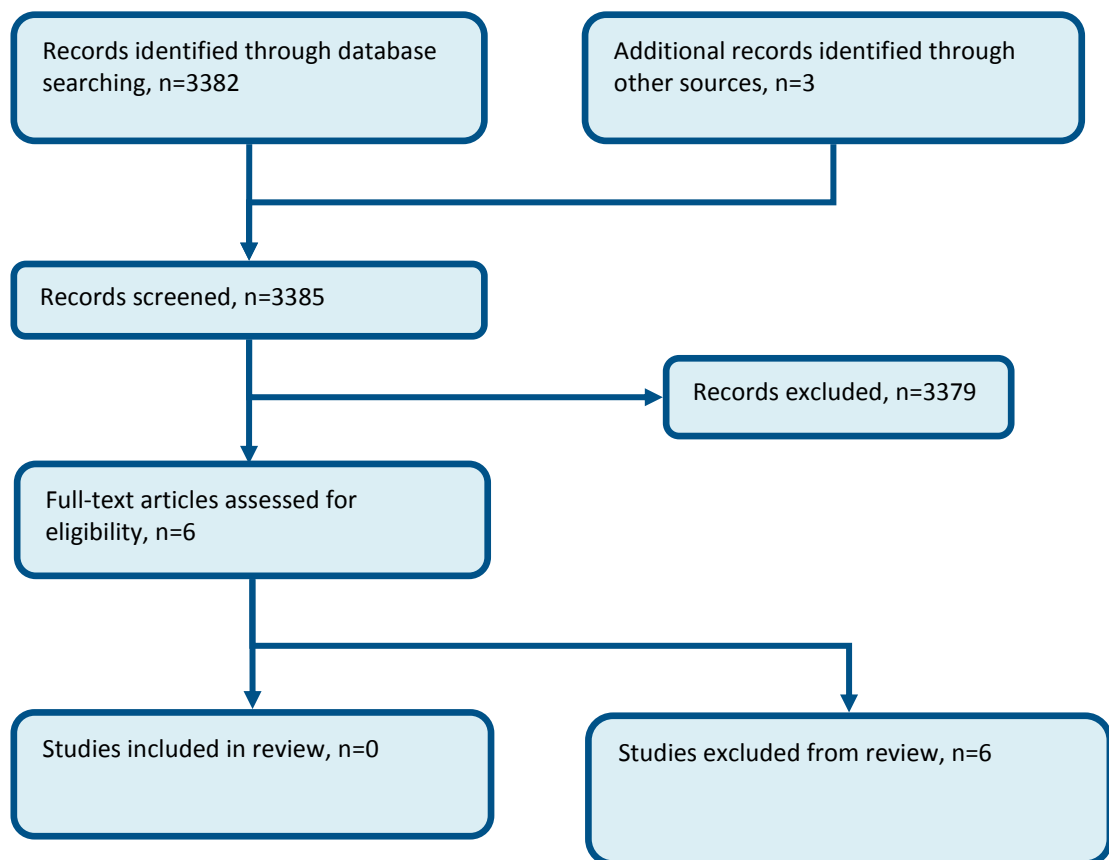
1 D.9 Paediatric trauma training

Figure 9: Flow chart of clinical article selection for the review for paediatric training



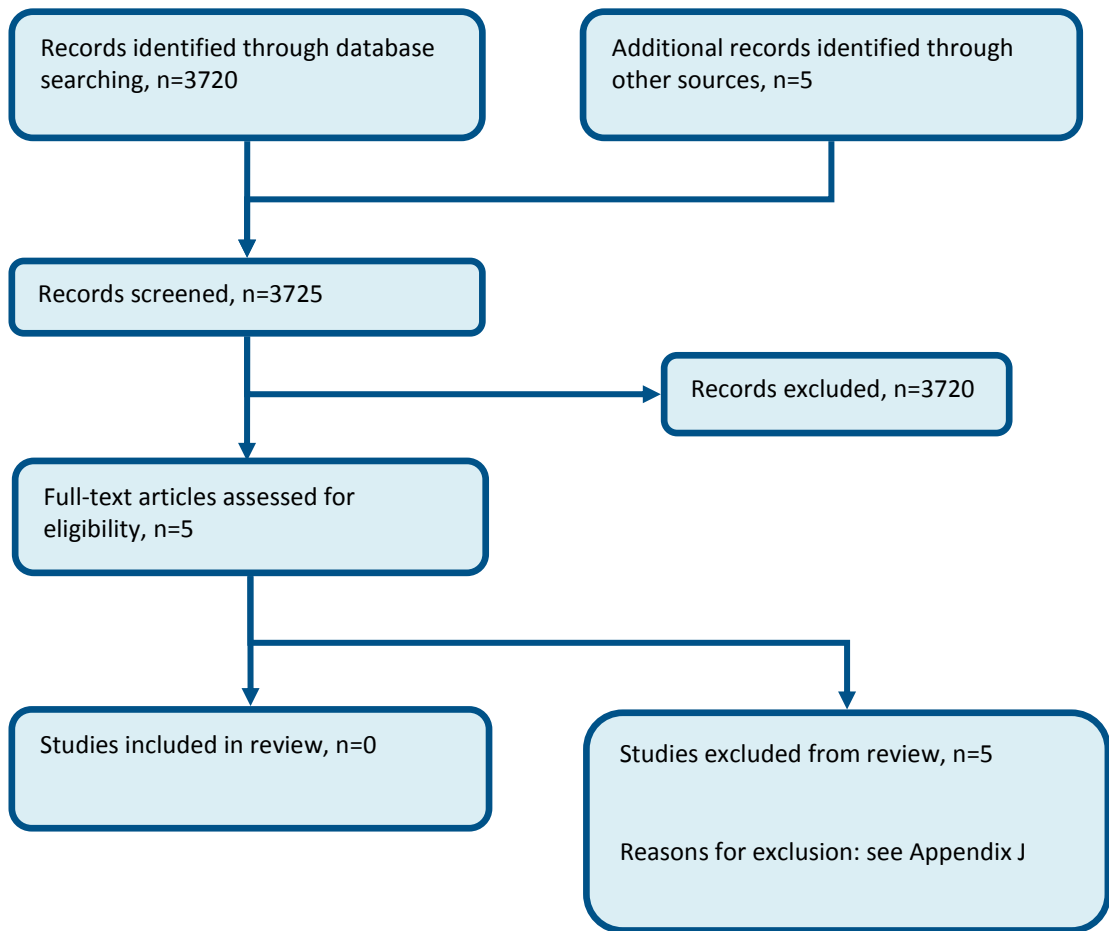
1 D.10 Information and support

Figure 10: Flow chart of clinical article selection for the review of Information and support



1 D.11 Rehabilitation

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



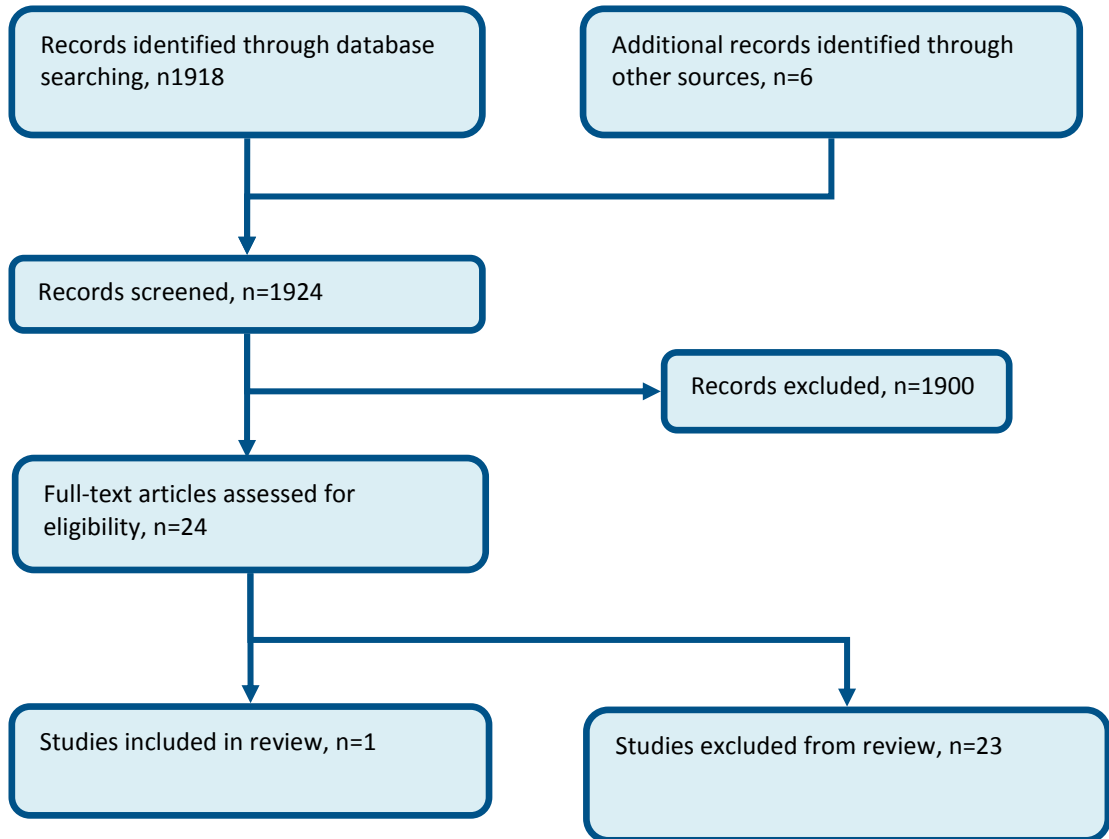
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3

1 **D.12 Access to services and the skills required to deliver the service**

2 **D.12.1 Airway**

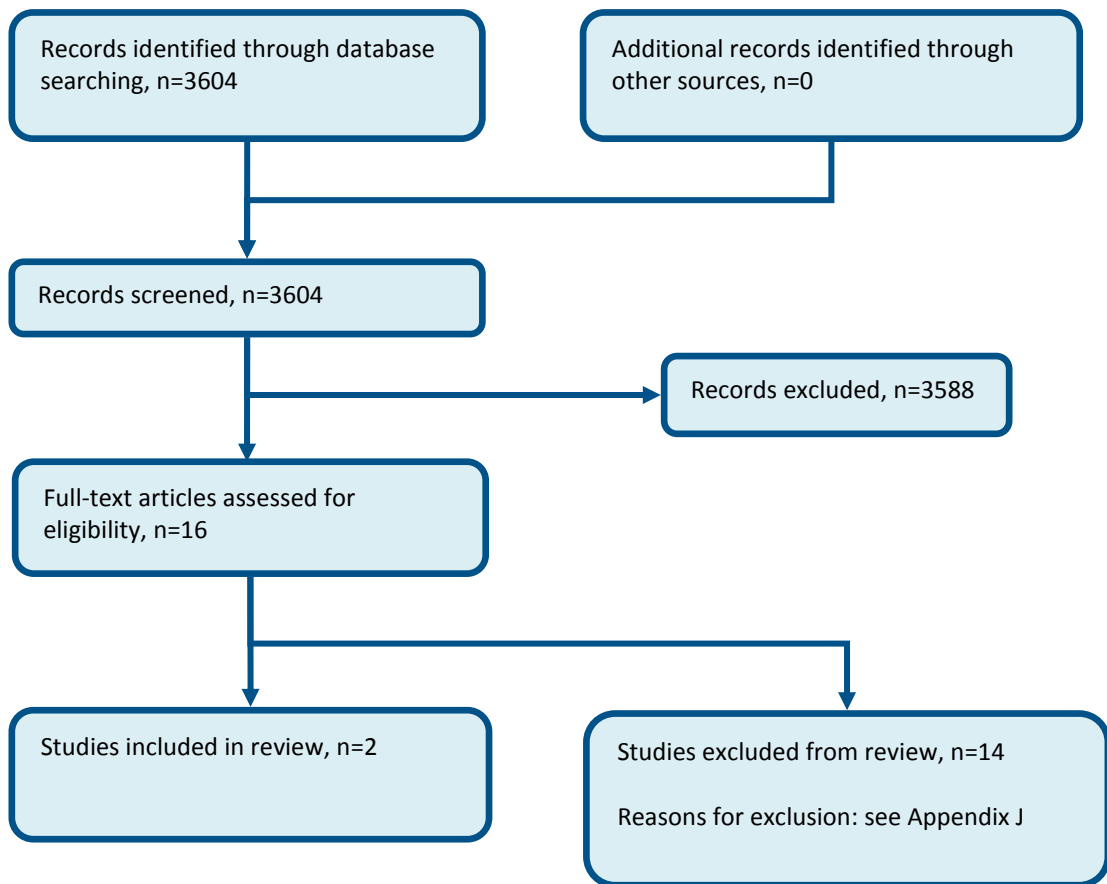
3 **Figure 12: Flow chart of clinical article selection for the review of delay to intervention - airway**



