

DRAFT FOR CONSULTATION

Spinal injury: assessment and initial management

Spinal injury assessment: assessment and imaging for spinal injury

Clinical Guideline <...>

Appendices A - F

August 2015

Draft for Consultation

Commissioned by the National Institute for Health and Care Excellence

Disclaimer

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

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Appendices

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Appendix A: Scope

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

SCOPE

1 Guideline title

Spinal injury assessment: assessment and imaging and early management for spinal injury (spinal column or spinal cord injury).

1.1 Short title

Spinal injury assessment

2 The remit

The Department of Health has asked NICE: 'To produce guidance on the assessment and imaging of patients at high risk of spinal injury.'

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

- [Complex fractures: assessment and management of complex fractures \(including pelvic fractures and open fractures of limbs\)](#)
- [Fractures: diagnosis, management and follow up of fractures \(excluding head and hip, pelvis, open and spinal\)](#)
- [Major trauma: assessment and management of airway, breathing and ventilation, circulation, haemorrhage and temperature control](#)
- [Spinal injury assessment: assessment and imaging of patients at high risk of spinal injury](#)
- [Trauma services: service delivery of trauma services](#)

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

3

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

3 Clinical need for guidance

3.1 *Epidemiology*

- a) Spinal injury involves traumatic fracture or derangement of the spinal column, sometimes leading to spinal cord injury. If suspected spinal injury occurs, careful immobilisation is of great importance. Occasionally spinal cord injury may occur in the absence of overt spinal column damage. Such injuries often lead to serious neurological damage, causing paraplegia, tetraplegia or death.
- b) The main causes of spinal injury are road traffic collisions, falls, violent attacks, sporting injuries and domestic accidents. Although spinal injury affects all ages, young and middle aged men and older women tend to be the populations at highest risk. Half of all spinal injuries affect the cervical spine.
- c) Approximately 500–600 people sustain acute traumatic injuries to the spinal cord each year in the UK. A European study suggests about five times as many people will suffer a spinal fracture or dislocation alone. Approximately 5% of people experiencing high energy poly-trauma have an unstable spinal column injury.

3.2 *Current practice*

- a) Initial assessment is a triage procedure carried out by pre-hospital care staff to establish the existence or likely existence of an injury, the severity and range of traumatic injuries found. All patients with major traumatic injuries whether or not they include spinal injuries, should be taken to the local trauma unit or centre, usually by emergency services.
- b) There are differences in the mode of immobilisation of patients with suspected spinal injuries across the UK. While all people will need

immobilisation after a suspected spinal injury, there is no clear single best method or clinical working practice identified.

- c) If a patient with a suspected spinal cord injury has been sent to a local trauma centre or trauma unit, treating consultants are expected to contact the on-call consultant in a spinal cord injury centre for advice on management and referral. Patients are referred to spinal cord injuries units for acute care and rehabilitation.
- d) Once in the trauma centre, trauma unit or spinal cord injury centre, spinal imaging and assessment is needed and should be reviewed by an appropriately trained radiologist.
- e) After the acute stage, later assessment of disabilities and need for rehabilitation should occur, as it is a critical part of maximising recovery from spinal injury.
- f) The patterns of referral of people with spinal cord injury to spinal cord injury centres are inconsistent, with only 7% of cases referred within 1 day of injury, and 59% being admitted within 1 month. Such delays may lead to complications and longer hospital stays. These delays may be partially due to inappropriate methods of assessment.

4 The guideline

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

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

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

4.1 Population

4.1.1 Groups that will be covered

All adults, young people and children who present with suspected spinal column or spinal cord injury secondary to a traumatic event.

4.1.2 Groups that will not be covered

People whose spinal injury is caused by disease, rather than a traumatic event.

4.2 Healthcare setting

All settings in which NHS care is received or commissioned.

4.3 Clinical management

4.3.1 Key clinical issues that will be covered

- a) Initial triage and management by pre-hospital care staff:
 - primary survey assessment for spinal injury with specific risk tools
 - methods to protect spine and transfer patient
 - determining the immediate destination of patient.
- b) Acute-stage clinical assessment:
 - primary survey assessment for spinal injury
- c) Acute-stage clinical management of early medical intervention (such as anti-inflammatories, antioxidants and anti-excitotoxins).
- d) Acute-stage imaging assessment of different imaging modalities, such as:
 - X-ray (including dynamic fluoroscopy)
 - CT
 - MRI.

Further imaging assessment in people who may have clinical signs of spinal injury, but who have normal or indeterminate findings on initial imaging.

- e) Timing of referral and the criteria for acceptance by tertiary services.
- f) Skills to be present within the multidisciplinary team
- g) Documentation of clinical assessments and management for people with spinal injuries (including pre hospital and hospital documentation)
- h) Information and support needs of patients and their families and carers when appropriate.

4.3.2 Clinical issues that will not be covered

- a) Prevention of traumatic spinal injury.
- b) Management of spinal injury in a tertiary centre.
- c) Management and follow-up of pathological conditions predisposing to spinal injury (such as osteoporosis and osteoarthritis).

The following NICE guidance will be cross referred to

- d) Major trauma (pain relief and airway management)
- e) Head injury

4.4 Main outcomes

- a) Adverse effects associated with assessment, imaging, stabilisation and transfer
- b) Diagnostic accuracy (sensitivity and specificity).
- c) Complications of poor handling, poor resuscitation and delayed bony stabilisation.

- d) Functional scales that quantify level of disability, such as the SCIM III.
- e) Health-related quality of life.
- f) Healthcare contacts; duration and continuity.
- g) Return to normal activities.
- h) Morbidity.
- i) Mortality.
- j) Patient-reported outcomes.

4.5 Economic aspects

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

4.6 Status

4.6.1 Scope

This is the final scope.

4.6.2 Timing

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

5 Related NICE guidance

5.1 Published guidance

- [Patient experience in adult NHS services](#). NICE clinical guideline 138 (2012).
- [Head injury](#). NICE clinical guideline 56 (2007).

5.2 Guidance under development

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

- Head injury. NICE clinical guideline. Publication expected January 2014.
- Non complex Fractures. NICE clinical guideline. Publication expected TBC 2015.
- Complex fractures. NICE clinical guideline. Publication expected TBC 2015.
- Major trauma. NICE clinical guideline. Publication expected TBC 2015.
- Trauma services. NICE clinical guideline. Publication expected TBC 2015.

6 Further information

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

- [How NICE clinical guidelines are developed: an overview for stakeholders the public and the NHS](#)
- [The guidelines manual](#). 2012

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

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	
Thirteenth GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 30 April 2015		
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 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 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	
Twelfth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
29 April 2015		
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 2015	No change in declaration	
Eleventh GDG	No change in declaration	

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

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	
Ninth GDG meeting	Did not attend	

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

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 2014	No change in declaration	

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

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 4 December	Did not attend	

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

GDG meeting	Declaration of Interests	Action taken
4 December 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	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 4 September 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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	
Fifth GDG meeting 4 September	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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	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 meeting 10 April 2014	No change in declaration	
Fourth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 3 September 2014		
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 17 January 2014	No change in declaration	
Third GDG	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
meeting 10 April 2014		
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
Second GDG meeting 17 January 2014	Did not attend	

GDG meeting	Declaration of Interests	Action taken
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
Second GDG meeting 17 January	Did not attend	

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

1

Table 15: Morris, Kevin

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

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	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: <ul style="list-style-type: none"> JN undertakes consultancy work for Orthofix 	No action taken

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

GDG meeting	Declaration of Interests	Action taken
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 meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
27 January 2015		
Eleventh GDG meeting 11 March 2015	Did not attend	
Twelfth GDG meeting 29 April 2015	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	

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Table 22: Snaith, Beverly

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

GDG meeting	Declaration of Interests	Action taken
2014		
Ninth GDG meeting 26 January 2015	No change in declaration	
Tenth GDG meeting 27 January 2015	No change in declaration	
Eleventh GDG meeting 11 March 2015	No change in declaration	
Twelfth GDG meeting 29 April 2015	No change in declaration	
Thirteenth GDG meeting 30 April 2015	Did not attend	
Fourteenth GDG meeting 19 May 2015	No change in declaration	

1

Table 23: Stacey, Julia

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

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

1

Table 24: Swann, Garry

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

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

1

Table 25: Thornhill, Angela

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

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

1

Table 26: Toplis, Laura

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

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

1

Table 27: Wallman, Paul

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

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

1 B.2 Major trauma

2 **Table 28: Brohi, Karim (Chair)**

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

GDG meeting	Declaration of Interests	Action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> • Paid consultancy for Haemonetics Inc (TEG manufacturers) in 2012 <p>Non personal pecuniary interest:</p> <ul style="list-style-type: none"> • Research funding from Haemonetics Inc (TEG 2013) and TEM International (ROTEM 2008) 	Conflict of interest: Withdrew from recommendation making discussions on coagulation testing.
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG	No change in declaration	

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

1

Table 29: Christmas, David

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

GDG meeting	Declaration of Interests	Action taken
2015		
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	

1

Table 30: Fitzsimmons, Chris

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> CF works on a group under the Royal College of Radiologists and the British Society of Paediatric radiologists to help develop national standards for the radiological imaging of children with major trauma. 	No action taken
Second GDG meeting 21 November 2013	Personal pecuniary interest: <ul style="list-style-type: none"> CF is applying for the post of Clinical lead of the ODN for Major trauma in South Yorkshire region. 	No action taken.
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	Personal pecuniary interest: <ul style="list-style-type: none"> CF has accepted the post of Clinical lead for South Yorkshire Trauma Operational Delivery network, paid at the rate of one programmed activity (PA) per month. 	No action taken.
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> Appointed to the board of the TARNLet committee. 	No action taken
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> Named as co-author on review article that has been accepted in peer-reviewed radiology journal on the subject of 'radiological imaging in the child with major trauma'. 	No action taken
Ninth GDG meeting 31 July 2014	Did not attend	

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

1

Table 31: Foster, Judith

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is the chair of the intercollegiate working party drafting standards for imaging in severely injured children, commissioned by the RCR and the SXPR and including members from APEM, BAPS and RCPCH. The standards are due for publication in 2014. 	No action taken
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	Did not attend	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	Did not attend	
Sixth GDG meeting	Did not attend	

GDG meeting	Declaration of Interests	Action taken
14 May 2014		
Seventh GDG meeting 15 May 2014	Did not attend	
Eighth GDG meeting 30 July 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> • Co-author of paper reviewing imaging guidelines in the severely injured child. 	No action taken
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	Did not attend	
Thirteenth GDG meeting 13 January 2015	Personal non-pecuniary interest: <ul style="list-style-type: none"> • JF is chair of the intercollegiate working party drafting standards for imaging of the severely injured child – these were published in September 2014. 	No action taken.
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	Did not attend	
Sixteenth GDG meeting 7 May 2015	Did not attend	

1

Table 32: Griffiths, Nathan

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> • Freelance clinical educator – deliver training and education including relevant guidelines on behalf of a third party private training company. This has previously included consultancy on guideline development for two organisations; although not recent. 	No action taken
Second GDG meeting 21 November 2013	Did not attend	

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

1

Table 33: Hough, Jennifer

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

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

1

Table 35: Ingram, Mike

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

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

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	No change in declaration	

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

1

Table 37: Kumar, Suresh

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

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

1

Table 38: Lee, Richard

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

GDG meeting	Declaration of Interests	Action taken
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	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	

GDG meeting	Declaration of Interests	Action taken
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	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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
21 November 2013		
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	No change in declaration	
Eleventh GDG meeting 14 October 2014	No change in declaration	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	No change in declaration	
Fifteenth GDG meeting 26 March 2015	No change in declaration	
Sixteenth GDG meeting 7 May 2015	No change in declaration	

1

Table 41: Morris, Kevin

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

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

1

Table 42: Piercy, James

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

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

1

Table 43: Sampson, Madeleine

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

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

1

Table 44: Skinner, David

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 21 November 2013	Did not attend	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	Did not attend	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	Did not attend	
Seventh GDG meeting 15 May 2014	Personal pecuniary interest: <ul style="list-style-type: none"> DS has been commissioned to conduct a review (under 3 weeks) of major trauma systems in Manchester. 	No action taken
Eighth GDG meeting 30 July 2014	No change in declaration	
Ninth GDG meeting 31 July 2014	No change in declaration	
Tenth GDG meeting 13 October 2014	Did not attend	

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

1

Table 45: Snaith, Beverly

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

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

1

Table 46: Stiff, Graham

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

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

1

Table 47: Toplis, Laura

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

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

1

Table 48: Wallman, Paul

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

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

1

Table 49: Welch, Nick

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

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> Member of the British orthopaedic Association's patient liaison group. 	
Second GDG meeting 21 November 2013	No change in declaration	
Third GDG meeting 7 January 2014	No change in declaration	
Fourth GDG meeting 12 March 2014	No change in declaration	
Fifth GDG meeting 13 March 2014	No change in declaration	
Sixth GDG meeting 14 May 2014	No change in declaration	
Seventh GDG meeting 15 May 2014	No change in declaration	
Eighth GDG meeting 30 July 2014	Did not attend	
Ninth GDG meeting 31 July 2014	Did not attend	
Tenth GDG meeting 13 October 2014	Did not attend	
Eleventh GDG meeting 14 October 2014	Did not attend	
Twelfth GDG meeting 12 January 2015	No change in declaration	
Thirteenth GDG meeting 13 January 2015	No change in declaration	
Fourteenth GDG meeting 25 March 2015	Did not attend	
Fifteenth GDG meeting 26 March 2015	Did not attend	

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

1

Table 50: Wiltshire, Steve

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

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

1 B.3 Non complex fractures

2 **Table 51: Berry, Kathleen**

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

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

1

Table 52: Camps, Cherylene

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

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

1

Table 53: Christmas, David

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

GDG meeting	Declaration of Interests	Action taken
14 May 2015		

1

Table 54: Costa, Matt

GDG meeting	Declaration of Interests	Action taken
On application	Non-personal pecuniary interest: <ul style="list-style-type: none"> MC is an investigator on University of Warwick held research grants from NIHR, ARUK and x-Bolr Orthopaedics. 	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> MC is a potential co-applicant on a grant application looking at the use of 3D imaging in suspected scaphoid fractures 	No action taken
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	Non-personal pecuniary interest: <ul style="list-style-type: none"> MC employers received a NIHR research grant for the Distal Radius Acute Fracture Fixation Trial 	Conflict of interest: Withdrew from recommendation making discussions on distal radius fractures.