4

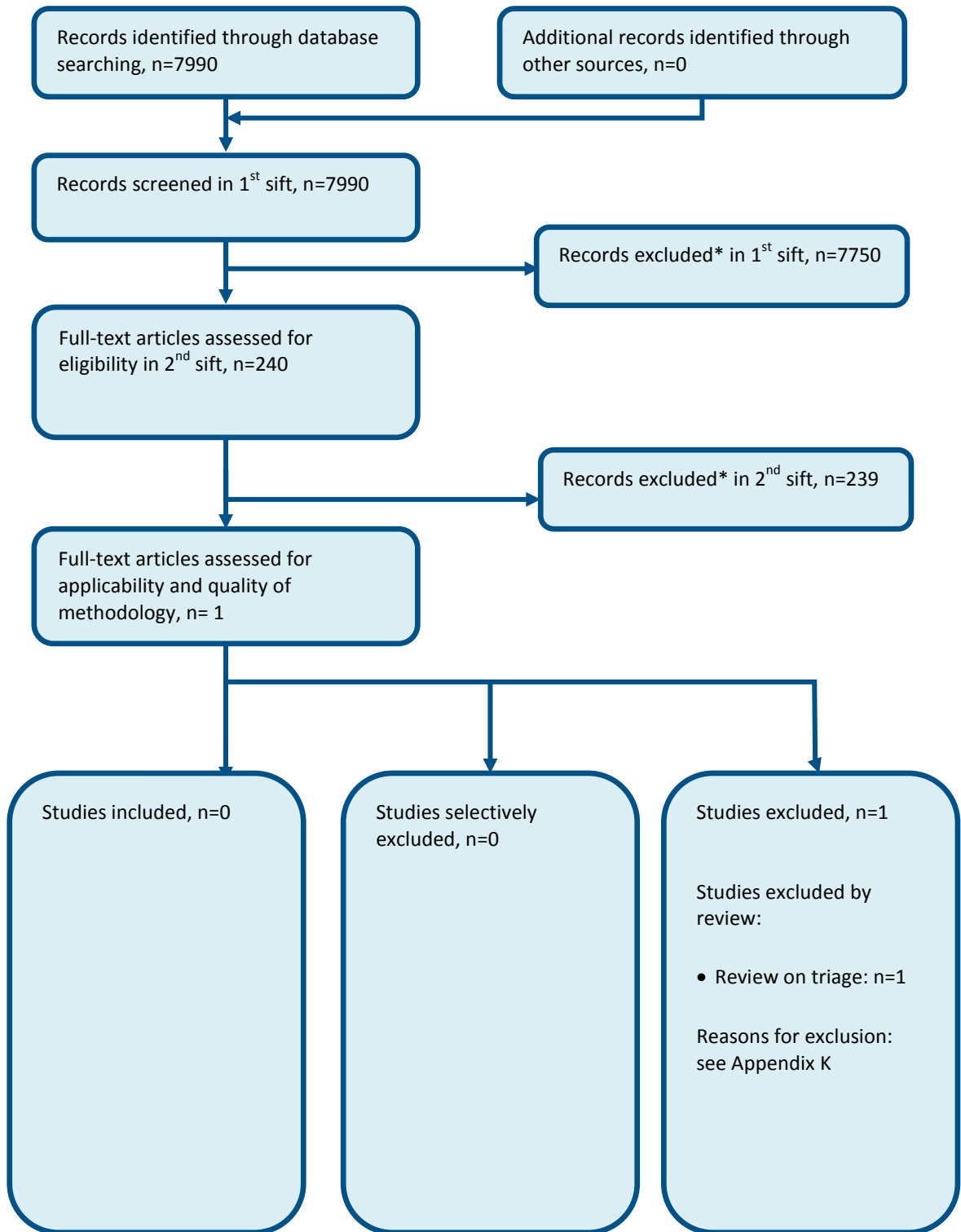
1 D.12.2 Interventional radiology

Figure 13: Flow chart of clinical article selection for the review of timing of interventional radiology



Appendix E: Economic article selection

Figure 14 - Flow chart of economic article selection for the guideline



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

3
4

1 Appendix F: Literature search strategies

2 F.1 Contents

Introduction	Search methodology
Section F.2	Population search strategy
F.2.1	Standard major trauma population
F.2.2	Expanded major trauma population
Section F.3	Study filter terms
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F.3.2	Randomised controlled trials (RCT)
F.3.3	Observational studies (OBS)
F.3.4	Qualitative studies (QUAL)
F.3.5	Diagnostic accuracy studies (DIAG)
F.3.6	Health economic studies (HE)
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F.3.8	Excluded study designs and publication types
Section F.4	Searches for specific questions with intervention
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F.4.11	Access to services – timing of intervention for blood loss or other vascular injury
F.4.12	Access to services – timing of neurosurgery
Section F.5	Health economics searches
Section Error! eference source not found.	References

3 Search strategies used for major trauma services guideline are outlined below and were run in
4 accordance with the methodology in the NICE guidelines manual 2012.¹ Final searches were run up
5 between **19th March and 31 March 2015** (see individual questions for exact date). Any studies added
6 to the databases after this date (even if they were published prior to this date) were not included
7 unless specifically stated in the text. We do not routinely search for electronic, ahead of print or
8 ‘online early’ publications. Where possible searches were limited to retrieve material published in
9 English.

1 **Table 143: Database date parameters**

Database	Dates searched
Medline	1946 to between 19/03-31/03/2015
Embase	1980 to between 19/03-31/03/2015
The Cochrane Library	Cochrane Reviews to 2015 Issue 3 of 12 CENTRAL to 2015 Issue 2 of 12 DARE, HTA and NHSEED to 2015 Issue 1 of 4
Centre for Research and Dissemination (CRD)	HTA and NHSEED Inception to 23/03-31/03/2015

2 Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane
3 Library (Wiley) unless otherwise stated. Additional searches were run in CINAHL (EBSCO) for some
4 questions and one search was run in HMIC (OVID).

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

10 Searches for the **health economic reviews** were run in Medline (OVID), Embase (OVID), the NHS
11 Economic Evaluations Database (NHS EED), the Health Technology Assessment (HTA) database and
12 the Health Economic Evaluation Database (HEED). NHS EED and HTA databases were hosted by the
13 Centre for Research and Dissemination (CRD). The Health Economic Evaluation Database (HEED)
14 ceased production in 2014 with access ceasing in January 2015. For the final dates of HEED searches,
15 please see individual economic questions.

16 Each search for the review questions were run for the health economics reviews with the addition of
17 the Medline and Embase an economic filter in place of the study type filters. The strategies are
18 included together.

19 **F.2 Population search strategies**

20 Unless otherwise stated searches used the standard major trauma population terms described
21 below. Some searches included the expanded trauma population terms as well (details for each
22 search described in Section A.4).

23 **F.2.1 Standard major trauma population**

24 **Medline search**

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

1

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

2

Cochrane search terms

#1.	MeSH descriptor: [multiple trauma] this term only
#2.	(trauma* or polytrauma*):ti
#3.	((serious* or severe* or major) near/3 (accident* or injur* or fall*)):ti
#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
#11.	(mvas or mva or rtas or rta):ti
#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
#13.	{or #1-#12}

3

CINAHL search terms

S1.	TX (trauma* or polytrauma*)
S2.	TX ((serious* or severe* or major or life threaten*) AND (accident* or injur* or fall*))
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

4

HMIC 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.	((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.
4.	(mvas or mva or rtas or rta).ti,ab.
5.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm\$ or bullet* or knife* or knives or dagger).ti,ab.
6.	wounds & injuries/
7.	exp road traffic accidents/
8.	falling/
9.	exp blast injuries/
10.	exp transport accidents/
11.	accidents/
12.	or/1-11

1

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)

2

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

1 F.2.2 Expanded trauma population

2 The following terms were combined with F.2.1 using the OR Boolean operator

3 Medline search

1.	exp emergency service, hospital/
2.	emergency medical services/
3.	((emergency or emergencies) adj2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)).ti,ab.
4.	"accident and emergency".ti,ab.
5.	a&e.ti,ab.
6.	ed.ti,ab.
7.	walk-in centre*.ti,ab.
8.	minor injuries unit*.ti,ab.
9.	exp fractures, bone/
10.	fracture*.ti,ab.
11.	exp spinal injuries/
12.	exp spinal cord injuries/
13.	spinal cord compression/
14.	exp neck injuries/
15.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) adj2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*)).ti,ab.
16.	(central cord syndrome or central spinal cord syndrome).ti,ab.
17.	(conus medullaris syndrome* or cauda equina syndrome*).ti,ab.
18.	or/1-17

4 Embase search terms

1.	exp spine injury/
2.	neck injury/ or whiplash injury/
3.	exp spinal cord injury/
4.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) adj2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*)).ti,ab.
5.	(central cord syndrome or central spinal cord syndrome).ti,ab.

6.	(conus medullaris syndrome* or cauda equina syndrome*).ti,ab.
7.	emergency health service/
8.	((emergency or emergencies) adj2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)).ti,ab.
9.	ed.ti,ab.
10.	"accident and emergency".ti,ab.
11.	a&e.ti,ab.
12.	walk-in centre*.ti,ab.
13.	minor injuries unit*.ti,ab.
14.	fracture/
15.	fracture*.ti,ab.
16.	or/1-15

1

Cochrane search terms

#1.	MeSH descriptor: [emergency service, hospital] explode all trees
#2.	MeSH descriptor: [emergency medical services] this term only
#3.	((emergency or emergencies) near/2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)).ti,ab
#4.	ed:ti,ab
#5.	"accident and emergency":ti,ab
#6.	a&e:ti,ab
#7.	walk-in centre*:ti,ab
#8.	minor injuries unit*:ti,ab
#9.	MeSH descriptor: [fractures, bone] explode all trees
#10.	fracture*:ti,ab
#11.	MeSH descriptor: [spinal injuries] explode all trees
#12.	MeSH descriptor: [spinal cord injuries] explode all trees
#13.	MeSH descriptor: [spinal cord compression] this term only
#14.	MeSH descriptor: [neck injuries] explode all trees
#15.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) near/2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*)).ti,ab,kw
#16.	(central cord syndrome or central spinal cord syndrome):ti,ab,kw
#17.	(conus medullaris syndrome or cauda equina syndrome):ti,ab,kw
#18.	{or #1-#17}

2

CRD search terms

#1.	((((emergency or emergencies) near2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*))))
#2.	MeSH descriptor emergency service, hospital explode all trees
#3.	MeSH descriptor emergency medical services
#4.	((accident near1 emergency))
#5.	((a&e))
#6.	((ed))
#7.	((walk-in centre*))
#8.	((minor injuries unit*))
#9.	MeSH descriptor fractures, bone explode all trees

#10.	((fracture*))
#11.	MeSH descriptor spinal injuries explode all trees
#12.	MeSH descriptor spinal cord injuries explode all trees
#13.	MeSH descriptor spinal cord compression
#14.	MeSH descriptor neck injuries explode all trees
#15.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) near2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*))
#16.	((central adj cord adj syndrome or central adj spinal adj cord adj syndrome)))
#17.	((conus adj medullaris adj syndrome or cauda adj equina adj syndrome)))
#18.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17

1 F.3 Study filter search terms

2 F.3.1 Systematic review (SR) search terms

3 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

4 Embase search terms

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

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

6 **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

1 F.3.4 Qualitative studies (QUAL) search terms

2 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

3 Embase search terms

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

4 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

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

6 Medline search terms

1.	predict.ti.
2.	(validat* or rule*).ti,ab.

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

1 **Embase search terms**

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

2 **Cochrane search terms**

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

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

4 **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 Health economic modelling (MOD) search terms

3

Medline search terms

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

13.	((organi?ation* or operation* or service* or concept*) adj3 (model* or map* or program* or simulation* or system* or analys*)).ti,ab.
14.	(econom* adj2 (theor* or system* or map* or evaluat*)).ti,ab.
15.	(ssm or soda).ti,ab.
16.	(strateg* adj3 (option* or choice*) adj3 (analys* or decision*)).ti,ab.
17.	soft systems method*.ti,ab.
18.	(meta-heuristic* or metaheuristic*).ti,ab.
19.	(dynamic* adj2 (model* or system*)).ti,ab.
20.	(simulation adj3 (model* or discrete event* or agent)).ti,ab.
21.	(microsimulation* or "micro* simulation*").ti,ab.
22.	((flow or core) adj2 model*).ti,ab.
23.	(data adj2 envelopment*).ti,ab.
24.	system* model*.ti,ab.
25.	or/1-24

1

Embase search terms

1.	statistical model/
2.	*theoretical model/
3.	nonbiological model/
4.	stochastic model/
5.	decision theory/
6.	decision tree/
7.	exp nursing theory/
8.	monte carlo method/
9.	(markov* or monte carlo).ti,ab.
10.	econom* model*.ti,ab.
11.	(decision* adj2 (tree* or analy* or model*)).ti,ab.
12.	((organi?ation* or operation* or service* or concept*) adj3 (model* or map* or program* or simulation* or system* or analys*)).ti,ab.
13.	(econom* adj2 (theor* or system* or map* or evaluat*)).ti,ab.
14.	(ssm or soda).ti,ab.
15.	(strateg* adj3 (option* or choice*) adj3 (analys* or decision*)).ti,ab.
16.	soft systems method*.ti,ab.
17.	(meta-heuristic* or metaheuristic*).ti,ab.
18.	(dynamic* adj2 (model* or system*)).ti,ab.
19.	(simulation adj3 (model* or discrete event* or agent)).ti,ab.
20.	(microsimulation* or "micro* simulation*").ti,ab.
21.	((flow or core) adj2 model*).ti,ab.
22.	(data adj2 envelopment*).ti,ab.
23.	system* model*.ti,ab.
24.	or/1-23

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.

1

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

2

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

3

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
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1 **F.4 Searches for specific questions (clinical (C) and health economics** 2 **(HE))**

3 **F.4.1 Pre-hospital alert and triage tools**

4 Two searches were combined for this question.

5 1. What is the triage accuracy of ambulance triage tools versus alternative triage methods in the run
6 up to definitive treatment for people with major trauma?