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

1

Table 55: Foster, Judith

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is the chair of the intercollegiate working party drafting standards for imaging in severely injured children, commissioned by the RCR and the SXPR and including members from APEM, BAPS and RCPCH. The standards are due for publication in 2014. 	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> JF is chair of the intercollegiate working party drafting standards for imaging of the severely injured child, to be published September 2014. 	No action taken
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 12 March 2015		
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

Table 56: Handley, Bob (co-chair)

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

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

1

Table 57: Hayter, Gillian

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

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

1

Table 58: Henman, Philip

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

1

Table 59: Hough, Jennifer

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal family interest:</p> <ul style="list-style-type: none"> • My father is a registered practising pharmacist working for Bayer Medical Affairs with pharmaceutical industry. He also holds shares in AstraZeneca. <p>Personal non-pecuniary interest:</p> <ul style="list-style-type: none"> • JF has helped in developing a new major protocol - but this has included more organisation of our department. 	No action taken
Second GDG meeting 16 January 2014	Did not attend	
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	No change in declaration	

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

1

Table 60: Houghton, Elizabeth

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	No change in declaration	

1

Table 61: Ingram, Mike

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

2

Table 62: Jackson, Michael

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

GDG meeting	Declaration of Interests	Action taken
meeting 16 January 2014		
Third GDG meeting 9 April 2014	Did not attend	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	Did not attend	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

Table 63: Lecky, Fiona

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

GDG meeting	Declaration of Interests	Action taken
	funded study into trauma triage.	
Second GDG meeting 16 January 2014	No change in declaration	
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Non-personal pecuniary interest: <ul style="list-style-type: none"> Grant from NHS England to University of Sheffield part pays FL's salary. Grant is to evaluate the cost effectiveness of the new NHS England Regional Trauma networks. 	No action taken
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

Table 64: McFadyen, Iain (co-chair)

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

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

1

Table 65: Nanchahal, Jagdeep

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

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

1

Table 66: Sampson, Madeleine

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

2

Table 67: Silvester, Lucy

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

GDG meeting	Declaration of Interests	Action taken
meeting 16 January 2014		
Third GDG meeting 9 April 2014	No change in declaration	
Fourth GDG meeting 21 May 2014	No change in declaration	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	Did not attend	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

Table 68: Skinner, David

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

GDG meeting	Declaration of Interests	Action taken
Third GDG meeting 9 April 2014	Personal non-pecuniary interest: <ul style="list-style-type: none"> • DS has been appointed to work on the TARN database. 	No action taken
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

Table 69: Slowie, Aidan

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

GDG meeting	Declaration of Interests	Action taken
Fourth GDG meeting 21 May 2014	Did not attend	
Fifth GDG meeting 22 May 2014	No change in declaration	
Sixth GDG meeting 2 July 2014	No change in declaration	
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

Table 70: Snaith, Beverly

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

GDG meeting	Declaration of Interests	Action taken
Fifth GDG meeting 22 May 2014	Did not attend	
Sixth GDG meeting 2 July 2014	Personal pecuniary interes: <ul style="list-style-type: none"> • BS was a co-investigator on 'hot reporting' study (Hardy et al 2013) 	Conflict of interest: Withdrew from recommendation making discussions on hot reporting.
Seventh GDG meeting 3 July 2014	No change in declaration	
Eighth GDG meeting 13 August 2014	No change in declaration	
Ninth GDG meeting 14 August 2014	No change in declaration	
Tenth GDG meeting 29 October 2014	No change in declaration	
Eleventh GDG meeting 30 October 2014	No change in declaration	
Twelfth GDG meeting 12 March 2015	No change in declaration	Conflict of interest: Withdrew from recommendation making discussions on hot reporting.
Thirteenth GDG meeting 13 May 2015	No change in declaration	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1

Table 71: Swann, Garry

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

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

1

Table 72: Toplis, Laura

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

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

1

Table 73: Wallman, Paul

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

GDG meeting	Declaration of Interests	Action taken
Eighth GDG meeting 13 August 2014	Did not attend	
Ninth GDG meeting 14 August 2014	Did not attend	
Tenth GDG meeting 29 October 2014	Did not attend	
Eleventh GDG meeting 30 October 2014	Did not attend	
Twelfth GDG meeting 12 March 2015	Did not attend	
Thirteenth GDG meeting 13 May 2015	Did not attend	
Fourteenth GDG meeting 14 May 2015	Did not attend	

1 B.4 PET

2 **Table 74: Borthwick, John**

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

1

Table 75: Brohi, Karim

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

2

Table 76: Brown, Lynda

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

3

Table 77: Fitzsimmons, Chris

PET meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> • CF works on a group under the Royal College of Radiologists and the British Society of Paediatric radiologists to help develop national standards for the radiological 	No action taken

PET meeting	Declaration of Interests	Action taken
	imaging of children with major trauma.	
05 Feb 2013	Did not attend	
08 Apr 2013	Did not attend	
09 May 2013	Did not attend	
05 Sep 2013	No change in declaration	
05 Mar 2014	No change in declaration	
17 Jul 2014	Did not attend	
20 Nov 2014	No change in declaration	
05 Feb 2015	No change in declaration	
17 Apr 2015	No change in declaration	

1 **Table 78: Handley, Bob**

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

2 **Table 79: Hughes, Simon**

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

3 **Table 80: Jarman, Heather**

PET meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> • HJ is a member of the Department of Health Clinical reference group for major trauma. 	No action taken

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

1

Table 81: Lecky, Fiona

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

2

Table 82: Lee, Richard

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

1

Table 83: McFadyen, Iain

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

2

Table 84: Skinner, David (Chair)

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

3

Table 85: Stiff, Graham

PET meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> GS has an honorary contract with South Central Ambulance NHS Foundation Trust Service that enables me to claim expenses for attending and providing support at accident scenes. 	No action taken
05 Feb 2013	No change in declaration	
08 Apr 2013	No change in declaration	
09 May 2013	No change in declaration	
05 Sep 2013	No change in declaration	
05 Mar 2014	No change in declaration	
17 Jul 2014	No change in declaration	
20 Nov 2014	No change in declaration	

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

1 **Table 86: Todd, Nick**

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

2 B.5 Service Delivery

3 **Table 87: Basu, Bhaskar**

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

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

1

Table 88: Bennett, Stephen

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

GDG meeting	Declaration of Interests	Action taken
meeting 9 April 2015		

1

Table 89: Brohi, Karim

GDG meeting	Declaration of Interests	Action taken
On application	<p>Personal pecuniary interest:</p> <ul style="list-style-type: none"> • Sangart Inc (ongoing)- consultancy on early phase clinical trials of oxygen therapeutic • CSL Behring (ongoing)- consultancy on future of bleeding management and coagulation research • Haemonetics (ongoing)- consultancy on coagulation and device development. <p>Non-personal pecuniary interest:</p> <ul style="list-style-type: none"> • Astra-Zeneca- unrestricted grant for coagulation/haemorrhage research • Haemonetics- unrestricted grant for coagulation/haemorrhage research • TEM International- support for research devices and consumables (unrestricted) 	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	Did not attend	
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	

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

1

Table 90: Charters, Alan

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

GDG meeting	Declaration of Interests	Action taken
meeting 9 April 2015		

1

Table 91: Christmas, David

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

2

Table 92: Fitzsimmons, Chris

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> CF works on a group under the Royal College of Radiologists and the British Society of Paediatric radiologists to help develop national standards for the radiological 	No action taken

GDG meeting	Declaration of Interests	Action taken
	imaging of children with major trauma.	
Second GDG meeting 16 July 2014	Did not attend	
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	Did not attend	
Fifth GDG meeting 5 November 2014	Did not attend	
Sixth GDG meeting 7 January 2015	Did not attend	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	Did not attend	
Tenth GDG meeting 8 April 2015	Did not attend	
Eleventh GDG meeting 9 April 2015	Did not attend	

1

Table 93: Gupta, Pawan

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

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

1

Table 94: Handley, Bob

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

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

1

Table 95: Hoffman, Karen

GDG meeting	Declaration of Interests	Action taken
On application	Personal non-pecuniary interest: <ul style="list-style-type: none"> • KH is completing a PhD in rehabilitation of people with traumatic injuries. 	No action taken
Second GDG meeting 16 July 2014	No change in declaration	
Third GDG meeting 25 September 2014	No change in declaration	
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February	Did not attend	

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

1

Table 96: Ingram, Mike

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

2

Table 97: Jarman, Heather

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

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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	<ul style="list-style-type: none"> FP7 center BI grant reimburses FL's 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	<p>Non personal-pecuniary interest:</p> <ul style="list-style-type: none"> Grant from NHS England to University of Sheffield part pays FL's salary – grant is to evaluate cost effectiveness of the new NHS England regional trauma networks 	Conflict of interest: Withdrew from recommendation making discussions on audit.
Eleventh GDG meeting 9 April 2015	Did not attend	

1

Table 99: Lee, Richard

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

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

GDG meeting	Declaration of Interests	Action taken
7 January 2015		
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	No change in declaration	

GDG meeting	Declaration of Interests	Action taken
26 February 2015		
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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 9 April 2015		

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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 25 September 2014		
Fourth GDG meeting 26 September 2014	No change in declaration	
Fifth GDG meeting 5 November 2014	No change in declaration	
Sixth GDG meeting 7 January 2015	No change in declaration	
Seventh GDG meeting 8 January 2015	No change in declaration	
Eighth GDG meeting 25 February 2015	No change in declaration	
Ninth GDG meeting 26 February 2015	No change in declaration	
Tenth GDG meeting 8 April 2015	No change in declaration	
Eleventh GDG meeting 9 April 2015	No change in declaration	

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	

GDG meeting	Declaration of Interests	Action taken
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 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	

GDG meeting	Declaration of Interests	Action taken
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 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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 16 April 2015		

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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	Guidelines 2013 www.neuroicu.org.uk/). She fed back comments for the spinal sections that were incorporated into the document; she is also in the process of writing a review of the literature and a case study using non-invasive ventilation for acute spinal injury management.	
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	

GDG meeting	Declaration of Interests	Action taken
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	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

GDG meeting	Declaration of Interests	Action taken
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 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	

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	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	Did not attend	

GDG meeting	Declaration of Interests	Action taken
meeting 16 April 2015		

1

Table 114: El Masri(y), Wagih

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

2

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 	No action taken

GDG meeting	Declaration of Interests	Action taken
	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.	
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	Did not attend	
Fifth GDG meeting 16 October 2013	Did not attend	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	Did not attend	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	Did not attend	
Tenth GDG meeting 3 Feb 2015	Personal non-pecuniary interest: <ul style="list-style-type: none"> The intercollegiate working party draft standards for imaging of the severely injured child were published in September 2014. 	No action taken
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	Did not attend	

1

Table 116: Gardner, Brian

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	Personal non-pecuniary interest: <ul style="list-style-type: none"> BG retired from the NHS in June 2011, but remains registered to treat spinal cord injured patients. He is still in an honorary contract with Stoke Mandeville and attends research meetings and clinical audit 	No action taken

GDG meeting	Declaration of Interests	Action taken
	meetings in the Spinal Unit.	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	Non-personal pecuniary interest: <ul style="list-style-type: none"> • BG is the co-author of a study on early relocation of dislocated spines. 	Conflict of interest: Withdrew from recommendation making discussions.
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	Did not attend	

1

Table 117: Harrison, Paul

GDG meeting	Declaration of Interests	Action taken
On application	Personal pecuniary interest: <ul style="list-style-type: none"> • PH is clinical consultant to Nexus DMS Ltd, manufacturer of 'Legacy' complex care mechanical turning bed. • PH is a committee member of Multidisciplinary Association of Spinal Cord Injury Professionals (MASCIP) and honorary vice president of Spinal Injuries Association (2012-2015). 	No action taken
Second GDG meeting 16 July 2013	Personal non-pecuniary interest: <ul style="list-style-type: none"> • PH is an advisor in a group led by Matthew Cooke (Warwick University, NHS Emergency Care Leader) evaluating new design formats for head and neck immobiliser. So far 	No action taken.

GDG meeting	Declaration of Interests	Action taken
	involvement is videoconference to view prototype for trialling.	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	
Seventh GDG meeting 2 December 2013	No change in declaration	
Eighth GDG meeting 3 December 2013	No change in declaration	
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	Did not attend	
Eleventh GDG meeting 4 Feb 2015	Did not attend	
Twelfth GDG meeting 16 April 2015	No change in declaration	

1

Table 118: Hill, Debbie

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

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

GDG meeting	Declaration of Interests	Action taken
2013		
Ninth GDG meeting 5 March 2014	No change in declaration	
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 Apr 2015	No change in declaration	

1

Table 120: Ingram, Michael

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

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

1

Table 121: Morris, Craig

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

GDG meeting	Declaration of Interests	Action taken
16 April 2015		

1

Table 122: Morris, Kevin

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

2

Table 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	No change in declaration	

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

1

Table 124: Skinner, David (Chair)

GDG meeting	Declaration of Interests	Action taken
On application	Nothing to declare	No action taken
Second GDG meeting 16 July 2013	No change in declaration	
Third GDG meeting 19 August 2013	No change in declaration	
Fourth GDG meeting 20 August 2013	No change in declaration	
Fifth GDG meeting 16 October 2013	No change in declaration	
Sixth GDG meeting 17 October 2013	No change in declaration	

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

1

Table 125: Smallwood, Steve

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

GDG meeting	Declaration of Interests	Action taken
5 March 2014		
Tenth GDG meeting 3 Feb 2015	No change in declaration	
Eleventh GDG meeting 4 Feb 2015	No change in declaration	
Twelfth GDG meeting 16 April 2015	No change in declaration	

1

Table 126: Todd, Nick

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

1

Table 127: Toplis, Laura

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

2

3

1 Appendix C: Review protocols

2 C.1 Protecting the spine

3 **Table 128: Protecting the spine review protocol**

Review question	What is the clinical and cost effectiveness of routine spinal protection of all children, young people and adults experiencing trauma compared to selective protection, based on the use of a risk tool/clinical assessment at the scene of the incident/presentation?
Objective	To determine the effectiveness of routine spinal protection compared to selective protection based on a risk tool/clinical assessment at the scene of the incident/presentation.
Population	Children, young people and adults experiencing a traumatic incident.
Intervention	Routine spinal protection (of everyone assessed as having a traumatic incident).
Comparison	Selective spinal protection based on a a) risk tool (Canadian C-spine rules, JRCALC, BTS gl) or/and b)clinical assessment (Hoffman 2000, JRCALC)
Outcomes	<p>Critical:</p> <p>Mortality.</p> <p>Quality of life.</p> <p>Rates of SCI</p> <p>Missed spinal column/cord injury, spinal cord neurological function (ASIA and Frankel)</p> <p>Adverse effects (pressure ulcers, airway compromise, raised ICP, neurological deterioration [ASIA]) associated with spinal protection/immobilisation</p> <p>Important:</p> <p>Unnecessary imaging</p> <p>Patient-reported outcomes (pain/discomfort, return to normal activities, psychological wellbeing).</p> <p>Population size and directness:</p> <p>No limitations on sample size</p> <p>Studies with indirect populations will not be considered</p>
Exclusion	People with spinal cord/column injury directly caused by a disease process (without a traumatic event).
Search strategy	<p>Databases: Medline, Embase, the Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCT, SR , if none then go down to Cohort or case-control, prospective observational studies</p>
The review strategy	<p>Stratified by age (children, adults)</p> <p>Subgroup by: (children: neonate <28 days, infant , child, young people) (adults: up to 65 and elderly 65+)</p> <p>Risk tool (look at all together)</p> <p>Clinical assessment (keep separate from risk tool)</p>