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

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
A	Major trauma	Clinical triage tools in emergency settings	<p>The following filters were used for clinical searches in Medline and Embase only: PRE-RULE, RCT, SR</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 HEED Inception – 05/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE) English only Exclusion filter applied in Medline and</p>

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
				Embase
B	Major trauma	Pre-hospital alerts	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	As for search A except HEED last searched 08/12/2014

1

Medline search terms – search A

1.	emergency medical services/ or triage/ or transportation/ or air ambulances/ or ambulances/ or "transportation of patients"/ or ambulance diversion/
2.	(prehospital* or pre hospital* or roadside* or road side* or triage or triaging).ti,ab.
3.	((accident* or trauma) adj2 (site* or scene* or location*)).ti,ab.
4.	((outside or out) adj2 hospital).ti,ab.
5.	(emergency adj2 (service* or staff or personnel)).ti,ab.
6.	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon*).ti,ab.
7.	or/1-6
8.	((trauma or triage or injur*) adj2 (scale* or tool* or score* or scoring or index*)).ti,ab.
9.	((risk or predict*) adj2 (scale* or tool* or score* or scoring or index*)).ti,ab.
10.	(decision adj2 (technique* or system*)).ti,ab.
11.	((decision or prediction) adj2 (tool* or rule*)).ti,ab.
12.	decision support techniques/
13.	trauma severity indices/ or abbreviated injury scale/ or glasgow coma scale/ or injury severity score/
14.	(london adj3 prog*).ti,ab.
15.	or/8-14
16.	7 and 15

2

Embase search terms – search A

1.	*emergency health service/
2.	*emergency care/ or *rescue personnel/ or *emergency patient/ or *emergency treatment/
3.	*ambulance/ or *ambulance diversion/ or *ambulance transportation/
4.	*patient transport/
5.	*air medical transport/
6.	*paramedical personnel/
7.	(prehospital* or pre hospital* or roadside* or road side* or triage or triaging).ti,ab.
8.	((accident* or trauma) adj2 (site* or scene* or location*)).ti,ab.
9.	((outside or out) adj2 hospital).ti,ab.
10.	(emergency adj2 (service* or staff or personnel)).ti,ab.
11.	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon*).ti,ab.
12.	or/1-11

13.	((trauma or triage or injur*) adj2 (scale* or tool* or score* or scoring or index*)):ti,ab.
14.	((risk or predict*) adj2 (scale* or tool* or score* or scoring or index*)):ti,ab.
15.	(decision adj2 (technique* or system*)):ti,ab.
16.	((decision or prediction) adj2 (tool* or rule*)):ti,ab.
17.	*decision support system/
18.	*injury scale/ or *glasgow coma scale/
19.	(london adj3 prog*):ti,ab.
20.	or/13-19
21.	12 and 20

1

Cochrane search terms – search A

#1.	MeSH descriptor: [emergency medical services] this term only
#2.	MeSH descriptor: [triage] this term only
#3.	MeSH descriptor: [transportation] this term only
#4.	MeSH descriptor: [air ambulances] this term only
#5.	MeSH descriptor: [ambulances] this term only
#6.	MeSH descriptor: [transportation of patients] this term only
#7.	MeSH descriptor: [ambulance diversion] this term only
#8.	(prehospital* or pre hospital* or roadside* or road side* or triage or triaging):ti,ab
#9.	((accident* or trauma) near/2 (site* or scene* or location*)):ti,ab
#10.	((outside or out) near/2 hospital):ti,ab
#11.	(emergency near/2 (service* or staff or personnel)):ti,ab
#12.	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon*):ti,ab
#13.	{or #1-#12}
#14.	((trauma or triage or injur*) near/2 (scale* or tool* or score* or scoring or index*)):ti,ab
#15.	((risk or predict*) near/2 (scale* or tool* or score* or scoring or index*)):ti,ab
#16.	(decision near/2 (technique* or system*)):ti,ab
#17.	((decision or prediction) near/2 (tool* or rule*)):ti,ab
#18.	MeSH descriptor: [decision support techniques] this term only
#19.	MeSH descriptor: [trauma severity indices] this term only
#20.	MeSH descriptor: [abbreviated injury scale] this term only
#21.	MeSH descriptor: [glasgow coma scale] this term only
#22.	MeSH descriptor: [injury severity score] this term only
#23.	london near/3 prog*:ti,ab
#24.	{or #14-#23}
#25.	#13 and #24

2

CRD search terms – search A

#1.	MeSH descriptor emergency medical services
#2.	MeSH descriptor triage
#3.	MeSH descriptor transportation
#4.	MeSH descriptor air ambulances
#5.	MeSH descriptor ambulances
#6.	MeSH descriptor transportation of patients
#7.	MeSH descriptor ambulance diversion

#8.	((prehospital* or pre hospital* or roadside* or road side* or triage or triaging))
#9.	((accident* or trauma) near2 (site* or scene* or location*))
#10.	((outside or out) near2 (hospital))
#11.	((emergency) near2 (service* or staff or personnel))
#12.	((ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon*))
#13.	(#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12)
#14.	((trauma or triage or injur*) near2 (scale* or tool* or score* or scoring or index*))
#15.	((risk or predict*) near2 (scale* or tool* or score* or scoring or index*))
#16.	((decision) near2 (technique* or system*))
#17.	((decision or prediction) near2 (tool* or rule*))
#18.	MeSH descriptor decision support techniques
#19.	MeSH descriptor trauma severity indices
#20.	MeSH descriptor abbreviated injury scale
#21.	MeSH descriptor glasgow coma scale
#22.	MeSH descriptor injury severity score
#23.	(#13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22)
#24.	(#13 and #23)

1

HEED search terms – search A

1.	AX=prehospital* or roadside* or triage or triaging
2.	AX='pre hospital' or 'pre hospitalisation'
3.	AX=emergency
4.	AX=service* or staff or personnel
5.	CS=3 and 4
6.	AX=ambulance* or helicopter* or paramedic*
7.	AX='emergency medic' or 'emergency medicine' or emergency medical'
8.	AX='emergency service' or emergency services'
9.	AX='emergency care'
10.	AX= 'first response' or 'first responder' or 'first responders'
11.	CS=1 or 2 or 5 or 6 or 7 or 8 or 9 or 10

2

Medline search terms – search B

1.	(pre alert* or prealert*).ti,ab.
2.	blue call*.ti,ab.
3.	(over-triage* or overtriage* or under triage*).ti,ab.
4.	Emergency Medical Service Communication Systems/
5.	((notif* or alert* or warn*) adj4 (trauma* or triage* or ambulance* or call* or telephone* or system* or early)).ti,ab.
6.	((pre-hospital or prehospital) adj4 (notif* or alert* or warn* or call* or telephone* or system*)).ti,ab.
7.	or/1-6

3

Embase search terms – search B

1.	(pre alert* or prealert*).ti,ab.
2.	blue call*.ti,ab.
3.	(over-triage* or overtriage* or under triage*).ti,ab.

4.	((notif* or alert* or warn*) adj4 (trauma* or triage* or ambulance* or call* or telephone* or system* or early)).ti,ab.
5.	((pre-hospital or prehospital) adj4 (notif* or alert* or warn* or call* or telephone* or system*)).ti,ab.
6.	or/1-6

1 **Cochrane search terms – search B**

#1.	(pre next alert* or prealert*):ti,ab
#2.	blue call*:ti,ab
#3.	over next triage*:ti,ab
#4.	under next triage*:ti,ab
#5.	overtriage*:ti,ab
#6.	((notif* or alert* or warn*) near/4 (trauma* or triage* or ambulance* or call* or telephone* or system* or early)):ti,ab
#7.	((pre next hospital or prehospital) near/4 (notif* or alert* or warn* or call* or telephone* or system*)):ti,ab
#8.	MeSH descriptor: [emergency medical service communication systems] this term only
#9.	{or #1-#8}

2 **CRD search terms – search B**

#1.	((pre alert* or prealert*))
#2.	(blue call*)
#3.	((over-triage* or overtriage* or under triage*))
#4.	((notif* or alert* or warn*) near4 (trauma* or triage* or ambulance* or call* or telephone* or system* or early)))
#5.	((pre-hospital or prehospital) near4 (notif* or alert* or warn* or call* or telephone* or system*))
#6.	MeSH descriptor emergency medical service communication systems
#7.	((#1 or #2 or #3 or #4 or #5 or #6))

3 **HEED search terms – search B**

1.	AX='pre alert' or 'pre-alert' or 'pre alerts' or 'pre-alerts' or 'pre alerted' or 'pre-alerted' or 'pre alerting' or 'pre-alerting'
2.	AX='blue call' or 'blue calls' or 'blue-call' or 'blue-calls'
3.	AX='over triage' or 'over-triage' or overtriage 'under triage'
4.	AX=notif* or alert* or warn*
5.	AX=trauma* or triage* or ambulance* or call* or telephone* or system* or early
6.	CS=4 and 5
7.	AX='pre-hospital' or 'pre hospital' or prehospital
8.	AX=notif* or alert* or warn* or call* or telephone* or system*
9.	CS=7 and 8
10.	CS=1 or 2 or 3 or 6 or 9

4 **F.4.2 Tiered teams and multidisciplinary management**

5 Two searches were combined for the following two questions:

- 6 2. What is the clinical and cost effectiveness of providing a tiered response to patients arriving at a
7 major trauma centre or a trauma unit?
8 3. Is there a benefit of multidisciplinary trauma ward care versus specialist ward care?

- 1 Search constructed by combining the columns in the following table using the AND Boolean operator
 2 and by combining the rows using the OR Boolean operator. Exclusion filter applied using NOT
 3 Boolean operator. Search B was not run in CINAHL.

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
A	Major trauma	Trauma teams or multidisciplinary teams	<p>The following filters were used for clinical searches in Medline and Embase only: OBS, RCT, SR</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 Date of last search: 23/03/2015 HEED – Inception – 05/11/2014 English only Exclusion filter applied in Medline, Embase and CINAHL</p>
B		Trauma teams	<p>No filters were added for the clinical searches.</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>As search A except HEED last searched 03/12/2014</p>

1 **Medline search terms – search A**

1.	(trauma adj2 team*).ti,ab.
2.	(tier* adj2 (team* or response* or staff*)).ti,ab.
3.	((standard or advanced or basic or core or full or reduced or extra) adj2 (team* or response* or staff*)).ti,ab.
4.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) adj2 (work* or team* or care or ward#)).ti,ab.
5.	(specialist* or specialit*).ti,ab.
6.	emergency service, hospital/ma
7.	emergency service, hospital/og
8.	patient care team/ma
9.	patient care team/og
10.	trauma centers/ma
11.	trauma centers/og
12.	hospital units/ma
13.	hospital units/og
14.	exp intensive care units/ma
15.	exp intensive care units/og
16.	or/1-15

2 **Embase search terms – search A**

1.	(trauma adj2 team*).ti,ab.
2.	(tier* adj2 (team* or response* or staff*)).ti,ab.
3.	((standard or advanced or basic or core or full or reduced or extra) adj2 (team* or response* or staff*)).ti,ab.
4.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) adj2 (work* or team* or care or ward#)).ti,ab.
5.	(specialist* or specialit*).ti,ab.
6.	or/1-5

3 **Cochrane search terms –search A**

#1.	(trauma near/2 team*).ti,ab
#2.	(tier* near/2 (team* or response* or staff*)):ti,ab
#3.	((standard or advanced or basic or core or full or reduced or extra) near/2 (team* or response* or staff*)):ti,ab
#4.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) near/2 (work* or team* or care or ward or wards)):ti,ab
#5.	(specialist* or specialit*):ti,ab
#6.	[mh ^"emergency service, hospital"/ma,og]
#7.	[mh ^"patient care team"/ma,og]
#8.	[mh ^"trauma centers"/ma,og]
#9.	[mh ^"hospital units"/ma,og]
#10.	[mh "intensive care units"/ma,og]
#11.	{or #1-#10}

4 **CINAHL search terms – search A**

S1.	trauma n2 team*
S2.	(tier* n2 (team* or response* or staff*))
S3.	((standard or advanced or basic or core or full or reduced or extra) n2 (team* or response* or staff*))
S4.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) n2 (work* or team* or care or ward#))
S5.	(specialist* or specialit*)
S6.	S1 or S2 or S3 or S4 or S5

1

CRD search terms – search A

#1.	((trauma near2 team*))
#2.	((tier* near2 (team* or response* or staff*)))
#3.	((standard or advanced or basic or core or full or reduced or extra) near2 (team* or response* or staff*))
#4.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) near2 (work* or team* or care or ward*))
#5.	((specialist* or specialit*))
#6.	MeSH descriptor emergency service, hospital with qualifier ma
#7.	MeSH descriptor emergency service, hospital with qualifier og
#8.	MeSH descriptor patient care team with qualifier og
#9.	MeSH descriptor trauma centers with qualifier ma
#10.	MeSH descriptor trauma centers with qualifier og
#11.	MeSH descriptor hospital units with qualifier ma
#12.	MeSH descriptor hospital units with qualifier og
#13.	MeSH descriptor intensive care units explode all trees with qualifier ma
#14.	MeSH descriptor intensive care units explode all trees with qualifier og
#15.	(#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14)

2

HEED search terms – search A

1.	AX=interdisciplinary or multidisciplinary or combin* or interprofessional or multiprofessional
2.	AX='inter professional'
3.	AX='multi professional'
4.	AX='multi disciplinary'
5.	AX='inter disciplinary'
6.	CS=1 or 2 or 3 or 4 or 5
7.	AX=work* or team* or care or ward*
8.	CS=6 and 7
9.	AX=tier* or standard or advanced or basic or core or full or reduced or extra
10.	AX=team* or response* or staff*
11.	CS=9 and 10
12.	AX=trauma* and team
13.	AX=specialist* or specialit*
14.	CS=8 or 11 or 12 or 13

3

Medline search terms – search B

1.	(trauma adj2 team*).ti,ab.
----	----------------------------

2.	(tier* adj2 (team* or response* or staff* or triage* or trauma*)):ti,ab.
3.	1 or 2

1 **Embase search terms – search B**

1.	(trauma adj2 team*):ti,ab.
2.	(tier* adj2 (team* or response* or staff* or triage* or trauma*)):ti,ab.
3.	1 or 2

2 **Cochrane search terms –search B**

#1.	(trauma near/2 team*):ti,ab
#2.	(tier* near/2 (team* or response* or staff* or triage* or trauma*)):ti,ab
#3.	#1 or #2

3 **CRD search terms – search B**

#1.	(trauma near2 team*)
#2.	((tier* near2 (team* or response* or staff* or triage* or trauma*)))
#3.	#1 or #2

4 **HEED search terms – search B**

1.	AX=trauma AND team
2.	AX=tier*
3.	AX=team* or response* or staff* or triage* or trauma*
4.	CS=2 and 3
5.	CS=1 or 4

5 **F.4.3 Retrieval teams**

6 4. Is it clinically and cost effective to provide a retrieval service?

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	Retrieval service	n/a	<p>No filters were added for the clinical searches.</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases</p>

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				<p>after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 HEED Inception – 18/11/2015 Date of last search: 19/03/2015 (C) 24/03/2015 English only Exclusion filter applied in Medline and Embase</p>

1

Medline search terms

1.	((indirect* or secondary or interfacility or inter-facility or tertiary) adj5 transfer*).ti,ab.
2.	(retrieval adj5 service*).ti,ab.
3.	(trauma adj6 transfer*).ti,ab.
4.	or/1-3

2

Embase search terms

1.	((indirect* or secondary or interfacility or inter-facility or tertiary) adj5 transfer*).ti,ab.
2.	(retrieval adj5 service*).ti,ab.
3.	(trauma adj6 transfer*).ti,ab.
4.	or/1-3

3

Cochrane search terms

#1.	((indirect* or secondary or interfacility or inter-facility or tertiary) near/5 transfer*):ti,ab
#2.	(retrieval near/5 service*):ti,ab
#3.	(trauma near/6 transfer*):ti,ab
#4.	{or #1-#3}

4

CRD search terms

#1.	(((indirect* or secondary or interfacility or inter-facility or tertiary) near5 transfer*))
#2.	((retrieval near5 service*))
#3.	((trauma near6 transfer*))
#4.	#1 or # 2 or #3

1

HEED search terms

1.	AX=retrieval and service*
2.	AX=indirect* or secondary or interfacility or inter-facility or tertiary or trauma
3.	AX=transfer*
4.	CS=2 and 3
5.	CS=1 or 4

2 F.4.4 Trauma coordination

3 5. What trauma coordination approach is the most clinically and cost effective?

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
n/a	Trauma coordinator	n/a	<p>No filters were added for the clinical searches.</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible</p>

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				searches were limited to retrieve material published in English. Table 143 HEED Inception – 04/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE) English only Exclusion filter applied in Medline, Embase and CINAHL

1 **Medline search terms**

1.	(trauma* adj2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*)):ti,ab.
----	---

2 **Embase search terms**

1.	(trauma* adj2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*)):ti,ab.
----	---

3 **Cochrane search terms**

#1.	(trauma* near/2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*)):ti,ab
-----	--

4 **CINAHL search terms**

S1.	(trauma* n2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*))
-----	--

5 **CRD search terms**

#1.	(trauma*) AND (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*)
-----	---

6 **HEED search terms**

1.	TI=trauma*
2.	AB=trauma*
3.	CS=1 or 2
4.	TI=co-ordinat* or nurse* or coordinat* or lead or keyworker* or administrat*
5.	AB=co-ordinat* or nurse* or coordinat* or lead or keyworker* or administrat*
6.	TI=key and worker*
7.	AB=key and worker*
8.	TI=case and manag*
9.	AB=case and manag*
10.	CS=4 or 5 or 6 or 7 or 8 or 9
11.	CS=3 and 10

1 **F.4.5 Documentation**

2 6. What are the barriers to the transfer of information and documentation from a) pre-hospital to
3 the ED b) from the ED to surgery, other departments?

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 OR Fractures OR Emergencies settings	Documentation	n/a	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English. Table 143

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				Date of last search: 20/03/2015 (C) 24/03/2015 (HE) English only Exclusion filter applied in Medline, Embase and CINAHL

1

Medline search terms

1.	<i>standard trauma population (see A.2.1)</i>
2.	exp emergency service, hospital/
3.	emergency medical services/
4.	((emergency or emergencies) adj2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)).ti,ab.
5.	"accident and emergency".ti,ab.
6.	a&e.ti,ab.
7.	ed.ti,ab.
8.	walk-in centre*.ti,ab.
9.	minor injuries unit*.ti,ab.
10.	or/2-9
11.	exp fractures, bone/
12.	fracture*.ti,ab.
13.	11or 12
14.	1 or 10 or 13
15.	"continuity of patient care"/
16.	patient handoff/
17.	(handoff* or hand-off* or handover* or hand-over*).ti,ab.
18.	((information* or document* or record* or form*) adj2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*)).ti,ab.
19.	(information* adj2 (loss or lost or flow* or gap*)).ti,ab.
20.	medical record linkage/mt, st [methods, standards]
21.	*medical record linkage/
22.	exp medical records systems, computerized/og, st, ut [organization & administration, standards, utilization]
23.	exp *medical records systems, computerized/
24.	medical records/mt, og, st, ut [methods, organization & administration, standards, utilization]
25.	*medical records/
26.	nursing records/mt, st, ut [methods, standards, utilization]
27.	*nursing records/
28.	documentation/mt, st, ut [methods, standards, utilization]
29.	*documentation/
30.	or/15-29
31.	14 and 30

1

Embase search terms

1.	<i>standard trauma population (see A.2.1)</i>
2.	emergency health service/
3.	((emergency or emergencies) adj2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)):ti,ab.
4.	ed.ti,ab.
5.	"accident and emergency".ti,ab.
6.	a&e.ti,ab.
7.	walk-in centre*.ti,ab.
8.	minor injuries unit*.ti,ab.
9.	or/2-9
10.	fracture/
11.	fracture*.ti,ab.
12.	or/10-11
13.	1 or 9 or 12
14.	*patient care/
15.	*clinical handover/
16.	(handoff* or hand-off* or handover* or hand-over*).ti,ab.
17.	((information* or document* or record* or form*) adj2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*)):ti,ab.
18.	(information* adj2 (loss or lost or flow* or gap*)):ti,ab.
19.	*medical record/
20.	exp *electronic medical record/
21.	*documentation/
22.	or/14-21
23.	13 and 22

2

Cochrane search terms

#1.	<i>standard trauma population (see A.2.1)</i>
#2.	MeSH descriptor: [emergency service, hospital] explode all trees
#3.	MeSH descriptor: [emergency medical services] this term only
#4.	((emergency or emergencies) near/2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)):ti,ab
#5.	ed:ti,ab
#6.	"accident and emergency":ti,ab
#7.	a&e:ti,ab
#8.	walk-in centre*:ti,ab
#9.	minor injuries unit*:ti,ab
#10.	{or #2-#9}
#11.	MeSH descriptor: [fractures, bone] explode all trees
#12.	fracture*:ti,ab
#13.	#11 or #12
#14.	#1 or #10 or #13
#15.	MeSH descriptor: [continuity of patient care] this term only
#16.	MeSH descriptor: [patient handoff] this term only
#17.	(handoff* or hand-off* or handover* or hand-over*):ti,ab

#18.	((information* or document* or record* or form*) near/2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*)):ti,ab
#19.	(information* near/2 (loss or lost or flow* or gap*)):ti,ab
#20.	MeSH descriptor: [medical record linkage] this term only
#21.	MeSH descriptor: [medical records systems, computerized] explode all trees
#22.	MeSH descriptor: [medical records] this term only
#23.	MeSH descriptor: [nursing records] this term only
#24.	MeSH descriptor: [documentation] this term only
#25.	{or #15-#24}
#26.	#14 and #25

1

CINAHL search terms

S1.	<i>standard trauma population (see A.2.1)</i>
S2.	(MM "emergency Service+")
S3.	(MH "emergency Medical Services")
S4.	TX ed
S5.	TX "accident and emergency"
S6.	TX A&E
S7.	TX walk-in centre*
S8.	TX minor injuries unit*
S9.	S2 or S3 or S4 or S5 or S6 or S7 or S8
S10.	TX fracture*
S11.	(MH "fractures")
S12.	S10 or S11
S13.	S1 or S9 or S12
S14.	(MH "continuity of patient care")
S15.	(MH "hand off (patient safety)")
S16.	TX (handoff* or hand-off* or handover* or hand-over*)
S17.	TX (((information* or document* or record* or form*) n2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*)))
S18.	TX (information* n2 (loss or lost or flow* or gap*))
S19.	(MM "patient record systems")
S20.	(MM "medical records") or (MM "computerized patient record") or (MM "medical record linkage") or (MM "nursing records")
S21.	(MH "documentation")
S22.	S14 or S15 or S16 or S17 or S18 or S19 or S20 or S21
S23.	S13 and S22

2

HMIC search terms

1.	<i>standard trauma population (see A.2.1)</i>
2.	"continuity of patient care"/
3.	(handoff* or hand-off* or handover* or hand-over*).ti,ab.
4.	((information* or document* or record* or form*) adj2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*)):ti,ab.
5.	(information* adj2 (loss or lost or flow* or gap*)):ti,ab.
6.	medical records/ or nursing records/
7.	computerised information handling/

8.	or/2-7
9.	1 and 8

1

CRD search terms

#1.	<i>standard trauma population (see A.2.1)</i>
#2.	((emergency or emergencies) near2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*))
#3.	MeSH descriptor emergency service, hospital explode all trees
#4.	MeSH descriptor emergency medical services
#5.	(accident near1 emergency)
#6.	(a&e)
#7.	(ed)
#8.	(walk-in centre*)
#9.	(minor injuries unit*)
#10.	#2 or #3 or #4 or #5 or #6 or #7 or #8 or #9
#11.	MeSH descriptor fractures, bone explode all trees
#12.	(fracture*)
#13.	#11 or #12
#14.	#10 or #13
#15.	MeSH descriptor continuity of patient care
#16.	MeSH descriptor patient handoff
#17.	((handoff* or hand-off* or handover* or hand-over*))
#18.	((information* or document* or record* or form*) near2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*))
#19.	((information* near2 (loss or lost or flow* or gap*))
#20.	MeSH descriptor medical record linkage
#21.	MeSH descriptor medical records systems, computerized explode all trees
#22.	MeSH descriptor medical records
#23.	MeSH descriptor nursing records
#24.	MeSH descriptor documentation
#25.	#15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24
#26.	#14 and #25

2 F.4.6 Audit

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

4 7. Is audit and feedback effective for improving health provider performance and healthcare
5 outcomes?

6 8. What features are needed in a national audit system to ensure that audit improves service
7 performance as measured by patient outcomes?

8 Search constructed by combining the columns in the following table using the AND Boolean operator
9 and by combining the rows using the OR Boolean operator. Exclusion filter applied using NOT
10 Boolean operator. The CINAHL database was only used for section C of the search.

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
A	Major trauma OR	Audit	The following filters were used for clinical	See Search strategies used for major

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
	Expanded trauma population		<p>searches in Medline and Embase only: OBS, RCT, SR</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 Date of last search: 23/03/2015 (C) 25/03/2015 (HE) English only Exclusion filter applied in Medline and Embase</p>
B	n/a	Audit and (health personnel or quality assurance)	As for search A	As for search A
C	n/a	Specific national or local registries/audits	As for search A with the addition of the QUAL filter for clinical searches.	As for search A

1

Medline search terms – search A – trauma audits

1.	<i>expanded trauma population (see A.2.2)</i>
----	---

2.	(audit or audits or auditing or registry or registries or register*).ti.
3.	*clinical audit/
4.	*medical audit/
5.	*nursing audit/
6.	*management audit/
7.	*registries/
8.	*benchmarking/
9.	benchmark*.ti.
10.	(practice data or hospital* data).ti.
11.	*"commission on professional and hospital activities"/
12.	*utilization review/
13.	or/2-12
14.	1 and 13

1

Embase search terms – search A – trauma audits

1.	<i>expanded trauma population (see A.2.2)</i>
2.	(audit or audits or auditing or registry or registries or register*).ti.
3.	*medical audit/
4.	*register/
5.	benchmark*.ti.
6.	(practice data or hospital* data).ti.
7.	*"utilization review"/
8.	*"medical record review"/
9.	or/2-8
10.	1 and 9

2

Cochrane search terms – search A – trauma audits

#1.	<i>expanded trauma population (see A.2.2)</i>
#2.	(audit or audits or auditing or registry or registries or register*):ti
#3.	MeSH descriptor: [clinical audit] this term only
#4.	MeSH descriptor: [medical audit] this term only
#5.	MeSH descriptor: [nursing audit] this term only
#6.	MeSH descriptor: [management audit] this term only
#7.	MeSH descriptor: [registries] this term only
#8.	MeSH descriptor: [benchmarking] this term only
#9.	benchmark*:ti
#10.	(practice data or hospital* data):ti
#11.	MeSH descriptor: [commission on professional and hospital activities] this term only
#12.	MeSH descriptor: [utilization review] this term only
#13.	{or #2-#12}
#14.	#1 and #13

3

CRD search terms – search A – trauma audits

#1.	<i>expanded trauma population (see A.2.2)</i>
#2.	((audit or audits or auditing or registry or registries or register*))
#3.	MeSH descriptor clinical audit
#4.	MeSH descriptor medical audit

#5.	MeSH descriptor nursing audit
#6.	MeSH descriptor management audit
#7.	MeSH descriptor registries
#8.	MeSH descriptor benchmarking
#9.	((benchmark*))
#10.	((practice or hospital*) near1 data))
#11.	MeSH descriptor commission on professional and hospital activities
#12.	MeSH descriptor utilization review
#13.	#2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12
#14.	1 and 13

1 **Medline search terms – search B – health personnel and quality assurance**

1.	exp health personnel/
2.	exp hospitals/
3.	exp professional practice/
4.	professional competence/
5.	clinical competence/
6.	physician's practice patterns/
7.	nurse's practice patterns/
8.	((health* personnel or physician* or doctor* or clinician* or nurse* or provider* or practitioner* or resident* or professional* or nursing or clinical) adj3 (skill or skills or behaviour or behavior or competence)).ti,ab.
9.	((clinical or medical or private or general or professional or hospital*) adj practice*).ti,ab.
10.	((influenc* or chang*) adj3 (behaviour* or behavior*)).ti,ab.
11.	(practice pattern* or pattern of practice).ti,ab.
12.	performance.ti,ab.
13.	quality assurance, health care/
14.	quality of health care/
15.	(quality adj (assurance or improvement or control)).ti,ab.
16.	(health care quality or healthcare quality or quality of healthcare or quality of health care or quality of care).ti,ab.
17.	or/1-16
18.	<i>Audit terms from lines 2-12 in Medline search A above used here</i>
19.	17 and 18

2 **Embase search terms – search B – health personnel and quality assurance**

1.	exp *health care personnel/
2.	exp *hospital/
3.	exp *professional practice/
4.	*professional competence/
5.	*nursing competence/
6.	*clinical competence/
7.	((health* personnel or physician* or doctor* or clinician* or nurse* or provider* or practitioner* or resident* or professional* or nursing or clinical) adj3 (skill or skills or behaviour or behavior or competence)).ti,ab.
8.	((clinical or medical or private or general or professional or hospital?) adj practice?).ti,ab.
9.	((influenc* or chang*) adj3 (behaviour* or behavior*)).ti,ab.