1 C.2 Spinal injury assessment risk tools

2 **Table 129: Spinal injury assessment risk tools review protocol**

Review question	What tools are most predictive of spinal injury in people with suspected traumatic spinal injury when trying to exclude spinal cord injury (with or without spinal column injury) or isolated spinal column injury?
Objective	To determine the more accurate non-imaging method to exclude a) isolated spinal column injury b) spinal cord injury (with or without spinal column injury), in people with suspected traumatic spinal injury
Population	Children, young people and adults with suspected traumatic spinal injury
Clinical assessment tool	Canadian Cervical-Spine Rule NEXUS (National Emergency X-Radiography Utilization Study) Australian SPINEX card ASIA REMSSAP
Reference test	Later imaging findings Later surgical findings Later clinical findings Autopsy
Outcomes	Diagnostic accuracy (sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios) Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: cohort studies
The review strategy	Criteria for individual studies: Multivariate analysis (exclude if variables have not been controlled for in the analysis depending on the quantity and quality of the papers found) Hierarchy of evidence: IPD meta-analysis (Gold standard) Meta-analysis/systematic reviews Cohort studies External validation studies will also be included Stratify by age: children (0-17 years), adults (18 and over) Subgroup children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older) Sub-group adults by: 18- 65 years and > 65 years Stratify by area of spine: cervical, thoracic, lumbosacral Sub-group by presence of comorbidities (that is ankylosing spondylitis)

1 C.3 Immobilising the spine - pre-hospital strategies

2 **Table 130: Immobilising the spine - pre-hospital strategies review protocol**

Review question	What pre-hospital strategies to protect the spine in people with suspected traumatic spinal injury are the most clinically and cost effective during transfer from the scene of the incident to acute medical care?
Objective:	<p>To determine which interventions should be used to protect the spine and spinal cord pre-hospital.</p> <p>To determine which interventions improve outcomes (or cause least harm) and most cost effective.</p> <p>To assess transfer to acute medical care settings.</p>
Population	<p>Children, young people and adults experiencing a traumatic incident.</p> <p>If no evidence is identified the indirect population of healthy volunteers will be considered</p>
Intervention	<p>Spinal boards (long or short)</p> <p>Rescue board</p> <p>Scoop stretcher</p> <p>Spinal extrication devices</p> <p>Back boards</p> <p>Collar and back board combinations</p> <p>Vacuum mattress</p> <p>Mattress splints</p> <p>Collars (rigid or soft)</p> <p>Manual stabilization</p> <p>Sand bags, straps and tapes, head blocks, aqua board</p> <p>Kendrick Extrication Device (KED)</p> <p>Or any combinations of the above</p>
Comparison	<p>Standard care</p> <p>Do nothing</p> <p>To each other or in combination</p>
Outcomes	<p>Critical:</p> <p>Mortality at 1 month</p> <p>Mortality at 6 months</p> <p>Mortality at 12 months</p> <p>Health related quality of life</p> <p>Rates of spinal cord injury (SCI)</p> <p>Missed spinal column/cord injury</p> <p>Spinal cord neurological function at 1 month(including ASIA and Frankel)</p> <p>Spinal cord neurological function at 6 months(including ASIA and Frankel)</p> <p>Spinal cord neurological function at 12 months (including ASIA and Frankel)</p> <p>Adverse effects:</p> <p>Pressure ulcers</p> <p>Airway compromise</p> <p>Raised ICP</p> <p>Neurological deterioration [ASIA]) associated with spinal protection/immobilisation.</p> <p>Important:</p> <p>Pain/discomfort</p> <p>Return to normal activities</p>

Review question	What pre-hospital strategies to protect the spine in people with suspected traumatic spinal injury are the most clinically and cost effective during transfer from the scene of the incident to acute medical care?
	<p>Psychological wellbeing</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will be considered Within class comparison</p>
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event.
Search strategy	<p>Databases: Medline, Embase, The Cochrane Library</p> <p>Date: All years</p> <p>Language: Restrict to English only</p> <p>Study designs: RCTs or Systematic reviews of RCTs; cohorts or case-controls if no RCTs retrieved.</p>
The review strategy	<p>Stratification from outset</p> <p>Age: children (0-17 years); adults (18 years and over)</p> <p>Area of spine: cervical, thoracic, lumbosacral</p> <p>Sub-groups if between-study heterogeneity exists</p> <p>Children: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years)</p> <p>Adults: 18-65 years and > 65 years.</p> <p>Presence of comorbidities (i.e. Ankylosing Spondylitis)</p>

1 C.4 Destination (immediate)

2 **Table 131: Destination spinal column review protocol**

Review question	What is the optimal immediate destination of a person at risk of a traumatic spinal column injury
Objective:	To determine the optimal immediate destination of a person at risk of a traumatic spinal column injury once a clinical assessment has occurred
Population	Children, young people and adults at risk of a traumatic spinal column injury with and without neurology and without other life threatening injuries
Intervention	Major trauma centre (combined and/or isolated)
Comparison	Emergency department of district general hospital Trauma unit
Outcomes	<p>Critical:</p> <p>Mortality at 1, 6 and 12 months and 2 years</p> <p>Health related quality of life and 2 years</p> <p>Missed diagnosis</p> <p>Mis-diagnosis</p> <p>Adverse events: changes in neurology</p> <p>Important:</p> <p>Length of hospital stay</p> <p>Discharge destination and transitional</p> <p>Patient-reported outcomes (pain/discomfort, return to normal activities, psychological wellbeing, psychosocial wellbeing)</p>

Review question	What is the optimal immediate destination of a person at risk of a traumatic spinal column injury
	Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with spinal injury directly caused by a disease process without a traumatic event
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: retrospective and prospective cohorts.
The review strategy	Stratify by age: children (0-17 years), adults (18 and over) Sub-group children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years) Sub-group adults by: 18- 65 years and > 65 years. Sub-group: immediately life threatening traumas

1

Table 132: Destination spinal cord review protocol

Review question	What is the optimal immediate destination of a person at risk of a traumatic spinal cord injury
Objective:	To determine the optimal immediate destination of a person at risk of a traumatic spinal cord injury once a clinical assessment has occurred
Population	Children, young people and adults at risk of a traumatic spinal cord injury with and without neurology and without other life threatening injuries
Intervention	Spinal cord injury centre
Comparison	Major trauma centre (combined and/or isolated)
Outcomes	Critical: Mortality at 1, 6 and 12 months and 2 years Health related quality of life Missed diagnosis Mis-diagnosis Adverse events: changes in neurology Important: Length of hospital stay Discharge destination and transitional Patient-reported outcomes (pain/discomfort, return to normal activities, psychological wellbeing, psychosocial wellbeing) Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with spinal injury directly caused by a disease process without a traumatic event
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: retrospective and prospective cohorts.
The review strategy	Stratify by age: children (0-17 years), adults (18 and over)

Review question	What is the optimal immediate destination of a person at risk of a traumatic spinal cord injury
	Sub-group children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people (16-17 years) Sub-group adults by: 18- 65 years and > 65 years. Sub-group: immediately life threatening traumas

1 C.5 Diagnostic imaging

2 **Table 133: Diagnostic accuracy of imaging modalities review protocol**

Review question	What is the diagnostic accuracy of i) X-ray, ii) dynamic fluoroscopy, iii) CT and iv) MRI for people with traumatic spinal cord injury (with or without column injury)? What is the diagnostic accuracy of i) X-ray, ii) dynamic fluoroscopy, iii) CT and iv) MRI for people with traumatic spinal column injury alone?
Objective	To determine the diagnostic accuracy of i) X-ray, ii) dynamic fluoroscopy, iii) CT and iv) MRI for people with suspected traumatic spinal injury (spinal cord or spinal column injury, separately)
Population	Children, young people and adults with suspected traumatic spinal injury
Index test	X-ray Dynamic fluoroscopy CT MRI.
Reference test	Surgical findings Later clinical findings Autopsy findings. MRI and CT may serve as gold standards for x-ray and dynamic fluoroscopy. CT may serve as gold standard for any index test designed to detect bony injuries. MRI may serve as gold standard for any index test designed to detect spinal cord injuries.
Outcomes	Diagnostic accuracy Adverse events: effects of radiation Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: randomised control trials, diagnostic cohorts studies (retrospective or prospective), cross-sectional studies or systematic reviews of the above
The review strategy	Separate diagnostic reviews for a) spinal cord injury and b) isolated spinal column injury. Within each of those 2 main reviews, do separate analyses for each separate index test/reference test combination. Stratify by age: children (0-17 years), adults (18 and over)

Review question	What is the diagnostic accuracy of i) X-ray, ii) dynamic fluoroscopy, iii) CT and iv) MRI for people with traumatic spinal cord injury (with or without column injury)? What is the diagnostic accuracy of i) X-ray, ii) dynamic fluoroscopy, iii) CT and iv) MRI for people with traumatic spinal column injury alone?
	Sub-group children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older) Sub-group adults by: 18- 65 years and > 65 years Stratify by area of spine: cervical, thoracic, lumbosacral. Sub-group by presence of comorbidities (that is, ankylosing spondylitis)

1 C.6 Radiation risk

2 **Table 134: Radiation risk review protocol**

Review question	For people with clinical signs of spinal injury what are the radiation risks of having a X-ray(s) and/or CT scans
Objectives	To estimate the risks of radiation exposure in people with spinal injuries having a X-ray(s) and/or CT scans
Population	Children, young people and adults undergoing an X-ray and/or CT
Prognostic factors	X-ray CT
Outcomes	Critical: Mortality (including all-cause mortality) Genetic mutational risk Non-cancer (cataracts, radiation skin changes) Cancer (lag of ≥ 10 years) Breast cancer Brain tumours Cancers of the gonads Leukaemia Lymphoma Thyroid cancer Confounders Current cancer diagnosis Previous cancer Age
Search	Databases: Medline, Embase, the Cochrane Library Date: 1995 onwards Language: restrict to English only
Review strategy	Appraisal of methodological quality: the methodological quality of each study will be assessed using NGCG quality table from prognostic sub-group. Systematic reviews of cohorts, or prospective and retrospective cohorts if no systematic reviews retrieved

1 C.7 Further imaging

2 **Table 135: Re-imaging review protocol**

Review question	For people who have clinical signs of traumatic spinal cord or column injury, but who have normal or indeterminate findings on imaging, what is the most clinically and cost effective further imaging strategy?
Objective	To investigate the most effective imaging strategies for people in whom first-line imaging is not in concordance with clinical findings
Population	Children, young people and adults with clinical signs of traumatic spinal injury, but have normal or indeterminate findings on initial imaging.
Intervention	Dynamic fluoroscopy (if X-ray already performed) CT (if X-ray already performed) MRI (if X-ray or CT already performed)
Comparison	CT MRI Repeat initial modality with contrast and/or different parameters Repeat initial modality with different scanning location or body position.
Outcomes	<p>Critical:</p> <p>Mortality at 1 month Mortality at 6 months Mortality at 12 months Health related quality of life Rates of spinal cord injury (SCI).</p> <p>Important:</p> <p>Adverse effects: Effects of radiation Effects of sedation/anaesthetic Delay in treatment of other injuries whilst re-imaging Pain/discomfort Return to normal activities Psychological wellbeing.</p> <p>Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.</p>
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event.
Search strategy	Databases: Medline, Embase, The Cochrane Library Date: All years Language: Restrict to English only Study design: RCTs or systematic reviews of RCTs, prospective and retrospective cohorts.
The review strategy	Stratification from outset Age: children (0-17 years); adults (18 years and over) Area of spine: cervical, thoracic, lumbosacral Sub-groups if between-study heterogeneity exists Children: infant (< 1 year), younger children child (1-12 years), older child / young

Review question	For people who have clinical signs of traumatic spinal cord or column injury, but who have normal or indeterminate findings on imaging, what is the most clinically and cost effective further imaging strategy?
	person(> 12 years) Adults: 18-65 years and > 65 years. Presence of comorbidities (i.e. Ankylosing spondylitis)

1 C.8 Spinal cord decompression

2 **Table 136: Spinal cord decompression review protocol**

Review question	What is the clinical and cost-effectiveness of emergency closed reduction of cervical facet joint dislocation of the cervical spine?
Objective:	To find the effectiveness of emergency reduction in cervical facet joint dislocations
Population	Children, young people and adults with acute traumatic cervical dislocations
Intervention	Emergency closed reduction (within 4 hours of injury)
Comparison	Delayed closed reduction (after 4 hours) No reduction
Outcomes	Critical: Mortality at 1, 6 and 12 months Health related quality of life Spinal cord neurological function at 1, 6 and 12 months (including ASIA and Frankel) Adverse effects (deterioration in neurological function, acute cervical disc prolapse) Important: Patient-reported outcomes (pain/discomfort, return to normal activities, psychological wellbeing) Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: RCTs or Systematic reviews of RCTs, observational cohorts; case series for adverse events only.
The review strategy	Analysis: stratify by age: children (0-17 years), adults (18 and over) Subgroup children by: infants (< 1 year), younger child (1-12 years) and older child / young person (12 years and older) Sub-group adults by: 18- 65 years and > 65 years. Sub-group by presence of comorbidities (i.e. ankylosing spondylitis).