10.	(practice pattern* or pattern of practice).ti,ab.
11.	performance.ti,ab.
12.	*health care quality/
13.	*quality control/
14.	(quality adj (assurance or improvement or control)).ti,ab.
15.	(health care quality or healthcare quality or quality of healthcare or quality of health care or quality of care).ti,ab.
16.	or/1-15
17.	<i>Audit terms from lines 2-12 in Embase search A above used here</i>
18.	16 and 17

1 **Cochrane search terms – search B – health personnel and quality assurance**

#1.	MeSH descriptor: [health personnel] explode all trees
#2.	MeSH descriptor: [health personnel] explode all trees
#3.	MeSH descriptor: [professional practice] explode all trees
#4.	MeSH descriptor: [professional competence] this term only
#5.	MeSH descriptor: [clinical competence] this term only
#6.	MeSH descriptor: [physician's practice patterns] this term only
#7.	MeSH descriptor: [nurse's practice patterns] this term only
#8.	(health* next personnel or "health care personnel" or physician* or doctor* or clinician* or nurse* or provider* or practitioner* or resident* or professional* or nursing or clinical) near/3 (skill or skills or behaviour or behavior or competence):ti,ab
#9.	(clinical or medical or private or general or professional or hospital*) next practice*:ti,ab
#10.	((influen* or chang*) near/3 (behaviour* or behavior*)):ti,ab
#11.	(practice near/2 pattern*):ti,ab
#12.	performance:ti,ab
#13.	MeSH descriptor: [quality assurance, health care] this term only
#14.	MeSH descriptor: [quality of health care] this term only
#15.	(quality next (assurance or improvement or control)):ti,ab
#16.	(health next care next quality or healthcare next quality or quality next of healthcare or quality of health care or quality of care):ti,ab
#17.	(health* or care) near/2 quality:ti,ab
#18.	{or #1-#17}
#19.	<i>Audit terms from lines 2-12 in Cochrane search A above used here</i>
#20.	#18 and #19

2 **CRD search terms – search B – health personnel and quality assurance**

#1.	MeSH descriptor health personnel explode all trees
#2.	MeSH descriptor hospitals explode all trees
#3.	MeSH descriptor professional practice explode all trees
#4.	MeSH descriptor professional competence
#5.	MeSH descriptor clinical competence
#6.	((health* personnel or physician* or doctor* or clinician* or nurse* or provider* or practitioner* or resident* or professional* or nursing or clinical) near3 (skill or skills or behaviour or behavior or competence))
#7.	((clinical or medical or private or general or professional or hospital*) near1 practice*))
#8.	((influen* or chang*) near3 (behaviour* or behavior*))

#9.	((practice pattern* or pattern of practice))
#10.	(performance)
#11.	MeSH descriptor quality assurance, health care
#12.	MeSH descriptor quality of health care
#13.	((quality near1 (assurance or improvement or control)))
#14.	((health care quality or healthcare quality or quality of healthcare or quality of health care or quality of care))
#15.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14
#16.	((audit or audits or auditing or registry or registries or register*))
#17.	MeSH descriptor clinical audit
#18.	MeSH descriptor medical audit
#19.	MeSH descriptor nursing audit
#20.	MeSH descriptor management audit
#21.	MeSH descriptor registries
#22.	MeSH descriptor benchmarking
#23.	((benchmark*))
#24.	((practice or hospital*) near1 data))
#25.	MeSH descriptor commission on professional and hospital activities
#26.	MeSH descriptor utilization review
#27.	#16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26
#28.	#15 and #27

1

Medline search terms – search C – specific national or local audits

1.	(national adj4 (audit* or registry or registries or register*)).ti.
2.	"trauma audit and research network".ti.
3.	tarn.ti.
4.	"falls and fragility fracture* audit".ti.
5.	fffap.ti.
6.	("familial hypercholesterolemia" adj3 (register* or audit*)).ti.
7.	(national vascular adj (database* or registry or registries or register*)).ti.
8.	("head and neck cancer" and (audit* or registry or registries or register*)).ti.
9.	"national care of the dying audit".ti.
10.	ncepod.ti.
11.	"national confidential enquiry into patient outcome and death".ti.
12.	("patient outcome" adj2 (programme* or audit* or registry or registries or register*)).ti.
13.	ncapop.ti.
14.	or/1-13
15.	((medical or health or surgical) adj corp).ti.
16.	(haemorrhage or suicide).ti.
17.	15 and 16
18.	"chronic kidney disease in primary care".ti.
19.	audit*.ti.
20.	18 and 19
21.	14 or 17 or 20

2

Embase search terms – search C – specific national or local audits

1.	(national adj4 (audit* or registry or registries or register*)).ti.
2.	"trauma audit and research network".ti.
3.	tarn.ti.
4.	"falls and fragility fracture* audit".ti.
5.	fffap.ti.
6.	("familial hypercholesterolemia" adj3 (register* or audit*)).ti.
7.	(national vascular adj (database* or registry or registries or register*)).ti.
8.	("head and neck cancer" and (audit* or registry or registries or register*)).ti.
9.	"national care of the dying audit".ti.
10.	ncepod.ti.
11.	"national confidential enquiry into patient outcome and death".ti.
12.	("patient outcome" adj2 (programme* or audit* or registry or registries or register*)).ti.
13.	ncapop.ti.
14.	or/1-13
15.	((medical or health or surgical) adj corp).ti.
16.	(haemorrhage or suicide).ti.
17.	15 and 16
18.	"chronic kidney disease in primary care".ti.
19.	audit*.ti.
20.	18 and 19
21.	14 or 17 or 20

1

Cochrane search terms – search C – specific national or local audits

#1.	(national near/4 (audit* or registry or registries or register*)):ti
#2.	"trauma audit and research network":ti
#3.	tarn:ti
#4.	"falls and fragility fracture* audit":ti
#5.	fffap:ti
#6.	("familial hypercholesterolemia" near/3 (register* or audit*)):ti
#7.	("national vascular" next (registry or registries or register* or database*)):ti
#8.	"national care of the dying audit":ti
#9.	ncepod:ti
#10.	"national confidential enquiry into patient outcome and death":ti
#11.	("patient outcome" near/2 (programme* or audit* or registry or registries or register*)):ti
#12.	ncapop:ti
#13.	{or #1-#12}
#14.	((medical or health or surgical) next corp):ti
#15.	(haemorrhage or suicide):ti
#16.	#14 and #15
#17.	"chronic kidney disease in primary care":ti
#18.	audit*:ti
#19.	#17 and #18
#20.	#13 or #16 or #19

2

CINAHL search terms – search C – specific national or local audits

S1.	TI (national n4 (audit* or registry or registries or register*))
-----	--

S2.	TI trauma audit and research network
S3.	TI tarn
S4.	TI falls and fragility fracture* w0 audit
S5.	TI fffap
S6.	TI ("familial hypercholesterolemia" n3 (register* or audit*))
S7.	TI (national vascular w0 (database* or registry or registries or register*))
S8.	TI head and neck cancer and (audit* or registry or registries or register*))
S9.	TI national care of the dying audit
S10.	TI ncepod
S11.	TI "national confidential enquiry into patient outcome and death"
S12.	TI ("patient outcome" n2 (programme* or audit* or registry or registries or register*))
S13.	TI ncapop
S14.	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13
S15.	TI ((medical or health or surgical) w0 corp)
S16.	TI (haemorrhage or suicide)
S17.	S15 and S16
S18.	TI chronic kidney disease in primary care
S19.	TI audit*
S20.	S18 and S19
S21.	S14 or S17 or S20

1

CRD search terms – search C – specific national or local audits

#1.	((national near4 (audit* or registry or registries or register*))) :TI
#2.	(trauma audit and research network):TI
#3.	(tarn):TI
#4.	(falls and fragility fracture* audit):TI
#5.	(fffap):TI
#6.	((familial hypercholesterolemia near3 (register* or audit*))) :TI
#7.	((national vascular near1 (database* or registry or registries or register*))) :TI
#8.	((head and neck cancer and (audit* or registry or registries or register*))) :TI
#9.	(national care of the dying audit):TI
#10.	(ncepod):TI
#11.	(national confidential enquiry into patient outcome and death):TI
#12.	((patient outcome near2 (programme* or audit* or registry or registries or register*))) :TI
#13.	(ncapop):TI
#14.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13
#15.	((medical or health or surgical) near1 corp):TI
#16.	((haemorrhage or suicide)):TI
#17.	#14 and #15
#18.	(chronic kidney disease in primary care):TI
#19.	(audit*):TI
#20.	#18 and #19
#21.	#14 or #17 or #20

1 **F.4.7 Paediatric training**

2 9. What aspects (type and frequency) of paediatric training for trauma improve outcomes for
3 providers which experience high volumes of adult trauma and experience of trauma in children?

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	Paediatric training	n/a	<p>No filters were added for the clinical searches.</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 HEED Inception to 05/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE) English only</p>

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

1

Medline search terms

1.	exp child/
2.	exp pediatrics/
3.	child*.ti,ab.
4.	exp infant/
5.	infan*.ti,ab.
6.	(baby or babies).ti,ab.
7.	"adolescent"/ or adolescen*.ti,ab.
8.	(pediatric* or paediatric*).ti,ab.
9.	(neonat* or newborn*).ti,ab.
10.	or/1-9
11.	clinical competence/
12.	(apls or atls).ti,ab.
13.	advanced p?ediatric life support.ti,ab.
14.	advanced trauma life support.ti,ab.
15.	emergency medicine/ed
16.	emergency nursing/ed
17.	emergency medical technicians/ed
18.	advanced cardiac life support/ed
19.	education, medical, continuing/
20.	advanced trauma life support care/
21.	((paediatric* or pediatric* or trauma*) adj6 (train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*)).ti,ab.
22.	or/11-21
23.	10 and 22

2

Embase search terms

1.	exp child/
2.	exp pediatrics/
3.	child*.ti,ab.
4.	infan*.ti,ab.
5.	(baby or babies).ti,ab.
6.	exp adolescent/ or adolescen*.ti,ab.
7.	(pediatric*1 or paediatric*1).ti,ab.
8.	(neonat* or newborn*).ti,ab.
9.	or/1-8
10.	*clinical competence/
11.	(apls or atls).ti,ab.
12.	advanced p?ediatric life support.ti,ab.
13.	advanced trauma life support.ti,ab.

14.	*medical education/
15.	((paediatric* or pediatric* or trauma*) adj6 (train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*)):ti,ab.
16.	or/10-15
17.	9 and 16

1

Cochrane search terms

#1.	[mh child]
#2.	[mh pediatrics]
#3.	child*:ti,ab
#4.	[mh infant]
#5.	infan*:ti,ab
#6.	(baby or babies):ti,ab
#7.	[mh ^adolescent] or adolescen*:ti,ab
#8.	(pediatric* or paediatric*):ti,ab
#9.	(neonat* or newborn*):ti,ab
#10.	{or #1-#9}
#11.	[mh ^"clinical competence"]
#12.	(apls or atls):ti,ab
#13.	("advanced paediatric life support" or "advanced pediatric life support"):ti,ab
#14.	advanced trauma life support:ti,ab
#15.	MeSH descriptor: [emergency medicine] this term only and with qualifier(s): [education - ed]
#16.	MeSH descriptor: [emergency nursing] this term only and with qualifier(s): [education - ed]
#17.	MeSH descriptor: [emergency medical technicians] this term only and with qualifier(s): [education - ed]
#18.	MeSH descriptor: [advanced cardiac life support] this term only and with qualifier(s): [education - ed]
#19.	[mh ^"education, medical, continuing"]
#20.	[mh ^"advanced trauma life support care"]
#21.	((paediatric* or pediatric* or trauma*) near/6 (train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*)):ti,ab
#22.	{or #11-#21}
#23.	#10 and #22

2

CINAHL search terms

S1.	(MH "child+") or (MH "adolescence+") or (MH "pediatrics+")
S2.	child*
S3.	infan* or baby or babies
S4.	adolescen*
S5.	pediatric* or paediatric*
S6.	neonat* or newborn*
S7.	S1 or S2 or S3 or S4 or S5 or S6
S8.	(MH "clinical competence") or (MH "emergency medicine/ed") or (MH "emergency nursing+/ed") or (MH "emergency medical technicians/ed")
S9.	(MH "pediatric advanced life support") or (MH "advanced cardiac life support/ed") or (MH "education, medical, continuing") or (MH "advanced trauma life support care")
S10.	apls or atls

S11.	advanced trauma life support
S12.	advanced paediatric life support or advanced pediatric life support
S13.	((paediatric* or pediatric* or trauma*) n6 (train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*))
S14.	S8 or S9 or S10 or S11 or S12 or S13
S15.	S7 and S14

1

CRD search terms

#1.	MeSH descriptor clinical competence
#2.	((apls or atls))
#3.	(advanced p?ediatric life support)
#4.	(advanced trauma life support)
#5.	MeSH descriptor emergency medicine with qualifier ed
#6.	MeSH descriptor emergency nursing with qualifier ed
#7.	MeSH descriptor emergency medical technicians with qualifier ed
#8.	MeSH descriptor advanced cardiac life support with qualifier ed
#9.	MeSH descriptor education, medical, continuing
#10.	MeSH descriptor advanced trauma life support care
#11.	((((paediatric* or pediatric* or trauma*) near6 (train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*)))
#12.	((#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11))

2

HEED search terms

1	AX=paediatric* or pediatric* or trauma*
2	AX=train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*
3	CS=1 and 2

3 F.4.8 Information and support

4 10.How should information and support be provided to families and carers?