3 C.9 Timing of referral to tertiary services

4 **Table 137: Timing of referral to tertiary services review protocol**

Review question	Is there a benefit of early liaison and referral (within 4 hours) to spinal cord injury centres compared to delayed liaison?
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Review question	Is there a benefit of early liaison and referral (within 4 hours) to spinal cord injury centres compared to delayed liaison?
Objective	To notify the SCIC that there is a person with traumatic suspected spinal cord injury that may require specialist input and acceptance to a SCIC. a. To start the conversation between the SCIC and referring unit on the most appropriate treatment for the SCI patient b. To record the patient on the database c. To trigger the system for outreach support between the SCIC and referring unit.
Population	Adults, young people and children with spinal cord injury
Intervention	Early liaison/referral with SCIC
Comparison	Later liaison/referral No liaison/referral
Outcomes	Critical: Mortality Quality of life Important: Pain levels (immediate, 1 week) Function and ADL (1 month, 3 months, 1 year, 3 years, 5 years) Length of SCIC stay Adverse events after transfer (immediate) For example altered neurological function Complications – pressure sores, contractures, stones, urological complications, poor spinal outcome Duration of admission Population size and directness: No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event.
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: RCTs or Systematic reviews of RCTs; cohorts or case-controls if no RCTs retrieved.
The review strategy	Stratify by age: children (0-17 years), adults (18 and over) Sub-group children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people (16-17 years) Sub-group adults by: 18- 65 years and > 65 years Stratify by area of spine: cervical, thoracic, lumbosacral Stratify by type of selection tool (risk tool or clinical assessment) Sub-group by presence of comorbidities (that is, ankylosing spondylitis)

1 C.10 Referral to SCIC

2 Table 138: Referral to SCIC review protocol

Review question	What are the clinical factors associated with a positive outcome after transfer to an SCIC for patients with spinal trauma?
------------------------	------------------------------------------------------------------------------------------------------------------------------------

Review question	What are the clinical factors associated with a positive outcome after transfer to an SCIC for patients with spinal trauma?
Objective	At present acceptance to an SCIC is often determined by the SCIC's own criteria, some of which may be non-medical. To ensure that there is a more consistent approach across SCICs, it is vital to evaluate the prognostic factors associated with transfer to the SCIC.
Population	Adults, young people and children with spinal cord injury
Prognostic factors	Age Level of injury (Cervical ,Thoracic ,Lumbosacral) Density of injury (complete/partial)/severity of neurological impairment (ASIA) Co-existing psychiatric problems Co-existing head injuries (GCS) Co-existing respiratory problems Co-existing cardiovascular problems Co-existing non-spinal orthopaedic problems Co-existing infection Co-existing pressure sores Ventilator dependency Level of sedation
Outcomes	Critical: Mortality after transfer (time to event) Quality of life after transfer (at 1 week, 1 month, 3 months) Important: Pain levels after No limitations on sample size Studies with indirect populations will not be considered
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: prospective and retrospective cohorts, or systematic reviews of cohorts. (In the event of no other studies consider using case control studies)
The review strategy	Appraisal of methodological quality: the methodological quality of each study will be assessed using NICE checklists Type of analysis: multivariable survival analysis Stratify by age: children (0-17 years), adults (18 and over) Subgroup children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people (16-17 years) Sub-group adults by: 18- 65 years and > 65 years Stratify by area of spine: cervical, thoracic, lumbosacral Stratify by type of selection tool (risk tool or clinical assessment) Sub-group by presence of comorbidities (that is, ankylosing spondylitis)

1 C.11 Neuroprotective pharmacological interventions

2 **Table 139: Neuroprotective pharmacological interventions review protocol**

Review question	What is the clinical and cost-effectiveness of neuroprotective pharmacological interventions (such as anti-inflammatories, antioxidants and anti-excitotoxins) in people with traumatic spinal cord injury during the acute stage?
Objectives	To find the effectiveness of pharmacological therapy in people with acute traumatic spinal cord injury.
Population	Children, young people and adults with traumatic spinal cord injury.
Intervention	<p>Antioxidants</p> <p>Glucocorticoids: Methylprednisolone (Medrone, Solu-Medrone, Depo-Medrone) Dexamethasone</p> <p>Anti-inflammatories</p> <p>NSAIDs: Non-selective: ibuprofen (Brufen) Selective Cox-2: celecoxib (Celebrex)</p> <p>Anti-excitotoxins</p> <p>Calcium channel blockers: Nimodipine (Nimotop)</p> <p>Opioid antagonist: Naloxone</p> <p>Thyrotropin releasing hormone (Protirelin)</p> <p>Or any of the above in combination</p>
Comparison	<p>Usual care</p> <p>To each other</p> <p>Placebo</p>
Outcomes	<p>Critical:</p> <p>Mortality at 1 month</p> <p>Mortality at 6 months</p> <p>Mortality at 12 months</p> <p>Health related quality of life</p> <p>Spinal cord neurological function at 1 month(including ASIA and Frankel)</p> <p>Spinal cord neurological function at 6 months(including ASIA and Frankel)</p> <p>Spinal cord neurological function at 12 months (including ASIA and Frankel)</p> <p>Adverse effects:</p> <p>GI bleeding</p> <p>Ventilated associated pneumonia</p> <p>Infection</p> <p>Hyperglycaemia</p> <p>Thrombosis.</p> <p>Important:</p> <p>Pain/discomfort</p> <p>Return to normal activities</p> <p>Psychological wellbeing</p> <p>Population size and directness:</p>

Review question	What is the clinical and cost-effectiveness of neuroprotective pharmacological interventions (such as anti-inflammatories, antioxidants and anti-excitotoxins) in people with traumatic spinal cord injury during the acute stage?
	No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event. Delayed and long term pharmacological intervention.
Search strategy	Databases: Medline, Embase, The Cochrane Library Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs.
The review strategy	Stratification from outset Age: children (0-17 years); adults (18 years and over) Area of spine: cervical, thoracic, lumbosacral Sub-groups if between-study heterogeneity exists Children: infant (< 1 year), younger children child (1-12 years), older child / young person(> 12 years) Adults: 18-65 years and > 65 years. Timing of loading dose of intervention Dose Presence of comorbidities (i.e. Ankylosing spondylitis) Subsequent surgical fixation Duration of course

1

Table 140: Non-pharmacological interventions

Review question	What is the clinical and cost-effectiveness of emergency closed reduction of cervical facet joint dislocation of the cervical spine?
Objectives	To find the effectiveness of emergency reduction in cervical facet joint dislocations.
Population	Children, young people and adults with acute traumatic cervical facet joint dislocations.
Intervention	Emergency closed reduction (within 4 hours of injury).
Comparison	Delayed closed reduction (after 4 hours) No reduction
Outcomes	Critical: Mortality at 1 month Mortality at 6 months Mortality at 12 months Health related quality of life Spinal cord neurological function at 1month (including ASIA and Frankel) Spinal cord neurological function at 6 months (including ASIA and Frankel) Spinal cord neurological function at 12 months (including ASIA and Frankel) Adverse effects: Deterioration in neurological function Acute cervical disc prolapse Important: Pain/discomfort Return to normal activities

Review question	What is the clinical and cost-effectiveness of emergency closed reduction of cervical facet joint dislocation of the cervical spine?
	Psychological wellbeing Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event.
Search strategy	Databases: Medline, Embase, The Cochrane Library Date: All years Language: Restrict to English only Study designs: RCTs or Systematic reviews of RCTs. Case series for adverse events only.
The review strategy	Stratification from outset Age: children (0-17 years); adults (18 years and over) Area of spine: cervical, thoracic, lumbosacral Sub-groups if between-study heterogeneity exists Children: infant (< 1 year), younger children child (1-12 years), older child / young person(> 12 years) Adults: 18-65 years and > 65 years. Presence of comorbidities (i.e. Ankylosing spondylitis)

1 C.12 Neuropathic pain

2 **Table 141: Neuropathic pain review protocol**

Review question	What are the optimum strategies given in the acute management stage to prevent later neuropathic pain in people with traumatic spinal cord injury?
Objectives	To determine the effectiveness of various acute pain management methods to prevent later neuropathic pain in people with traumatic spinal cord injury
Population	Children, young people and adults with traumatic spinal cord injury
Intervention	Amitriptyline Trazodone Duloxetine Venlafaxine Lamotrigine Mexilitine Carbamazepine Gabapentin Pregabalin Topiramate Sodium Valproate Clonidine Levetiracetam Ketamine Alfentanil Lidocaine Comparison

Review question	What are the optimum strategies given in the acute management stage to prevent later neuropathic pain in people with traumatic spinal cord injury?
	No treatment Placebo
Comparison	Each other Placebo No treatment
Outcomes	Critical: Mortality at 1, 6 and 12 months Neuropathic pain at 1, 6 and 12 months Health related quality of life Adverse events: Dizziness and visual disturbance Nausea and vomiting Lethargy Important: Patient-reported outcomes (pain/discomfort, psychological wellbeing)
Exclusion	None
Search strategy	Databases: Medline, Embase, Cochrane Library Date: all years Language: restrict to English only Study designs: RCTs or systematic reviews of RCTs
The review strategy	Quality of life data: collect all data for the stated QoL measure, for meta-analysis and GRADE report only overall scores. Appraisal of methodological quality: the methodological quality of each study will be assessed using NICE checklists and GRADE. Stratification from outset Age: children (0-17 years); adults (18 years and over) Area of spine: cervical, thoracic, lumbosacral Sub-groups if between-study heterogeneity exists Children: infant (< 1 year), younger children child (1-12 years), older child / young person(> 12 years) Adults: 18-65 years and > 65 years. Presence of comorbidities (i.e. Ankylosing spondylitis)

1 C.13 Information and support

2 Table 142: Information and support needs pre-hospital review protocol

Review question	What information and support do people with suspected traumatic spinal cord/column injury and their families want in the early stages after trauma before a definitive diagnosis has been made?
Objective:	To determine what information and support should be provided to people with suspected traumatic spinal cord/column injury and their families before a definitive diagnosis has been made
Population	Children, young people and adults who present with a suspected spinal injury secondary to a traumatic event, and their family members and/or carers

Review question	What information and support do people with suspected traumatic spinal cord/column injury and their families want in the early stages after trauma before a definitive diagnosis has been made?
Themes	Particular advice to address: Content of information/support required and how this information/support is delivered Information and support to include pain relief Information for carers and family members as well as information for patients Timing of information/support
Exclusion	People with spinal cord or column injury directly caused by a disease process (without a traumatic event) Information after definitive diagnosis of a spinal injury
Search strategy	Databases: Medline, Embase, Cochrane Library, Cinahl Language: restrict to English only Study designs: Qualitative studies (focus group discussions, interviews), cross-sectional surveys and observational studies on patient perceptions
The review strategy	Thematic analysis: information synthesised into themes and sub-themes. Results presented diagrammatically and as narrative. Stratify by age: not applicable Subgroups: none

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Table 143: Information and support needs post diagnosis/pre transfer review protocol

Review question:	What information and support do people with a confirmed traumatic spinal cord/column injury and their families want in the early stages after trauma before transfer to specialist care?
Objective:	To determine what information and support should be provided to people with a confirmed traumatic spinal cord/column injury and their families before transfer to specialist care
Population	Children, young people and adults with spinal injury (cord and/or column) secondary to a traumatic event, and their family members and/or carers
Themes	Particular advice to address: Content of information/support required and how this information/support is delivered Information and support to include pain relief Information for carers and family members as well as information for patients Timing of information/support
Exclusion	People with spinal cord or column injury directly caused by a disease process (without a traumatic event). Information around the management of traumatic spinal injury after the patient has been accepted by a tertiary centre.
Search strategy	Databases: Medline, Embase, Cochrane Library, Cinahl Language: restrict to English only Study designs: Qualitative studies (focus group discussions, interviews), cross-sectional surveys and observational studies on patient perceptions.
The review strategy	Thematic analysis: information synthesised into themes and sub-themes. Results presented diagrammatically and as narrative. Stratify by age: not applicable Subgroups: none

1 C.14 Documentation

2 **Table 144: Documentation of basic neurological function review protocol**

Review question	What documentation tool should be routinely used to record baseline neurological function in people with spinal injuries?
Objective	To determine documentation tool should be routinely used to record baseline neurological function in people with spinal injuries (including cord, column and penetrating injuries with potential to affect the spine).
Population	Children, young people and adults experiencing a traumatic spinal injury (including cord, column and penetrating injuries with potential to affect the spine).
Intervention	ASIA Frankel Neurological clinical assessment NASCIS Timing of information/support.
Comparison	Standard/usual care
Outcomes	Critical: Mortality at 1, 6 and 12 months Health related quality of life Spinal cord neurological function at 1, 6 and 12 months (including ASIA and Frankel) Important: Patient-reported outcomes (pain/discomfort, return to normal activities, psychological wellbeing). Population size and directness: No limitations on sample size Studies with indirect populations will not be considered.
Exclusion	People with spinal cord or column injury directly caused by a disease process without a traumatic event. Non-comparative studies.
Search strategy	Databases: Medline, Embase, the Cochrane Library Date: all years Language: restrict to English only Study designs: cohort and case-control
The review strategy	Stratify by age: children (0-17 years), adults (18 and over) Subgroup children by: neonate (<28 days), infant (to 1 year), child (1-15 years), young people(16-17 years) Sub-group adults by: 18- 65 years and > 65 years. Stratify by area of spine: cervical, thoracic, lumbosacral.

3 C.15 Health Economic review protocol

4 **Table 145: Health economic review protocol**

Review question	All questions – health economic evidence
Objectives	To identify economic evaluations relevant to the review questions set out above.
Criteria	<ul style="list-style-type: none"> Populations, interventions and comparators must be as specified in the individual review protocols above. Studies must be of a relevant economic study design (cost–utility analysis,

	<p>cost–benefit analysis, cost-effectiveness analysis, cost–consequence analysis, comparative cost analysis).</p> <ul style="list-style-type: none"> • Studies must not be an abstract only, a letter, editorial or commentary, or a review of economic evaluations.^(a) Unpublished reports will not be considered unless submitted as part of a call for evidence. • Studies must be in English. • Studies must not be published before 1990.
Search strategy	An economic study search will be undertaken using population-specific terms and an economic study filter – see Appendix E.
Review strategy	<p>Each study fulfilling the criteria above will be assessed for applicability and methodological limitations using the NICE economic evaluation checklist which can be found in Appendix H of the NICE guidelines manual (2014).²</p> <p>Inclusion and exclusion criteria</p> <ul style="list-style-type: none"> • If a study is rated as both ‘Directly applicable’ and with ‘Minor limitations’ then it will be included in the guideline. An economic evidence table will be completed and it will be included in the economic evidence profile. • If a study is rated as either ‘Not applicable’ or with ‘Very serious limitations’ then it will usually be excluded from the guideline. If it is excluded then an economic evidence table will not be completed and it will not be included in the economic evidence profile. • If a study is rated as ‘Partially applicable’, with ‘Potentially serious limitations’ or both then there is discretion over whether it should be included. <p>Where there is discretion</p> <p>The health economist will make a decision based on the relative applicability and quality of the available evidence for that question, in discussion with the GDG if required. The ultimate aim is to include studies that are helpful for decision-making in the context of the guideline and the current NHS setting. If several studies are considered of sufficiently high applicability and methodological quality that they could all be included, then the health economist, in discussion with the GDG if required, may decide to include only the most applicable studies and to selectively exclude the remaining studies. All studies excluded on the basis of applicability or methodological limitations will be listed with explanation as excluded economic studies in Appendix K.</p> <p>The health economist will be guided by the following hierarchies.</p> <p><i>Setting:</i></p> <ul style="list-style-type: none"> • UK NHS • OECD countries with predominantly public health insurance systems (for example, France, Germany, Sweden) • OECD countries with predominantly private health insurance systems (for example, USA, Switzerland) • non-OECD settings (always ‘Not applicable’). <p><i>Economic study type:</i></p> <ul style="list-style-type: none"> • cost–utility analysis • other type of full economic evaluation (cost–benefit analysis, cost-effectiveness analysis, cost–consequence analysis) • comparative cost analysis • non-comparative cost analyses including cost-of-illness studies (always ‘Not applicable’). <p><i>Year of analysis:</i></p>

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

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

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

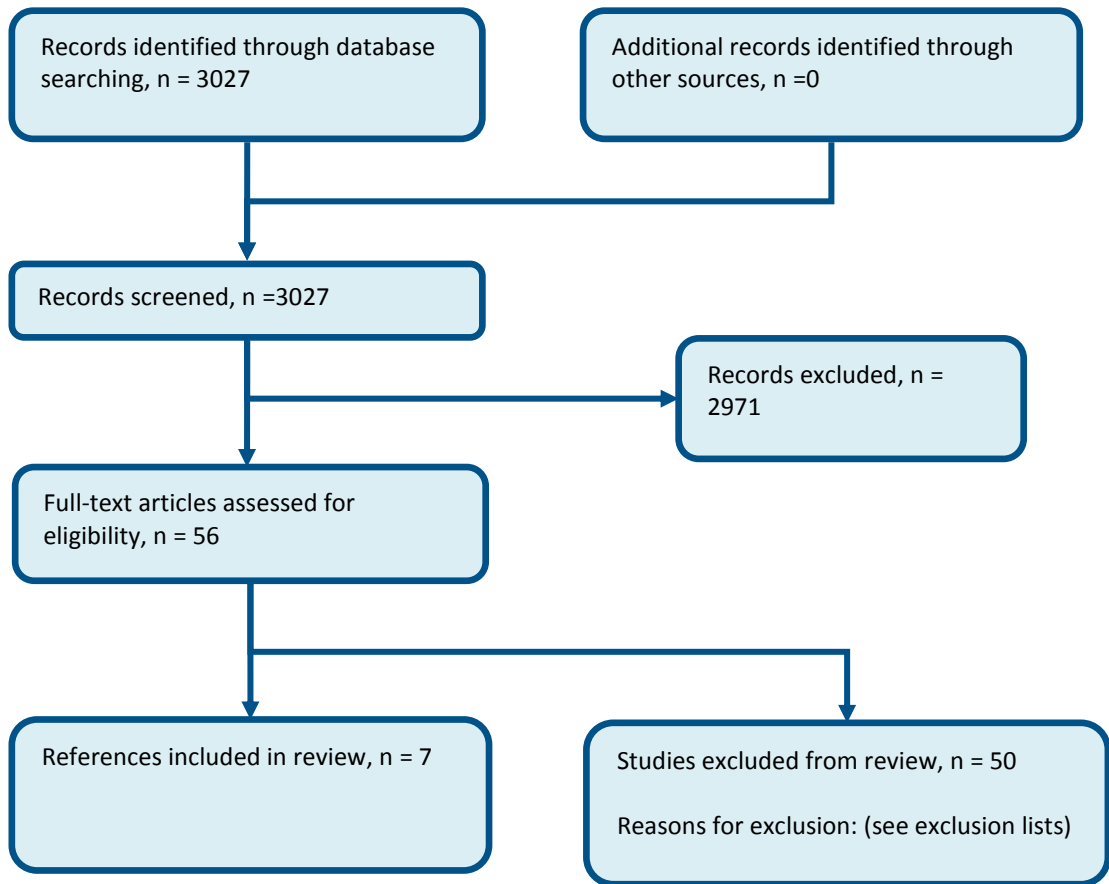
(a) Recent reviews will be ordered although not reviewed. The bibliographies will be checked for relevant studies, which will then be ordered.

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1 Appendix D: Clinical article selection

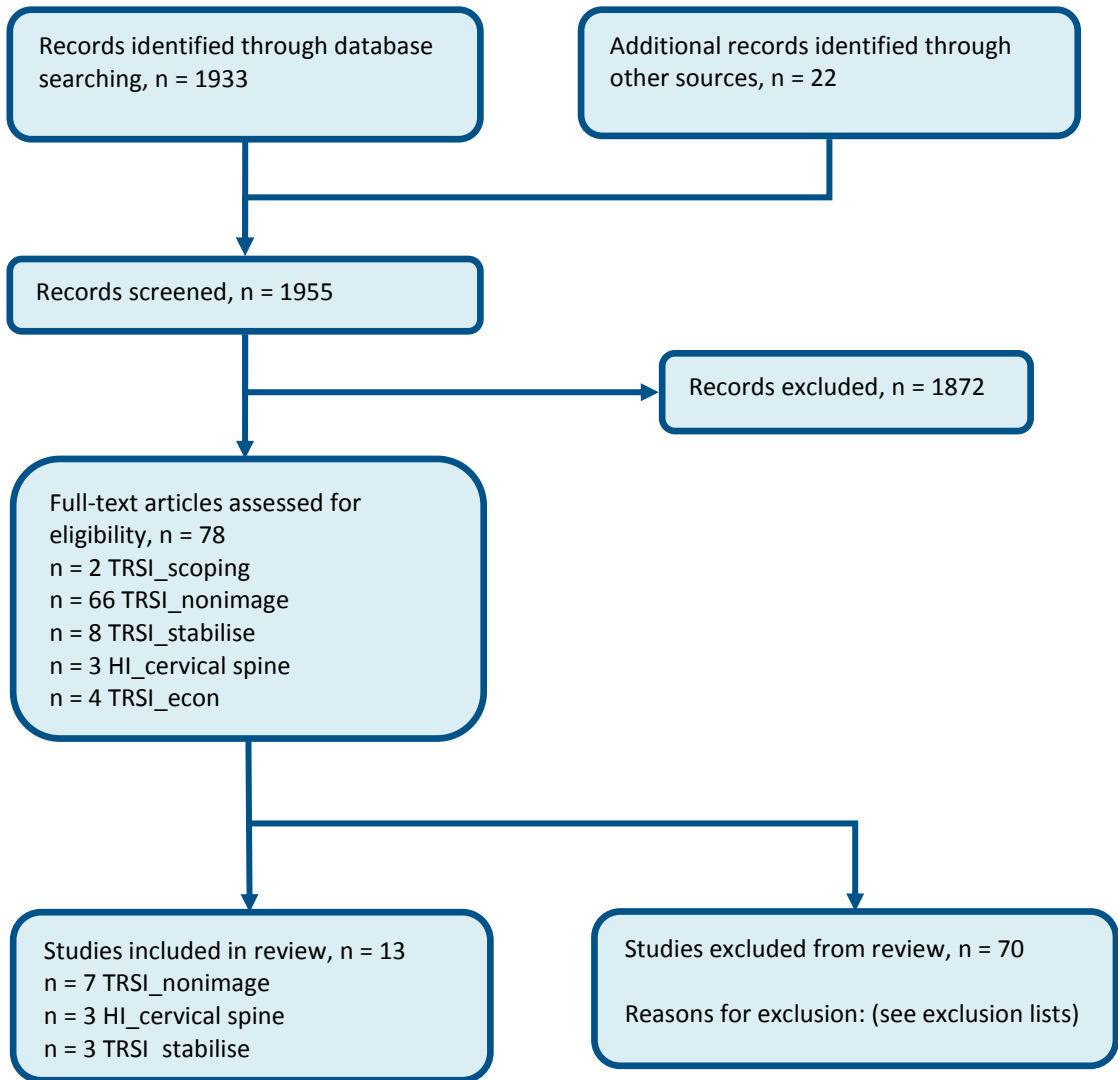
2 D.1 Protecting the spine

3 **Figure 1: Flow diagram of clinical article selection for the review of protecting the spine**



1 D.2 Spinal injury assessment risk tools

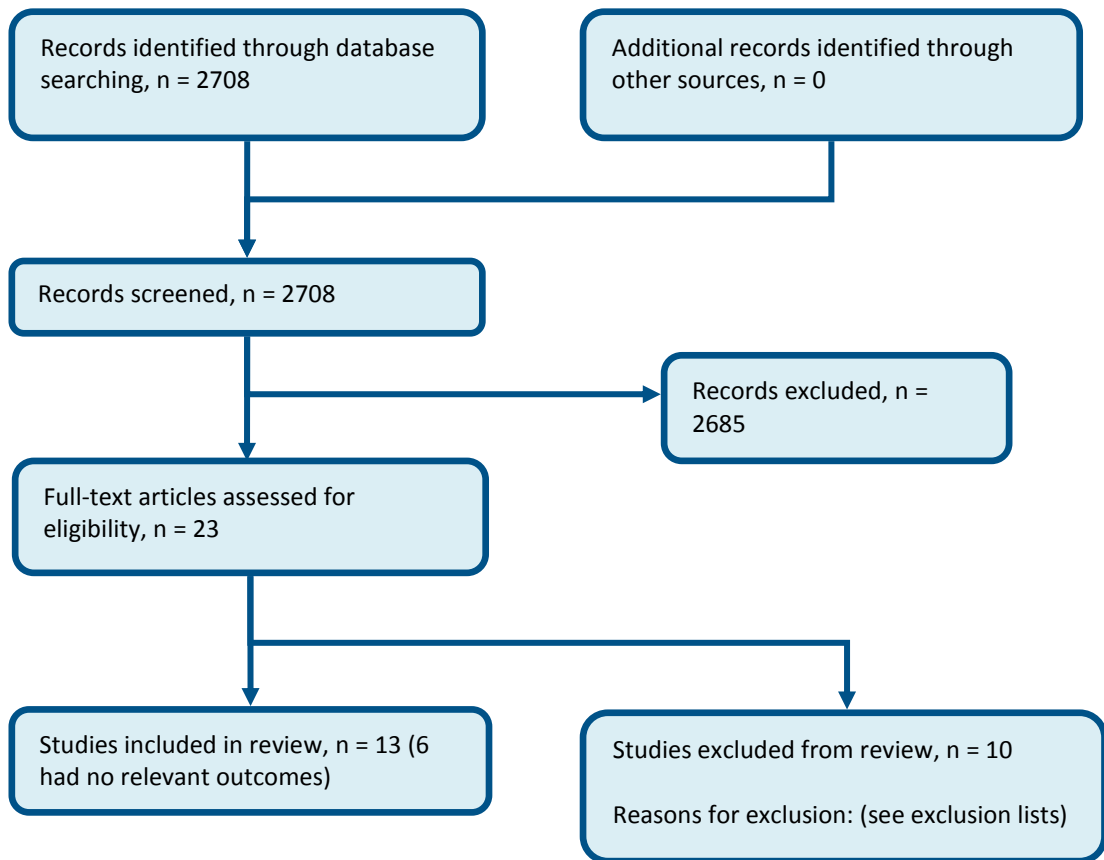
2 **Figure 2: Flow diagram of article selection for the review of spinal injury assessment risk tools**



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1 D.3 Immobilising the spine: pre-hospital strategies

2 **Figure 3: Flow diagram of article selection for the review of roadside strategies for spinal injury**

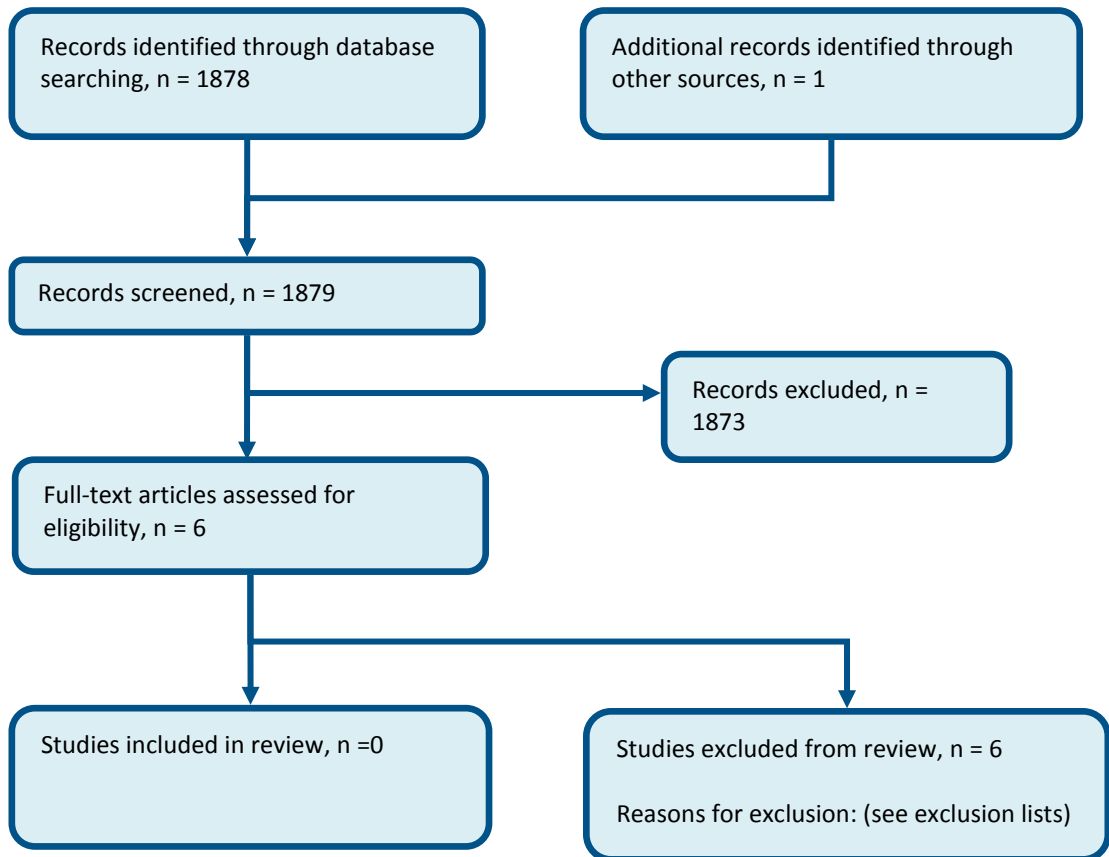


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2 D.4 Destination (immediate)

3 **Figure 4: Flow diagram of article selection for the review of spinal column destination**