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	Information and support	n/a	<p>The following filter was used in Medline, Embase and CINAHL for the clinical questions: QUAL</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				<p>between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 Date of last search: 20/03/2015 English only Exclusion filter applied in Medline, Embase and CINAHL</p>

1

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* or parent* or father* or mother* or caregiver* or next of kin).ti,ab.
4.	or/1-3
5.	popular-works-publication-type/ or publications/ or books/ or pamphlets/ or patient education handout/
6.	((inform* or educat* or learn* or advi?e* or knowledge or understand* or involvement or support*) adj4 (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* or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or

	telephone or phone or sms or text*).ti,ab.
7.	((information* or support* or advi?e*) adj4 (provision* or provide* or deliver* or facilitat* or establish* or arrang*).ti,ab.
8.	(trauma* adj2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*).ti,ab.
9.	((name* or designate*) adj1 (nurse* or doctor* or physician* or consultant*).ti,ab.
10.	or/5-9
11.	4 and 10
12.	((patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj4 (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* or education or educate or educating or literature or information or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*).ti,ab.
13.	patient education as topic/
14.	consumer health information/
15.	(teletrauma* or tele-trauma* or tele-rehab* or telerehab* or telehealth* or tele-health* or telemedicine* or tele-medicine* or telecommunication* or tele-monitor* or telemonitor* or telemanagement or tele-management or teleconsultation or tele-consultation or telecare* or tele-care* or telematic* or telepharmacy or tele-pharmacy or telenurs* or tele-nurs* or remote consult* or tele-homecare or telehomecare or remote care or tele-support or telesupport or mobile health* or computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health*).ti,ab.
16.	telemedicine/ or telenursing/
17.	or/11-16

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* or parent* or father* or mother* or caregiver* or next of kin).ti,ab.
4.	or/1-3
5.	*information service/ or *information center/ or *publication/ or *book/ or *counseling/ or *directive counseling/
6.	((inform* or educat* or learn* or advi?e* or knowledge or understand* or involvement or support*) adj4 (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* or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*).ti,ab.
7.	((information* or support* or advi?e*) adj4 (provision* or provide* or deliver* or facilitat* or establish* or arrang*).ti,ab.
8.	(trauma* adj2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*).ti,ab.
9.	((name* or designate*) adj1 (nurse* or doctor* or physician* or consultant*).ti,ab.
10.	or/5-9
11.	4 and 10
12.	((patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj4 (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* or education or educate or educating or literature or information or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or

	text*)).ti,ab.
13.	*patient information/ or *consumer health information/
14.	*patient education/
15.	(teletrauma* or tele-trauma* or tele-rehab* or telerehab* or telehealth* or tele-health* or telemedicine* or tele-medicine* or telecommunication* or tele-monitor* or telemonitor* or telemanagement or tele-management or teleconsultation or tele-consultation or telecare* or tele-care* or telematic* or telepharmacy or tele-pharmacy or telenurs* or tele-nurs* or remote consult* or tele-homecare or telehomecare or remote care or tele-support or telesupport or mobile health* or computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health*).ti,ab.
16.	*telemedicine/ or *telehealth/ or *telenursing/
17.	or/11-16

1

CINAHL search terms

S1.	(MH "patients") or (MH "outpatients") or (MH "inpatients")
S2.	(MH "caregivers") or (MH "parents+") or (MH "family+") or (MH "guardianship, legal")
S3.	patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin
S4.	S1 or S2 or S3
S5.	(MH "patient education") or (MH "pamphlets") or (MH "books") or (MH "electronic publications") or (MH "government publications") or (MH "serial publications")
S6.	((inform* or educat* or learn* or advi?e* or knowledge or understand* or involvement or support*) n4 (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* or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*))
S7.	((information* or support* or advi?e*) n4 (provision* or provide* or deliver* or facilitat* or establish* or arrang*))
S8.	(trauma* n2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*))
S9.	((name* or designate*) n1 (nurse* or doctor* or physician* or consultant*))
S10.	S5 or S6 or S7 or S8 or S9
S11.	S4 and S10
S12.	((patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin) n4 (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* or education or educate or educating or literature or information or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*))
S13.	(MH "patient education") or (MH "consumer health information")
S14.	(teletrauma* or tele-trauma* or tele-rehab* or telerehab* or telehealth* or tele-health* or telemedicine* or tele-medicine* or telecommunication* or tele-monitor* or telemonitor* or telemanagement or tele-management or teleconsultation or tele-consultation or telecare*)
S15.	(tele-care* or telematic* or telepharmacy or tele-pharmacy or telenurs* or tele-nurs* or remote consult* or tele-homecare or telehomecare or remote care or tele-support or telesupport or mobile health* or computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health*)
S16.	(MH "telemedicine") or (MH "telehealth") or (MH "telenursing")
S17.	S11 or S12 or S13 or S14 or S15 or S16

2 F.4.9 Rehabilitation assessment

3 11.What are the barriers to providing early rehabilitation following early rehabilitation assessment
4 and the implications for service delivery?

- 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 OR Spinal or head injuries	Early rehabilitation	n/a	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English. Table 143 HEED Inception – 05/12/2014 Date of last search:

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				20/03/2015 (C) 24/03/2015 (HE) English only Exclusion filter applied in Medline, Embase and CINAHL

1

Medline search terms

1.	<i>standard trauma population (see A.2.1)</i>
2.	exp spinal injuries/
3.	exp spinal cord injuries/
4.	spinal cord compression/
5.	exp neck injuries/
6.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) adj2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*)).ti,ab.
7.	(central cord syndrome or central spinal cord syndrome).ti,ab.
8.	(conus medullaris syndrome* or cauda equina syndrome*).ti,ab.
9.	craniocerebral trauma/ or exp brain injuries/ or exp head injuries, closed/ or head injuries, penetrating/ or exp skull fractures/
10.	exp intracranial hemorrhage, traumatic/
11.	((head or brain) adj3 (injur* or trauma)).ti,ab.
12.	(skull adj3 fracture*).ti,ab.
13.	or/1-12
14.	((rehab* or habilitat*) adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
15.	((physiotherap* or physical therap*) adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
16.	((occupational or speech) adj2 therap* adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
17.	(mental health adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
18.	(goal* adj2 set* adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
19.	((rehab* or habilitat*) adj1 (assess* or evaluat*)).ti,ab.
20.	or/14-19
21.	13 and 20

2

Embase search terms

1.	<i>standard trauma population (see A.2.1)</i>
2.	exp spine injury/
3.	neck injury/ or whiplash injury/
4.	exp spinal cord injury/
5.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) adj2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*)).ti,ab.
6.	(central cord syndrome or central spinal cord syndrome).ti,ab.

7.	(conus medullaris syndrome* or cauda equina syndrome*).ti,ab.
8.	head injury/ or exp brain injury/
9.	skull injury/ or exp skull fracture/
10.	((head or brain) adj3 (injur* or trauma)).ti,ab.
11.	(skull adj3 fracture*).ti,ab.
12.	or/1-11
13.	((rehab* or habilitat*) adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
14.	((physiotherap* or physical therap*) adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
15.	((occupational or speech) adj2 therap* adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
16.	(mental health adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
17.	(goal* adj2 set* adj6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)).ti,ab.
18.	((rehab* or habilitat*) adj1 (assess* or evaluat*)).ti,ab.
19.	or/13-18
20.	12 and 19

1

Cochrane search terms

#1.	<i>standard trauma population (see A.2.1)</i>
#2.	MeSH descriptor: [spinal injuries] explode all trees
#3.	MeSH descriptor: [spinal cord injuries] explode all trees
#4.	MeSH descriptor: [spinal cord compression] this term only
#5.	MeSH descriptor: [neck injuries] explode all trees
#6.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) near/2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*)):ti,ab,kw
#7.	(central cord syndrome or central spinal cord syndrome):ti,ab,kw
#8.	(conus medullaris syndrome or cauda equina syndrome):ti,ab,kw
#9.	MeSH descriptor: [craniocerebral trauma] this term only
#10.	MeSH descriptor: [brain injuries] explode all trees
#11.	MeSH descriptor: [head injuries, closed] explode all trees
#12.	MeSH descriptor: [intracranial hemorrhage, traumatic] explode all trees
#13.	MeSH descriptor: [skull fractures] explode all trees
#14.	((head or brain) near/3 (injur* or trauma)):ti,ab
#15.	(skull near/3 fracture*):ti,ab
#16.	{or #1-#15}
#17.	((rehab* or habilitat*) near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#18.	((physiotherap* or physical next therap*) near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#19.	((occupational or speech) near/2 therap* near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#20.	(mental health near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#21.	(goal* near/2 set* near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or

	fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#22.	((rehab* or habilitat*) near/1 (assess* or evaluat*)):ti,ab
#23.	{or #17-#22}
#24.	#16 and #23

1

CINAHL search terms

S1.	<i>standard trauma population (see A.2.1)</i>
S2.	(MH "spinal injuries+")
S3.	(MH "spinal cord injuries+")
S4.	(MH "spinal cord compression")
S5.	(MH "neck injuries+")
S6.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) n2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*))
S7.	(central cord syndrome or central spinal cord syndrome)
S8.	(conus medullaris syndrome* or cauda equina syndrome*).ti,ab.
S9.	(conus medullaris syndrome* or cauda equina syndrome*)
S10.	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9
S11.	(MM "skull fractures+") or (MM "head injuries+") or (MM "brain injuries+")
S12.	(MM "intracranial hemorrhage+")
S13.	((head or brain) n3 (injur* or trauma))
S14.	(skull n3 fracture*)
S15.	S11 or S12 or S13 or S14
S16.	S10 or S15
S17.	((rehab* or habilitat*) n6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
S18.	((physiotherap* or physical therap*) n6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
S19.	((occupational or speech) n2 therap* n6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
S20.	mental health n6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
S21.	(goal* n2 set* n6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
S22.	((rehab* or habilitat*) n1 (assess* or evaluat*))
S23.	S17 or S18 or S19 or S20 or S21 or S22
S24.	S16 or S23

2

CRD search terms

#1.	<i>standard trauma population (see A.2.1)</i>
#2.	MeSH descriptor spinal injuries explode all trees
#3.	MeSH descriptor spinal cord injuries explode all trees
#4.	MeSH descriptor spinal cord compression
#5.	MeSH descriptor neck injuries explode all trees
#6.	((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) near2 (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*))
#7.	((central cord syndrome or central spinal cord syndrome))

#8.	((conus medullaris syndrome* or cauda equina syndrome*))
#9.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8
#10.	MeSH descriptor craniocerebral trauma
#11.	MeSH descriptor brain injuries explode all trees
#12.	MeSH descriptor head injuries, closed explode all trees
#13.	MeSH descriptor head injuries, penetrating
#14.	MeSH descriptor skull fractures explode all trees
#15.	MeSH descriptor intracranial hemorrhage, traumatic explode all trees
#16.	((head or brain) near3 (injur* or trauma))
#17.	((skull near3 fracture*))
#18.	#10 or #11 or #12 or #13 or #14 or #15 or #16 or #17
#19.	#9 or #18
#20.	((rehab* or habilitat*) near6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
#21.	((physiotherap* or physical therap*) near6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
#22.	((occupational or speech) near2 therap* near6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
#23.	((mental health near6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
#24.	((goal* near2 set* near6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*))
#25.	((rehab* or habilitat*) near1 (assess* or evaluat*))
#26.	#20 or #21 or #22 or #23 or #24 or #25
#27.	#19 and #26

1

HEED search terms

1.	<i>standard trauma population (see A.2.1)</i>
2.	AX=early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*
3.	AX=physiotherap* or occupational or speech
4.	AX='physical therapy' or 'physical therapies'
5.	AX='mental health'
6.	AX=goal* and set*
7.	AX=rehab* or habilitat*
8.	CS=3 or 4 or 5 or 6 or 7
9.	CS=2 and 8
10.	AX=assess* or evaluat*
11.	CS=7 and 10
12.	CS=9 or 11
13.	1 and 12

2 F.4.10 Access to services – timing of airway management

- 3
- What is the optimal timing of intubation or surgical airway?