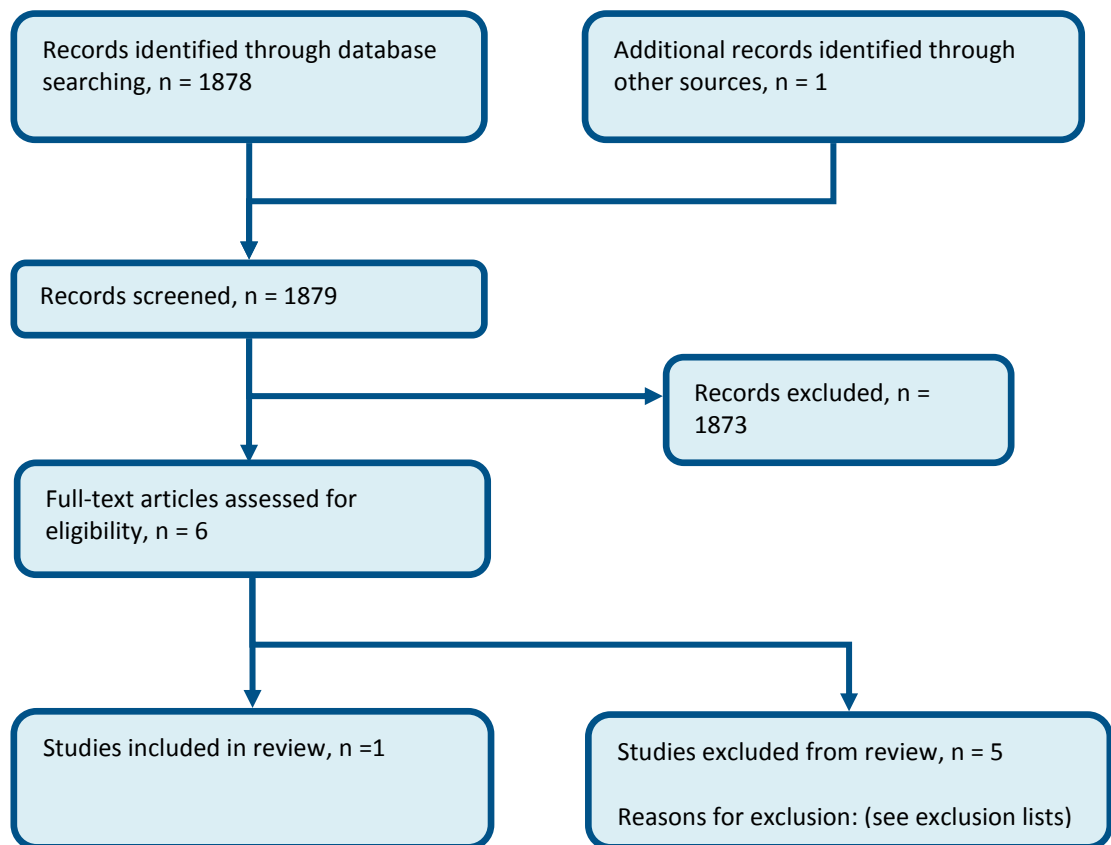


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Figure 5: Flow diagram of article selection for the review of spinal cord destination

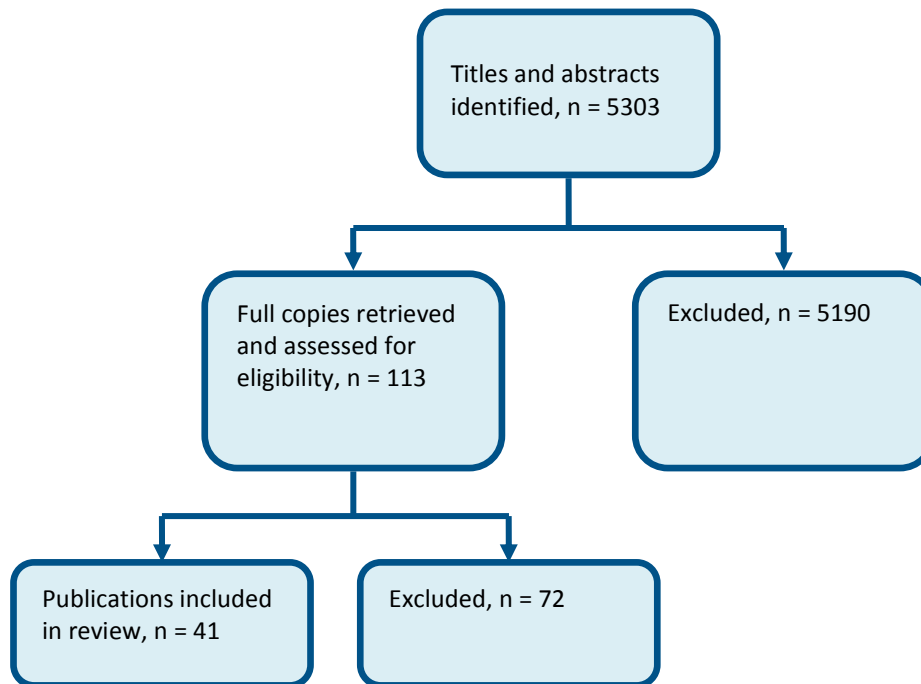


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1 D.5 Diagnostic imaging

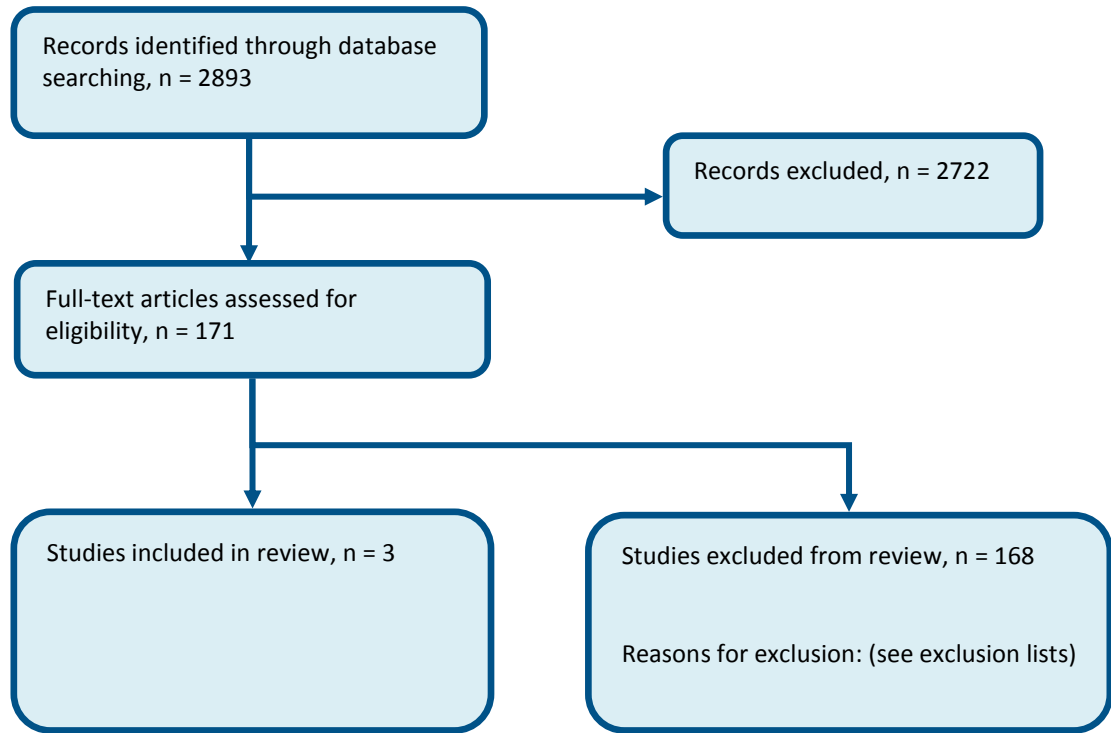
2 **Figure 6: Flow diagram of clinical article selection for the review of diagnostic accuracy of imaging**
3 **modalities**



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1 D.6 Radiation risk

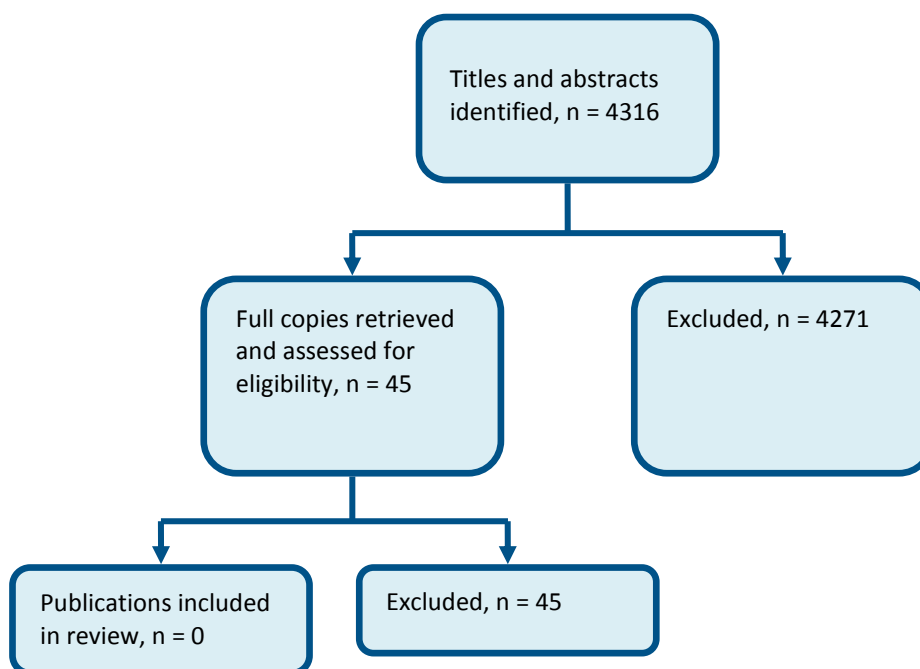
2 **Figure 7: Flow diagram of article selection for the review of radiation risk**



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4 D.7 Further imaging

5 **Figure 8: Flow diagram of clinical article selection for the review of re-imaging**

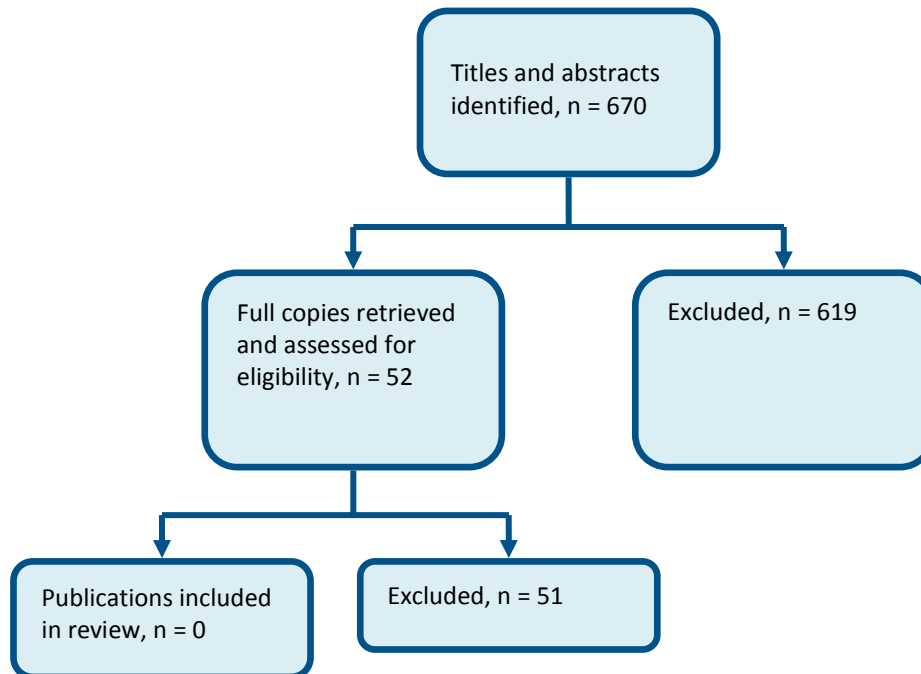


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2 D.8 Spinal cord decompression

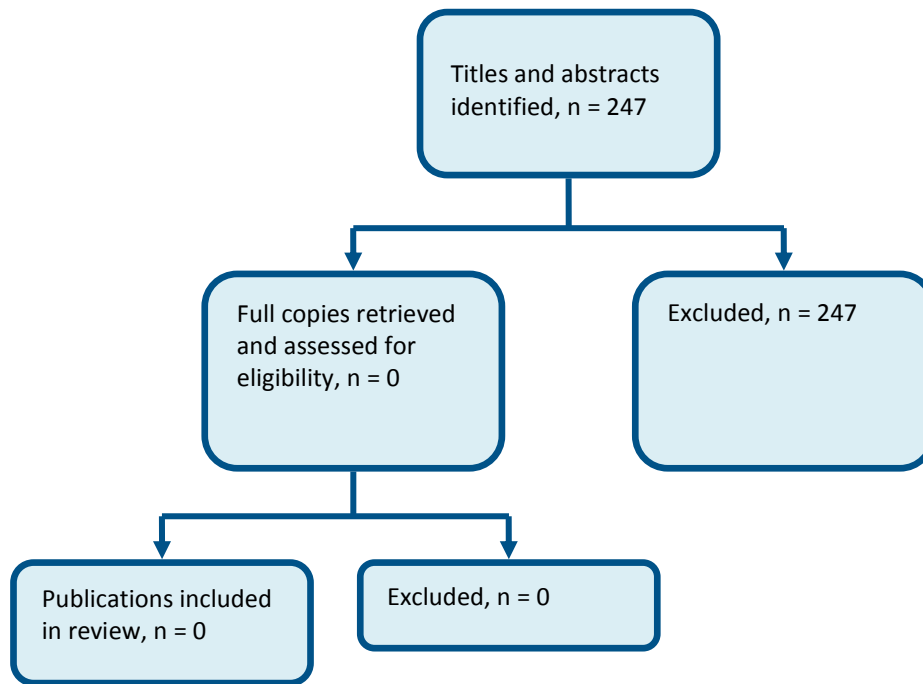
3 **Figure 9: Flow diagram of clinical article selection for the review of spinal cord decompression**



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1 **D.9 Timing of referral to tertiary services**

2 **Figure 10: Flow diagram of article selection for the review of timing of referral to tertiary services**

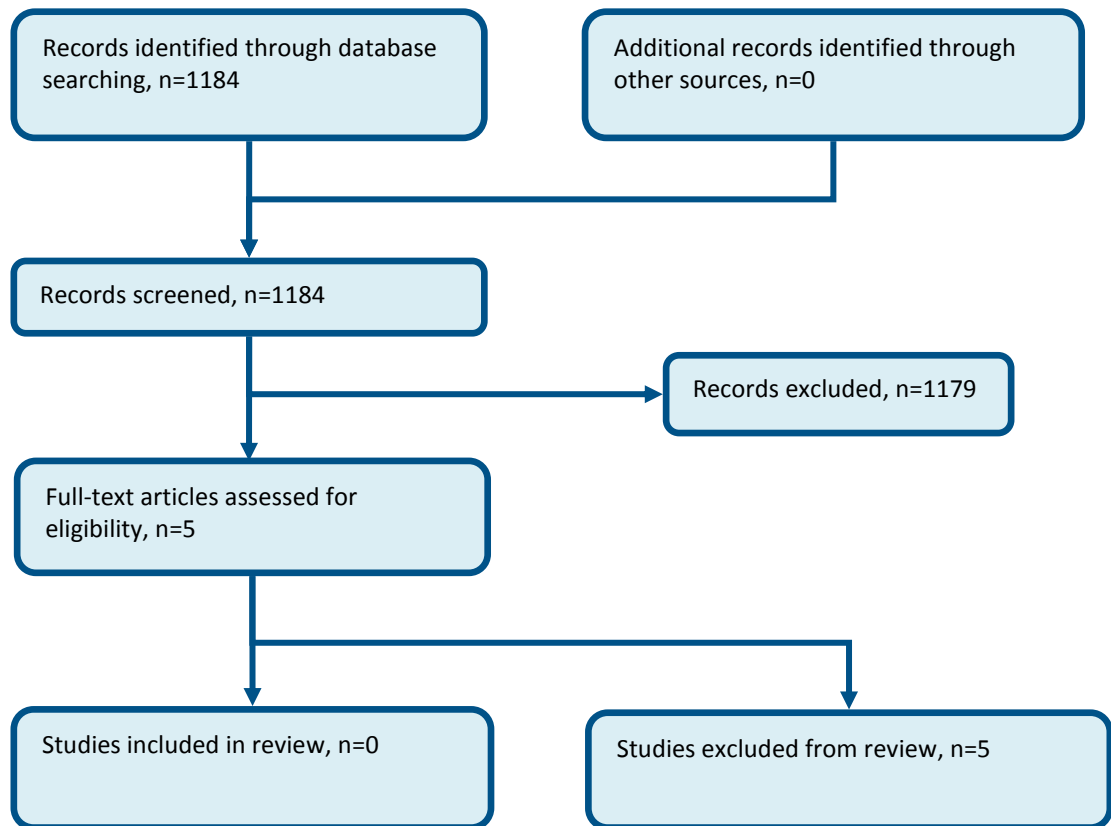


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1 **D.10 Referral to SCIC**

2 **Figure 11: Flow chart of clinical article selection for the review of referral to SCIC**

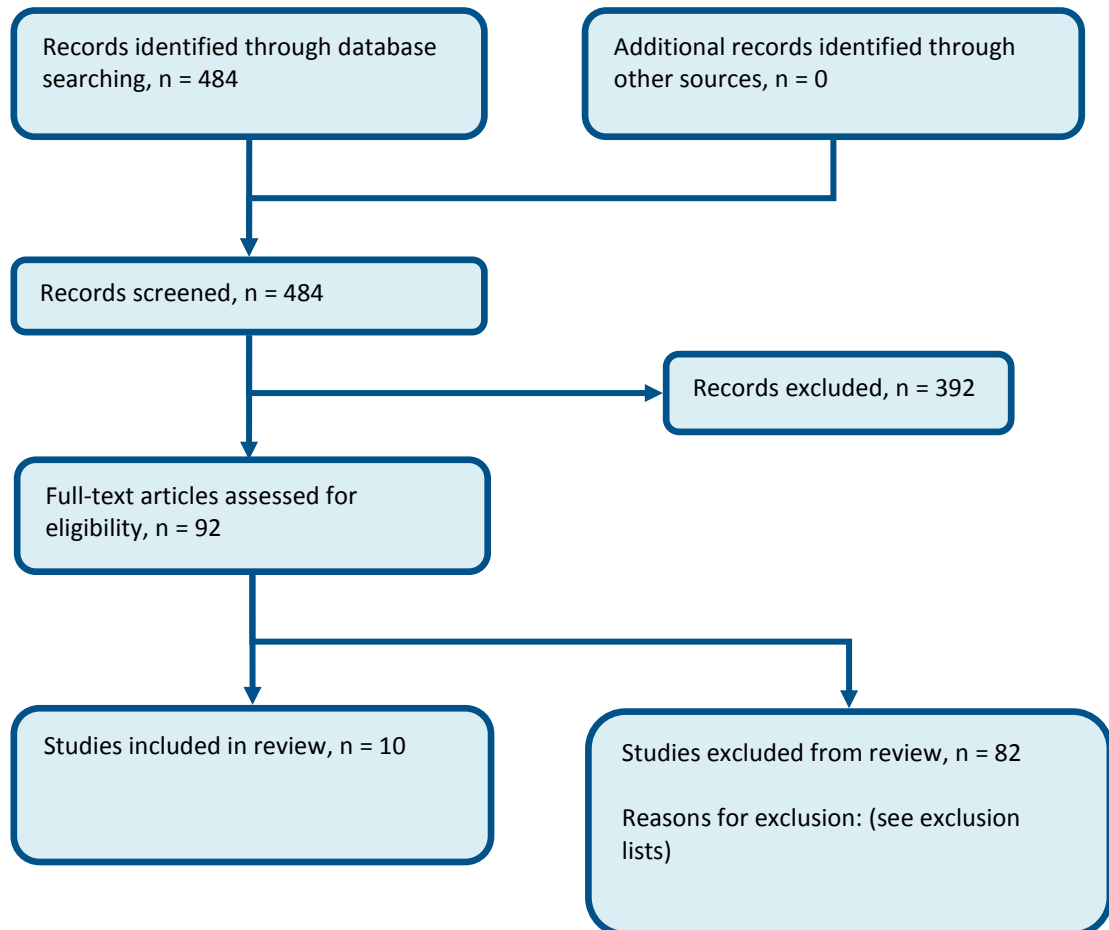


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1 D.11 Neuroprotective pharmacological interventions

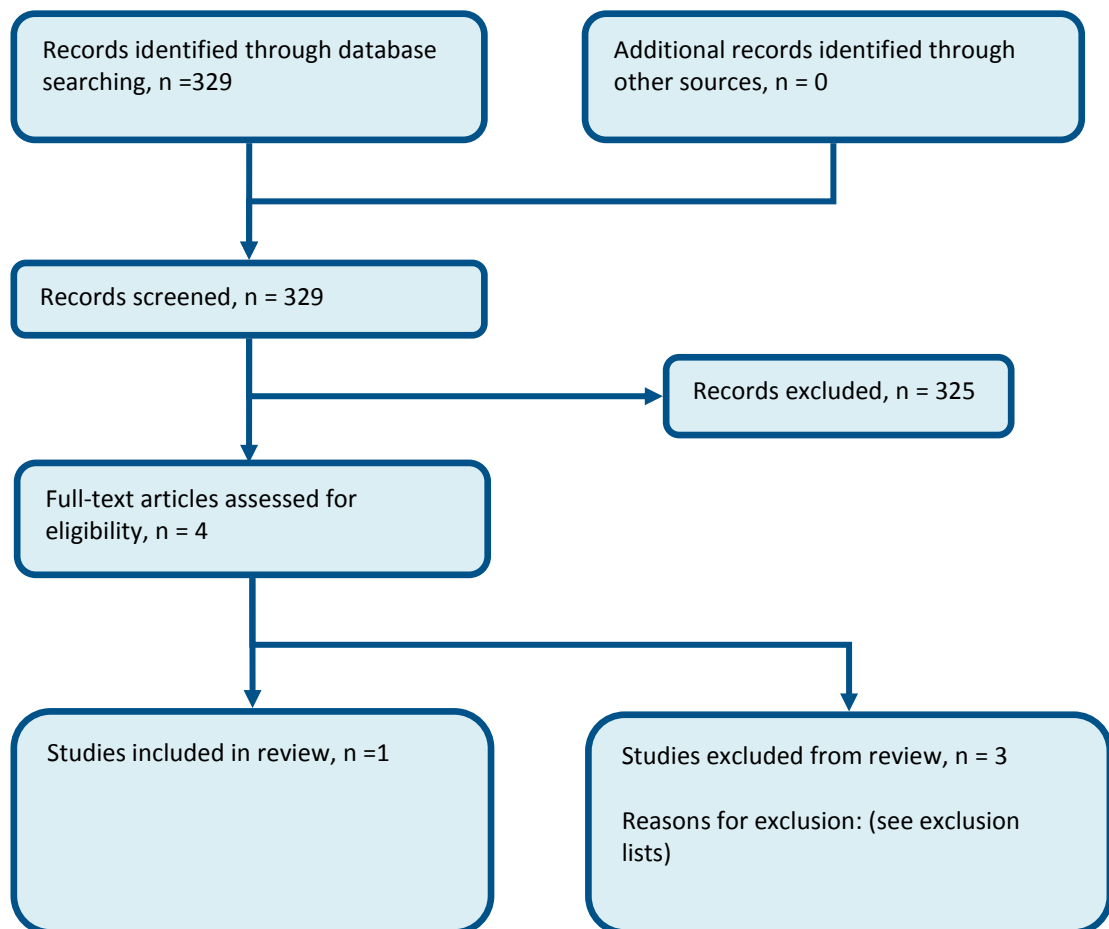
2 **Figure 12: Flow diagram of article selection for the review of neuroprotective pharmacological**
3 **interventions**



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1 D.12 Neuropathic pain

2 **Figure 13: Flow diagram of article selection for the review of pain prevention**

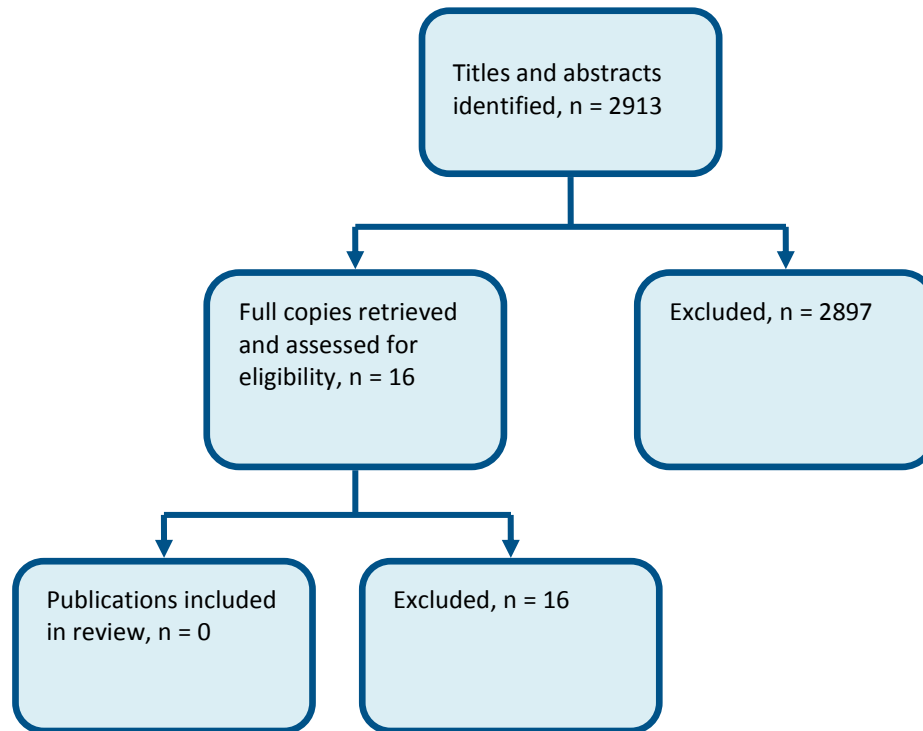


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1 D.13 Information and support

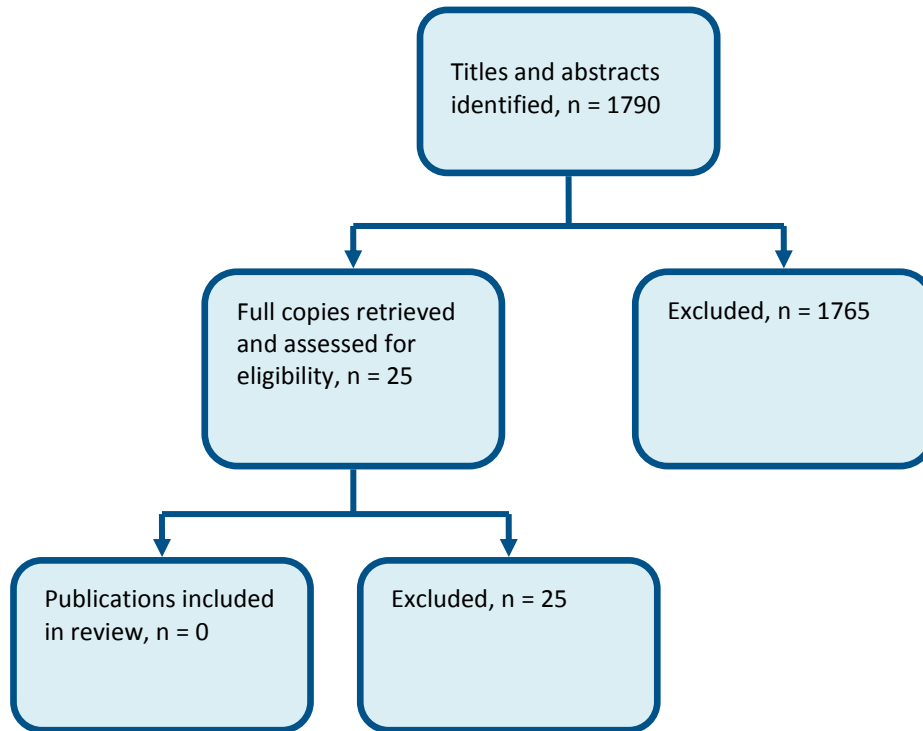
2 **Figure 14: Flow diagram of clinical article selection for the review of information and support for**
3 **people with a 1) suspected (pre-diagnosis) or 2) confirmed (post-diagnosis/pre-transfer)**
4 **traumatic spinal injury**