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	Delay to airway management	n/a	<p>No filters were added for the clinical searches.</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1</p> <p>Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 HEED Inception – 04/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE)</p>

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

1

Medline search terms

1.	airway management/ or intubation, intratracheal/ or laryngeal masks/
2.	time factors/
3.	1 and 2
4.	(intubat* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
5.	((airway* or ventilat*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
6.	((tracheal or endotracheal) adj3 tube* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
7.	(rapid sequence induction* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
8.	((supralaryngeal or supraglottic or supra glottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal) adj3 (device* or mask* or tube* or sealer*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
9.	((cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
10.	or/3-9

2

Embase search terms

1.	*respiration control/ or *intubation/ or exp *respiratory tract intubation/ or *laryngeal mask/ or *tracheotomy/
2.	*time factors/
3.	1 and 2
4.	(intubat* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
5.	((airway* or ventilat*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
6.	((tracheal or endotracheal) adj3 tube* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
7.	(rapid sequence induction* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
8.	((supralaryngeal or supraglottic or supra glottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal) adj3 (device* or mask* or tube* or sealer*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
9.	((cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
10.	or/3-9

3

Cochrane search terms

#1.	MeSH descriptor: [airway management] this term only
#2.	MeSH descriptor: [intubation, intratracheal] this term only
#3.	MeSH descriptor: [laryngeal masks] this term only
#4.	{or #1-#3}
#5.	MeSH descriptor: [time factors] this term only
#6.	#4 and #5
#7.	(intubat* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#8.	((airway* or ventilat*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#9.	((tracheal or endotracheal) near/3 tube* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#10.	(rapid next sequence next induction* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#11.	((supralaryngeal or supraglottic or supra next glottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal) near/3 (device* or mask* or tube* or sealer*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#12.	((cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#13.	{or #6-#12}

1

CRD search terms

#1.	MeSH descriptor airway management
#2.	MeSH descriptor intubation, intratracheal
#3.	MeSH descriptor laryngeal masks
#4.	MeSH descriptor time factors
#5.	(#1 or #2 or #3)
#6.	(#4 and #5)
#7.	((intubat*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#8.	((airway* or ventilat*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#9.	((tracheal or endotracheal) near3 tube* near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#10.	((rapid sequence induction*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#11.	((supralaryngeal or supraglottic or supra glottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal) near3 (device* or mask* or tube* or sealer*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#12.	((cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#13.	(#6 or #7 or #8 or #9 or #10 or #11 or #12)

2

HEED search terms

1	AX=delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*
---	--

2	AX=intubat* or airway* or ventilat* or tracheal or endotracheal or supralaryngeal or supraglottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal or cricothyrot* or cricothyroidot* or thyrocricot* or intercricothyro* or coniot*
3	CS=1 and 2

1 **F.4.11 Access to services – timing of intervention for blood loss or other vascular injury**

- 2 • What is the optimal timing of intervention for blood loss or vascular injury?

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 AND vascular, pelvic or abdominal injuries	Delay to surgical interventions to treat bleeding or or other vascular injury	n/a	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				limited to retrieve material published in English. Table 143 HEED Inception – 15/11/2015 Date of last search: 23/03/2015 (C) 24/03/2015 (HE) English only Exclusion filter applied in Medline and Embase

1

Medline search terms

1.	<i>standard major 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 bleed* 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.	or/2-10
12.	pelvic bones/ and fractures, bone/
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.	or/12-14
16.	abdominal injuries/
17.	((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.
18.	spleen/in [injuries]
19.	liver/in [injuries]
20.	kidney/in [injuries]
21.	or/16-20
22.	1 and (11 or 15 or 21)
23.	((abdom* and (repack* or re-pack* or pack* or clos*)) adj10 (delay* or time* or timing* or

	hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
24.	laparotomy/
25.	thoracotomy/
26.	time factors/
27.	(24 or 25) and 26
28.	((laparotom* or thoracotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
29.	27or 28
30.	radiology, interventional/ or embolization, therapeutic/ or radiography, interventional/
31.	stents/
32.	catheterization/ or balloon occlusion/ or catheterization, central venous/
33.	angiography/
34.	endovascular procedures/
35.	angioplasty/ or exp angioplasty, balloon/
36.	mechanical thrombolysis/
37.	portasystemic shunt, transjugular intrahepatic/
38.	or/30-37
39.	time factors/
40.	38 and 39
41.	((therapeutic* or vascular or surgical) adj3 ((radiolog* or radiogra*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))).ti,ab.
42.	(intervention* adj3 (radiolog* or radiogra* or therap* or treatment*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
43.	((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*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
44.	((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) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
45.	(gelatin adj2 sponge* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
46.	(percutaneous adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
47.	((catheter* or transcatheter* or microcatheter*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
48.	((minimally invasive or non-invasive or noninvasive) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
49.	((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) adj2 guided adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
50.	(arteriogra* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
51.	(angiogra* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
52.	(endovascular adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or

	earlier or immediat* or prompt or rapid or late*).ti,ab.
53.	((portasystemic shunt* or tips) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
54.	((thrombolys* or angioplast*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
55.	((venous or vascular or intravascular) adj3 access adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
56.	(endovenous adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
57.	or/40-56
58.	blood transfusion/ or erythrocyte transfusion/ or hemoglobins/ or hematocrit/
59.	time factors/
60.	58 and 59
61.	((red blood cell* or rbc or blood or erythrocyte*) adj3 (therap* or transfus*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
62.	60 or 61
63.	vascular surgical procedures/
64.	exp embolectomy/
65.	exp thrombectomy/
66.	arteriovenous shunt, surgical/ or endolymphatic shunt/ or exp portasystemic shunt, surgical/
67.	debridement/
68.	or/62-67
69.	time factors/
70.	68 and 69
71.	(vascular and ((repair* or intervention* or manage* or surg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
72.	((thrombectom* or fasciotom* or fasciectom* or embolectom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
73.	(shunt* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
74.	(debridement* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
75.	or/71-74
76.	23 or 29 or 57 or 70 or 75
77.	22 and 76

1

Embase search terms

1.	<i>standard major 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.	or/2-11
13.	exp pelvis fracture/
14.	((pelvic or pelvis) adj3 (trauma* or injur* or rupture* or tear*)).ti,ab.
15.	((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.
16.	or/13-15
17.	*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/
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/17-18
20.	1 and (12 or 16 or 19)
21.	((abdom* and (repack* or re-pack* or pack* or clos*)) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
22.	*laparotomy/
23.	*thoracotomy/
24.	*time/
25.	(22 or 23) and 24
26.	((laparotom* or thoracotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
27.	or/25-26
28.	*nonsurgical invasive therapy/ or exp *artificial embolism/ or *balloon dilatation/ or *interventional cardiovascular procedure/ or *interventional radiology/
29.	*catheterization/ or central venous catheterization/ or vein catheterization/ or blood vessel catheterization/ or *balloon embolectomy/ or exp *blood vessel catheterization/ or exp *endovascular surgery/ or *angiography/ or *arteriography/
30.	*stent/ or exp *cardiovascular stent/ or *metal stent/ or *nitinol stent/ or *plastic stent/ or *self expanding stent/
31.	angioplasty/ or patch angioplasty/
32.	transjugular intrahepatic portosystemic shunt/
33.	vascular access/
34.	blood clot lysis/
35.	or/28-34
36.	*time/
37.	35 and 36
38.	((therapeutic* or vascular or surgical) adj3 ((radiolog* or radiogra*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))) .ti,ab.
39.	(intervention* adj3 (radiolog* or radiogra* or therap* or treatment*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid

	or late*)).ti,ab.
40.	((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*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
41.	((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) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
42.	(gelatin adj2 sponge* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
43.	(percutaneous adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
44.	((catheter* or transcatheter* or microcatheter*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
45.	((minimally invasive or non-invasive or noninvasive) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
46.	((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) adj2 guided adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
47.	(arteriogra* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
48.	(angiogra* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
49.	(endovascular adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
50.	((portasystemic shunt* or tips) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
51.	((thrombolys* or angioplast*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
52.	((venous or vascular or intravascular) adj3 access adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
53.	(endovenous adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
54.	or/37-53
55.	exp *blood transfusion/
56.	*time/
57.	55 and 56
58.	((red blood cell* or rbc or blood or erythrocyte*) adj3 (therap* or transfus*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
59.	57 or 58
60.	*vascular surgery/ or exp *embolectomy/ or exp *thrombectomy/
61.	exp *blood vessel shunt/
62.	*debridement/
63.	or/60-62
64.	*time/
65.	63 and 64
66.	(vascular and ((repair* or intervention* or manage* or surg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or

	late*))) .ti,ab.
67.	((thrombectom* or fasciotom* or fasciectom* or embolectom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))) .ti,ab.
68.	(shunt* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))) .ti,ab.
69.	(debridement* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))) .ti,ab.
70.	or/65-69
71.	21 or 27 or 54 or 59 or 70
72.	20 and 71

1

Cochrane search terms

#1.	<i>standard major 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 oligae* 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 vascular) next injur*):ti,ab
#17.	{or #2-#16}
#18.	MeSH descriptor: [pelvic bones] this term only
#19.	MeSH descriptor: [fractures, bone] this term only
#20.	#18 and #19
#21.	((pelvic or pelvis) near/3 (trauma* or injur* or rupture* or tear*)):ti,ab
#22.	((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
#23.	{or #20-#22}
#24.	MeSH descriptor: [abdominal injuries] explode all trees
#25.	MeSH descriptor: [spleen] this term only and with qualifier(s): [injuries - in]
#26.	MeSH descriptor: [liver] this term only and with qualifier(s): [injuries - in]
#27.	MeSH descriptor: [kidney] this term only and with qualifier(s): [injuries - in]
#28.	((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
#29.	{or #24-#28}

#30.	#17 or #23 or #29
#31.	#1 and #30
#32.	((abdom* and (repack* or re-pack* or pack* or clos*)) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#33.	MeSH descriptor: [laparotomy] this term only
#34.	MeSH descriptor: [thoracotomy] this term only
#35.	#33 or #34
#36.	MeSH descriptor: [time factors] this term only
#37.	#35 and #36
#38.	((laparotom* or thoracotom*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#39.	#37 or #38
#40.	MeSH descriptor: [radiology, interventional] this term only
#41.	MeSH descriptor: [embolization, therapeutic] this term only
#42.	MeSH descriptor: [radiography, interventional] this term only
#43.	MeSH descriptor: [stents] this term only
#44.	MeSH descriptor: [catheterization] this term only
#45.	MeSH descriptor: [balloon occlusion] this term only
#46.	MeSH descriptor: [angioplasty] this term only
#47.	MeSH descriptor: [angioplasty, balloon] 3 tree(s) exploded
#48.	MeSH descriptor: [catheterization, central venous] this term only
#49.	MeSH descriptor: [angiography] this term only
#50.	MeSH descriptor: [endovascular procedures] this term only
#51.	MeSH descriptor: [mechanical thrombolysis] this term only
#52.	MeSH descriptor: [portasystemic shunt, transjugular intrahepatic] this term only
#53.	{or #40-#52}
#54.	MeSH descriptor: [time factors] this term only
#55.	#53 and #54
#56.	((therapeutic* or vascular or surgical) and ((radiolog* or radiogra*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#57.	((therapeutic* or vascular or surgical) near/3 ((radiolog* or radiogra*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#58.	((emboli?ation* or embolotherap* or stent* or gelfoam or gel next foam* or spongstan or plug* or balloon* or amplatzer or thrombin* or embolic* or coil or coiling or microcoil* or particle*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#59.	((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) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#60.	((mechanic* next occlu*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#61.	((gelatin near/2 sponge*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#62.	(percutaneous near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab

#63.	((catheter* or transcatheter* or microcatheter*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#64.	((minimally next invasive or non next invasive or noninvasive) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#65.	((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) near/2 guided near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#66.	(angiogra* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#67.	(endovascular near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#68.	((portasystemic shunt* or tips) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#69.	((thrombolys* or angioplast*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#70.	((venous or vascular or intravascular) near/3 access near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#71.	(endovenous near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#72.	{or #55-#71}
#73.	MeSH descriptor: [blood transfusion] explode all trees
#74.	MeSH descriptor: [erythrocyte transfusion] this term only
#75.	MeSH descriptor: [hemoglobins] this term only
#76.	MeSH descriptor: [hematocrit] this term only
#77.	{or #73-#76}
#78.	MeSH descriptor: [time factors] this term only
#79.	#78 and #79
#80.	((red next blood next cell* or rbc or blood or erythrocyte*) near/3 (therap* or transfus*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#81.	#79 or #80
#82.	MeSH descriptor: [vascular surgical procedures] this term only
#83.	MeSH descriptor: [embolectomy] explode all trees
#84.	MeSH descriptor: [thrombectomy] explode all trees
#85.	MeSH descriptor: [arteriovenous shunt, surgical] this term only
#86.	MeSH descriptor: [endolymphatic shunt] this term only
#87.	MeSH descriptor: [portasystemic shunt, surgical] explode all trees
#88.	MeSH descriptor: [debridement] this term only
#89.	{or #82-#88}
#90.	MeSH descriptor: [time factors] this term only
#91.	#89 and #90
#92.	(vascular and (repair* or intervention* or manage* or surg*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#93.	((thrombectom* or fasciotom* or fasciectom* or embolectom*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#94.	(shunt* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier

	or immediat* or prompt or rapid or late*)):ti,ab
#95.	(debridement* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#96.	{or #91-#95}
#97.	#32 or #39 or #72 or #81 or #96
#98.	#31 and #97

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CRD search terms

#1.	<i>standard major trauma population (see F.2.1)</i>
#2.	MeSH descriptor hemorrhage
#3.	MeSH descriptor exsanguination
#4.	MeSH descriptor shock
#5.	MeSH descriptor shock, hemorrhagic
#6.	MeSH descriptor shock, traumatic
#7.	MeSH descriptor hypovolemia
#8.	((hypovol?em* or shock or exsanguin* or olig?em* or h?emorrhag* or bleed* or hypoperfus*))
#9.	((coagulopath* or hyperfibrinolysis))
#10.	((abnormal* near2 coagulation))
#11.	((bleed* or bloodloss*))
#12.	((blood* near3 loss*))
#13.	(#2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12)
#14.	MeSH descriptor pelvic bones
#15.	MeSH descriptor fractures, bone
#16.	(#14 and #15)
#17.	((pelvic or pelvis) near3 (trauma* or injur* or rupture* or tear*))
#18.	((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) near3 (fracture* or break or breaks or broken or crack* or frx))
#19.	((#16 or #17 or #18))
#20.	MeSH descriptor abdominal injuries
#21.	MeSH descriptor spleen with qualifier in
#22.	MeSH descriptor liver with qualifier in
#23.	MeSH descriptor kidney with qualifier in
#24.	((abdomen or abdominal or stomach or splen* or diaphragm* or gastric*) near3 (trauma* or injur* or rupture* or tear*))
#25.	((spleen* or kidney* or renal or liver* or hepatic or organ*) near3 (trauma* or injur* or rupture* or tear*))
#26.	((#20 or #21 or #22 or #23 or #24 or #25))
#27.	(#1 and (#13 or #19 or #26))
#28.	((abdom*) and (repack* or re-pack* or pack* or clos*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#29.	MeSH descriptor laparotomy
#30.	MeSH descriptor thoracotomy
#31.	MeSH descriptor time factors
#32.	(#31 and (#29 or #30))
#33.	((laparotom* or thoracotom*) near10 (delay* or time* or timing* or hour* or minute* or

	early or earliest or earlier or immediat* or prompt or rapid or late*))
#34.	((#32 or #33))
#35.	MeSH descriptor radiology, interventional
#36.	MeSH descriptor embolization, therapeutic
#37.	MeSH descriptor radiography, interventional
#38.	MeSH descriptor stents
#39.	MeSH descriptor catheterization
#40.	MeSH descriptor balloon occlusion
#41.	MeSH descriptor catheterization, central venous
#42.	MeSH descriptor angiography
#43.	MeSH descriptor endovascular procedures
#44.	MeSH descriptor angioplasty
#45.	MeSH descriptor angioplasty, balloon explode all trees
#46.	MeSH descriptor mechanical thrombolysis
#47.	MeSH descriptor portasystemic shunt, transjugular intrahepatic
#48.	MeSH descriptor time factors
#49.	(#48 and (#35 or #36 or #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45 or #46 or #47))
#50.	(((((therapeutic* or vascular or surgical) and (radiolog* or radiogra*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#51.	(((((intervention*) near3 (radiolog* or radiogra* or therap* or treatment*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#52.	(((((emboli?ation* or embolotherapy or stent* or gelfoam or gel foam* or spongstan or plug* or balloon* or amplatzter or mechanic* occlu* or thrombin* or embolic* or coil or coiling or microcoil* or particle*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#53.	(((((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) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#54.	(((((gelatin near2 sponge*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#55.	(((((percutaneous) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#56.	(((((catheter* or transcatheter* or microcatheter*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#57.	(((((minimally invasive or non-invasive or noninvasive) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#58.	(((((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) near2 (guided) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#59.	(((((arteriogra*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#60.	(((((angiogra*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#61.	(((((endovascular) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#62.	(((((portasystemic shunt* or tips) near10 (delay* or time* or timing* or hour* or minute* or

	early or earliest or earlier or immediat* or prompt or rapid or late*))
#63.	(((thrombolys* or angioplast*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#64.	(((venous or vascular or intravascular) near3 access near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#65.	((endovenous near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#66.	(((therapeutic* or vascular or surgical) near3 (radiolog* or radiogra*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#67.	((#49 or #50 or #51 or #52 or #53 or #54 or #55 or #56 or #57 or #58 or #58 or #60 or #61 or #62 or #63 or #64 or #65 or #66))
#68.	MeSH descriptor blood transfusion
#69.	MeSH descriptor erythrocyte transfusion
#70.	MeSH descriptor hemoglobins
#71.	MeSH descriptor hematocrit
#72.	MeSH descriptor time factors
#73.	(#72 and (#68 or #69 or #70 or #71))
#74.	(((red blood cell* or rbc or blood or erythrocyte*) near3 (therap* or transfus*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#75.	((#73 or #74))
#76.	MeSH descriptor vascular surgical procedures
#77.	MeSH descriptor embolectomy explode all trees
#78.	MeSH descriptor thrombectomy explode all trees
#79.	MeSH descriptor arteriovenous shunt, surgical
#80.	MeSH descriptor endolymphatic shunt
#81.	MeSH descriptor portasystemic shunt, surgical explode all trees
#82.	MeSH descriptor debridement
#83.	MeSH descriptor time factors
#84.	(#83 and (#76 or #77 or #78 or #79 or #80 or #81 or #82))
#85.	(((vascular) and (repair* or intervention* or manage* or surg*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#86.	(((thrombectom* or fasciotom* or fasciectom* or embolectom*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#87.	(((shunt*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#88.	(((debridement*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#89.	((#84 or #85 or #86 or #87 or #88))
#90.	((#28 or #34 or #67 or #75 or #89))
#91.	(#27 and #90)

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HEED search terms

1.	<i>standard major trauma population (see F.2.1)</i>
2.	AX=delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*

3.	CS=1 and 2
4.	AX=vascular
5.	AX=repair* or intervention* or manage* or surg*
6.	CS=4 and 5
7.	AX=therapeutic* or vascular or surgical
8.	AX=radiolog* or radiogra*
9.	CS=7 and 8
10.	AX=intervention*
11.	AX=radiolog* or radiogra* or therap* or treatment*
12.	CS=10 and 11
13.	AX='minimally invasive'
14.	AX= 'non invasive'
15.	AX=noninvasive or endovascular
16.	CS=13 or 14 or 15
17.	AX=thrombectom* or fasciotom* or fasciectom* or embolectom* or shunt* or debridement
18.	AX=blood and transfusion
19.	AX=Laparotom* or Thoracotom*
20.	CS=6 or 9 or 12 or 16 or 17 or 18 or 19
21.	CS=3 and 20

1 **F.4.12 Access to services – timing of neurosurgery**

- 2 • What is the optimal timing of neurosurgery?

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
Head injuries	Delay to neurosurgery	n/a	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				<p>the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 143 HEED Inception – 05/11/2014 Date of last search: 19/12/2014 (C) 31/03/2015 (HE) English only Exclusion filter applied in Medline and Embase</p>

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Medline search terms

1.	craniocerebral trauma/ or exp brain injuries/ or exp head injuries, closed/ or head injuries, penetrating/ or exp skull fractures/
2.	exp intracranial hemorrhage, traumatic/
3.	((head or brain) adj3 (injur* or trauma)).ti,ab.
4.	(skull adj3 fracture*).ti,ab.
5.	or/1-4
6.	neurosurgery/
7.	critical care/
8.	intensive care/
9.	exp decompression, surgical/ or decompressive craniectomy/
10.	exp neurosurgical procedures/
11.	or/6-10
12.	craniocerebral trauma/su [surgery]
13.	exp brain injuries/su [surgery]

14.	exp head injuries, closed/su [surgery]
15.	head injuries, penetrating/su [surgery]
16.	exp intracranial hemorrhage, traumatic/su [surgery]
17.	exp skull fractures/su [surgery]
18.	or/12-17
19.	time factors/
20.	(11 or 18) and 19
21.	(((tertiary or specialist* or trauma or neuro-intensive or neurocritical or neuro-critical) adj (centre or centres or service* or care)) or neurosurg* or intensive care or icu or critical care) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
22.	(cerebrospinal fluid adj3 (diversion or drain* or surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
23.	((neuromonitor* or neuro-monitor*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
24.	(decompress* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
25.	((craniectom* or craniotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
26.	(intracranial pressure adj4 (surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
27.	((hematoma* or haematoma* or surg* or neurosurg*) adj4 (evacuat* or drain*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
28.	or/21-27
29.	5 and (20 or 28)

1

Embase search terms

1.	head injury/ or exp brain injury/
2.	skull injury/ or exp skull fracture/
3.	((head or brain) adj3 (injur* or trauma)).ti,ab.
4.	(skull adj3 fracture*).ti,ab.
5.	or/1-4
6.	neurosurgery/
7.	exp neurosurgery/
8.	neurosurgeon/
9.	intensive care/
10.	or/6-9
11.	head injury/su [surgery]
12.	exp brain injury/su [surgery]
13.	exp skull injury/su [surgery]
14.	exp skull fracture/su [surgery]
15.	or/11-14
16.	time/
17.	(10 or 15) and 16
18.	(((tertiary or specialist* or trauma or neuro-intensive or neurocritical or neuro-critical) adj (centre or centres or service* or care)) or neurosurg* or intensive care or icu or critical care)

	adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
19.	(cerebrospinal fluid adj3 (diversion or drain* or surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
20.	((neuromonitor* or neuro-monitor*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
21.	(decompress* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
22.	((craniectom* or craniotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
23.	(intracranial pressure adj4 (surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
24.	((hematoma* or haematoma* or surg* or neurosurg*) adj4 (evacuat* or drain*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
25.	or/ 18-24
26.	5 and (17 or 25)

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Cochrane search terms

#1.	MeSH descriptor: [craniocerebral trauma] this term only
#2.	MeSH descriptor: [brain injuries] explode all trees
#3.	MeSH descriptor: [head injuries, closed] explode all trees
#4.	MeSH descriptor: [head injuries, penetrating] explode all trees
#5.	MeSH descriptor: [intracranial hemorrhage, traumatic] explode all trees
#6.	MeSH descriptor: [skull fractures] explode all trees
#7.	((head or brain) near/3 (injur* or trauma)):ti,ab
#8.	(skull near/3 fracture*):ti,ab
#9.	{or #1-#8}
#10.	MeSH descriptor: [neurosurgery] this term only
#11.	MeSH descriptor: [critical care] this term only
#12.	MeSH descriptor: [intensive care] this term only
#13.	MeSH descriptor: [neurosurgical procedures] explode all trees
#14.	MeSH descriptor: [decompression, surgical] this term only
#15.	MeSH descriptor: [decompressive craniectomy] this term only
#16.	{or #10-#15}
#17.	MeSH descriptor: [time factors] this term only
#18.	#16 and #17
#19.	(((((tertiary or specialist* or trauma or neuro-intensive or neurocritical or neuro-critical) next (centre or centres or service* or care)) or neurosurg* or intensive care or icu or critical care) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#20.	((decompress* next (craniectom* or craniotom* or surg* or neuro*)) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*) .ti,ab.
#21.	((cerebrospinal fluid near/3 (diversion or drain* or surg* or neurosurg*)) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*) .ti,ab.
#22.	((intracranial pressure near/4 surg*) near/10 (delay* or time* or timing* or hour* or minute*

	or early or earliest or earlier or immediat* or prompt or rapid or late*) .ti,ab.
#23.	(((hematoma* or haematoma*) near/4 evacuat*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)) .ti,ab.
#24.	((neuromonitor* or neuro-monitor*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)) .ti,ab.
#25.	{or #19-#24}
#26.	#9 and (#18 or #25)

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CRD search terms

#1.	MeSH descriptor craniocerebral trauma
#2.	MeSH descriptor brain injuries explode all trees
#3.	MeSH descriptor head injuries, closed explode all trees
#4.	MeSH descriptor head injuries, penetrating
#5.	MeSH descriptor skull fractures explode all trees
#6.	MeSH descriptor intracranial hemorrhage, traumatic explode all trees
#7.	((head or brain) adj3 (injur* or trauma))
#8.	(skull adj3 fracture*)
#9.	(#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8)
#10.	MeSH descriptor neurosurgery
#11.	MeSH descriptor critical care
#12.	MeSH descriptor intensive care
#13.	MeSH descriptor decompression, surgical explode all trees
#14.	MeSH descriptor decompressive craniectomy
#15.	MeSH descriptor neurosurgical procedures explode all trees
#16.	(#10 or #11 or #12 or #13 or #14 or #15)
#17.	MeSH descriptor craniocerebral trauma with qualifier su
#18.	MeSH descriptor brain injuries explode all trees with qualifier su
#19.	MeSH descriptor head injuries, closed explode all trees with qualifier su
#20.	MeSH descriptor head injuries, penetrating explode all trees with qualifier su
#21.	MeSH descriptor intracranial hemorrhage, traumatic explode all trees with qualifier su
#22.	MeSH descriptor skull fractures explode all trees with qualifier su
#23.	(#17 or #18 or #19 or #20 or #21 or #22)
#24.	MeSH descriptor time factors
#25.	(#16 or #23)
#26.	(#24 and #25)
#27.	((tertiary or specialist* or trauma or neuro-intensive or neurocritical or neuro-critical) adj (centre or centres or service* or care))
#28.	(neurosurg* or intensive care or icu or critical care)
#29.	(neuromonitor* or neuro-monitor*)
#30.	(craniectom* or craniotom*)
#31.	((intracranial pressure) adj4 (surg* or neurosurg*))
#32.	((hematoma* or haematoma* or surg* or neurosurg*) adj4 (evacuat* or drain*))
#33.	(decompress*)
#34.	((cerebrospinal fluid) adj3 (diversion or drain* or surg* or neurosurg*))
#35.	(#27 or #28 or #29 or #30 or #31 or #32 or #33 or #34)
#36.	(delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or

	prompt or rapid or late*)
#37.	#35 and #36
#38.	#26 or #37
#39.	#9 and #38

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HEED search terms

1.	AX= head injury within 3
2.	AX= head injuries within 3
3.	AX= brain injury within 3
4.	AX= brain injuries within 3
5.	AX= head trauma within 3
6.	AX= brain trauma within 3
7.	AX= skull fracture within 3
8.	AX= skull fractures within 3
9.	AX= skull fractured within 3
10.	AX= cerebral trauma within 3
11.	AX= craniocerebral trauma within 3
12.	CS= 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11
13.	AX=delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*
14.	CS=12 and 13

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F.5 Health economics search

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Health economic searches were run by applying the HE and MOD study type filter search terms to the same strategies used for the clinical searches. (See section F.4 for details). Additionally, papers would have been identified in the searches used for the Major Trauma guideline (**cross-refer when published**) which was developed at the same time as this guidance.

1

References

2

1 National Institute for Health and Clinical Excellence. The guidelines manual. London: National Institute for Health and Clinical Excellence; 2012. Available from:

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<http://publications.nice.org.uk/the-guidelines-manual-pmg6/>

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2 National Institute for Health and Clinical Excellence. Developing NICE guidelines: the manual. London: National Institute for Health and Clinical Excellence; 2014. Available from:

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<http://www.nice.org.uk/article/pmg20/>

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