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1 **D.14 Documentation**

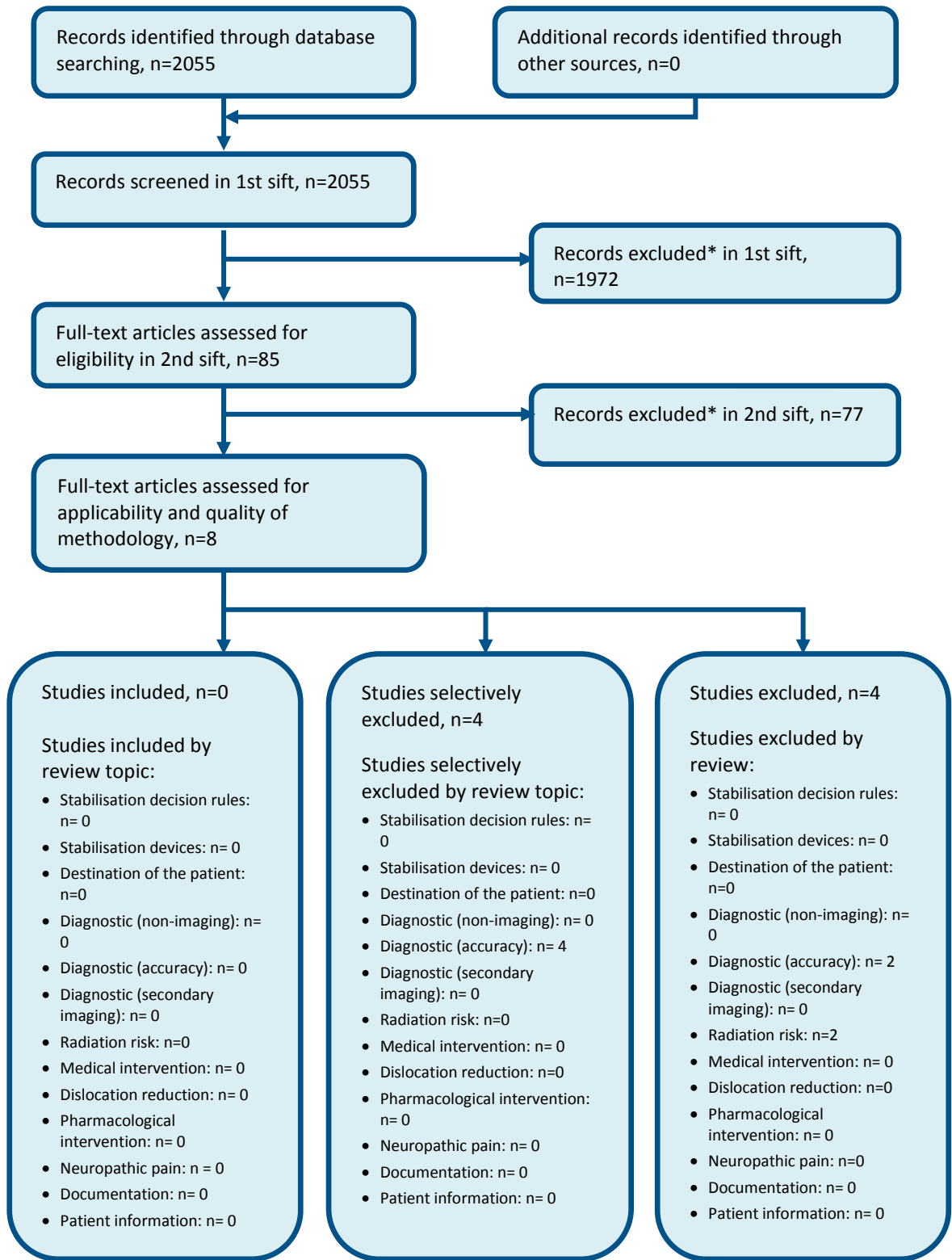
2 **Figure 15: Flow diagram of clinical article selection for the baseline documentation of neurological**
3 **function in people with spinal injuries**



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Appendix E: Economic article selection

Figure 16: Flow diagram of economic article selection for guideline



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

** Note one study compared strategies spanning three questions.

Reasons for exclusion: see Appendix K

1

Appendix F: Literature search strategies

2

Contents

Introduction	Search methodology
Section F.1	Standard population search strategy This population was used for all search questions unless stated
Section F.2	Study filter terms
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F.2.4	Prognostic studies (PROG)
F.2.5	Observational studies (OBS)
F.2.6	Health economic studies (HE)
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F.2.8	Economic modelling studies (MOD)
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Section F.3	Searches for specific questions with intervention (and population where different from F.1)
F.3.1	Pre-hospital strategies
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F.3.14	Documentation
Section F.4	Economic searches
F.4.1	Economic reviews
F.4.2	Quality of life reviews
F.4.3	Radiation risk
0	References

3

Search strategies used for the trauma spinal injuries guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.¹ All searches were run up to 27th March 2015, unless otherwise stated. Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do

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1 not routinely search for electronic, ahead of print or “online early” publications. Where possible
2 searches were limited to retrieve material published in English.

3 **Table 146: Database date parameters**

Database	Dates searched
Medline	1946 – 27 th March 2015
Embase	1974 – 27 th March 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

4 Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID), the Cochrane Library
5 (Wiley) and CINAHL (Ebsco).

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

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

13 Searches for the health economic reviews were run in Medline (OVID), Embase (OVID), the NHS
14 Economic Evaluations Database (NHS EED) the Health Technology Assessment (HTA) database, the
15 Health Economic Evaluation Database (HEED). The economic searches were run up until 31st March
16 2015 and quality of life searches were run up until 31st July 2014. NHS EED and HTA were hosted by
17 the Centre of Reviews and Dissemination (CRD) database. The Health Economic Evaluation Database
18 (HEED) ceased production in 2014 with access ceasing in January 2015. For the final dates of HEED
19 searches, please see individual economic questions. Searches in CRD and HEED were constructed
20 using population terms only, unless otherwise specified. For Medline and Embase an economic filter
21 (instead of a study type filter) was added to the same clinical search strategy.

22 **F.1 Population search strategies**

23 **Medline search terms**

1	exp spinal injuries/
2	exp spinal cord injuries/
3	spinal cord compression/
4	exp neck injuries/
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	or/1-7

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25 **Embase search terms**

1	exp spine injury/
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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	or/1-6

1

Cochrane search terms

#1	MeSH descriptor: [spinal injuries] explode all trees
#2	MeSH descriptor: [spinal cord injuries] explode all trees
#3	MeSH descriptor: [spinal cord compression] this term only
#4	MeSH descriptor: [neck injuries] explode all trees
#5	((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
#6	(central cord syndrome or central spinal cord syndrome):ti,ab,kw
#7	(conus medullaris syndrome or cauda equina syndrome):ti,ab,kw
#8	{or #1-#7}

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CINAHL search terms

S1	(MH "spinal injuries+")
S2	(MH "spinal cord injuries+")
S3	(MH "spinal cord compression")
S4	(MH "neck injuries+")
S5	TX (spine or spinal or vertebr* or neck or cervical or cord or whiplash) and (injur* or trauma* or fracture*)
S6	S1 or S2 or S3 or S4 or S5

3

CRD search terms

#1	MeSH descriptor spinal injuries explode all trees
#2	MeSH descriptor spinal cord injuries explode all trees
#3	MeSH descriptor spinal cord compression
#4	MeSH descriptor neck injuries explode all trees
#5	((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*))
#6	((central adj cord adj syndrome or central adj spinal adj cord adj syndrome))
#7	((conus adj medullaris adj syndrome or cauda adj equina adj syndrome))
#8	#1 or #2 or #3 or #4 or #5 or #6 or #7

4

HEED search terms

1	searching article title: ((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) and (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*))
2	searching abstract: ((spine or spinal or vertebr* or neck or cervical or lumbar or sacral or thoracic or cord or whiplash) and (injur* or damag* or trauma* or fracture* or compress* or contus* or lacerat* or transect* or lesion*))

3	1 or 2
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1 F.2 Study filter search terms

2 F.2.1 Systematic review (SR) search terms

3 Medline search terms

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

5 F.2.2 Randomised controlled studies (RCTs) search terms

6 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

1

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	single blind procedure/
8	randomized controlled trial/
9	double blind procedure/
10	or/1-9

2 **F.2.3 Diagnostic accuracy (DIAG) search terms**

3 Lines 11 and 12 (Medline) and 12 and 13 (Embase) were used in question F.3.3 only.

4 **Medline search terms**

1	exp "sensitivity and specificity"/
2	(sensitivity or specificity).ti,ab.
3	((pre test or pretest or post test) adj probability).ti,ab.
4	(predictive value* or ppv or npv).ti,ab.
5	likelihood ratio*.ti,ab.
6	likelihood function/
7	(roc curve* or auc).ti,ab.
8	(diagnos* adj2 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
9	gold standard.ab.
10	or/1-9
11	(di or ra).fs.
12	10 or 11

5

Embase search terms

1	exp "sensitivity and specificity"/
2	(sensitivity or specificity).ti,ab.
3	((pre test or pretest or post test) adj probability).ti,ab.
4	(predictive value* or ppv or npv).ti,ab.
5	likelihood ratio*.ti,ab.
6	(roc curve* or auc).ti,ab.
7	(diagnos* adj2 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
8	diagnostic accuracy/
9	diagnostic test accuracy study/
10	gold standard.ab.
11	or/1-10
12	(di or ra).fs.
13	11 or 12

1 **F.2.4 Prognostic (PROG) search terms**

2 **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

3 **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

4 **F.2.5 Observational studies (OBS) search terms**

5 **Medline search terms**

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

1

Embase search terms

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

2 **F.2.6 Health economic (HE) search terms**

3

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

4

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/1-14

1 F.2.7 Quality of life (QOL) search terms

2 Medline search terms

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

3 Embase search terms

1	quality adjusted life year/
2	"quality of life index"/
3	short form 12/ or short form 20/ or short form 36/ or short form 8/
4	sickness impact profile/
5	(quality adj2 (wellbeing or well being)).ti,ab.
6	sickness impact profile.ti,ab.
7	disability adjusted life.ti,ab.
8	(qal* or qtime* or qwb* or daly*).ti,ab.

9	(euroqol* or eq5d* or eq 5*).ti,ab.
10	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
11	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
12	(hui or hui1 or hui2 or hui3).ti,ab.
13	(health* year* equivalent* or hye or hyes).ti,ab.
14	discrete choice*.ti,ab.
15	rosser.ti,ab.
16	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
17	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
18	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
19	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
20	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
21	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
22	(upper limb functional index or ulfi or lower limb functional index or llfi).ti,ab,ot.
23	or/1-22

1 **F.2.8 Economic modelling (MOD) search terms**

2 **Medline search terms**

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

3 **Embase search terms**

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

1 **F.2.9 Excluded study designs and publication types**

2

3

The following study designs and publication types were removed from retrieved results using the NOT operator. This filter was used in all searches.

4

5 **Medline search terms**

1	letter/
2	editorial/
3	news/
4	exp historical article/
5	anecdotes as topic/
6	comment/
7	case report/
8	(letter or comment*).ti.
9	or/1-8
10	randomized controlled trial/ or random*.ti,ab.
11	9 not 10
12	animals/ not humans/
13	exp animals, laboratory/
14	exp animal experimentation/
15	exp models, animal/
16	exp rodentia/
17	(rat or rats or mouse or mice).ti.
18	or/11-17

6 **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

7 **CINAHL search terms**

1	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
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	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
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

1 F.3 Searches by specific questions

2 F.3.1 Pre-hospital strategies

- 3 1. What pre-hospital strategies to protect the spine in people with suspected traumatic spinal injury
4 are the most clinically and cost effective during transfer from the scene of the incident to acute
5 medical care?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Expanded spinal injury population. Detailed with intervention terms below	Spinal protection		The following filters were used in Medline and Embase only: RCT, SR	See Error! eference source not found. English only Exclusion filter applied in Medline and Embase

7 Medline search terms

1	exp spinal injuries/
2	exp spinal cord injuries/
3	spinal cord compression/
4	exp neck injuries/
5	(spine* or spinal or vertebr* or cervical or cord or whiplash).ti,ab.
6	or/1-5
7	exp immobilization/
8	exp transportation of patients/
9	splints/ or braces/ or stretchers/
10	(backboard* or back board* or spineboard* or spine board* or spinal board* or longboard* or long board* or stretcher* or stretch board* or trolley* or stretchboard* or rescue board* or ortho stretcher* or orthostretcher* or short board* or shortboard* or fracture board* or fractureboard* or wood* board or foam board* or foamboard* or patslide* or ked* or kendrick or gurney* or litter* or aquaboard* or aqua board* or scoop*).ti,ab.
11	collar*.ti,ab.
12	((vacuum or air) adj2 (splint* or mattress* or immobili*)).ti,ab.
13	(mattress* adj2 (splint* or spine or spinal or immobili*)).ti,ab.
14	(headblock* or head block* or sandbag* or sand bag*).ti,ab.
15	(strapping or strapped or straps or tapes or taping or pads or padding).ti,ab.
16	patient positioning/
17	"moving and lifting patients"/
18	(neutral position* or log roll* or logroll*).ti,ab.
19	(lift* adj2 (slide or vertical or straddle or translation or dutch or spoon)).ti,ab.
20	((casualt* or patient*) adj3 (evacuat* or move* or moving or lift* or transport* or position* or carry*)).ti,ab.

21	((extricat* or immobili* or mobili* or stabili* or ortho* or protect*) adj3 (technique* or device* or strateg* or method*)).ti,ab.
22	((spine or spinal or head or neck or trauma or cervical or manual) adj3 (stabili* or immobili* or protection or extricat* or align* or restrain*)).ti,ab.
23	or/7-22
24	6 and 23

1

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 cervical or cord or whiplash).ti,ab.
5	or/1-4
6	immobilization/
7	patient transport/
8	orthopedic fixation device/ or spine board/ or exp spine fixation device/ or exp splint/ or exp brace/ or exp cervical collar/ or orthosis/ or lumbar support/ or stretcher/
9	(backboard* or back board* or spineboard* or spine board* or spinal board* or longboard* or long board* or stretcher* or stretch board* or trolley* or stretchboard* or rescue board* or ortho stretcher* or orthostretcher* or short board* or shortboard* or fracture board* or fractureboard* or wood* board or foam board* or foamboard* or patslide* or ked* or kendrick or gurney* or litter* or aqua board* or aqua board* or scoop*).ti,ab.
10	collar*.ti,ab.
11	((vacuum or air) adj2 (splint* or mattress* or immobili*)).ti,ab.
12	(mattress* adj2 (splint* or spine or spinal or immobili*)).ti,ab.
13	(headblock* or head block* or sandbag* or sand bag*).ti,ab.
14	(strapping or strapped or straps or tapes or taping or pads or padding).ti,ab.
15	patient positioning/ or patient lifting/
16	(neutral position* or log roll* or logroll*).ti,ab.
17	(lift* adj2 (slide or vertical or straddle or translation or dutch or spoon)).ti,ab.
18	((casualt* or patient*) adj3 (evacuat* or move* or moving or lift* or transport* or position* or carry*)).ti,ab.
19	((extricat* or immobili* or mobili* or stabili* or ortho* or protect*) adj3 (technique* or device* or strateg* or method*)).ti,ab.
20	((spine or spinal or head or neck or trauma or cervical or manual) adj3 (stabili* or immobili* or protection or extricat* or align* or restrain*)).ti,ab.
21	spine mobility/ or spine stabilization/
22	or/6-21
23	5 and 22

2

Cochrane search terms

#1	MeSH descriptor: [spinal injuries] explode all trees
#2	MeSH descriptor: [spinal cord injuries] explode all trees
#3	MeSH descriptor: [spinal cord compression] this term only
#4	MeSH descriptor: [neck injuries] explode all trees
#5	(spine* or spinal or vertebr* or cervical or cord or whiplash):ti,ab
#6	{or #1-#5}
#7	MeSH descriptor: [immobilization] explode all trees

#8	MeSH descriptor: [transportation of patients] explode all trees
#9	MeSH descriptor: [splints] this term only
#10	MeSH descriptor: [braces] this term only
#11	MeSH descriptor: [stretchers] this term only
#12	(litter* or gurney* or kendrick* or ked or patslide* or trolley* or *stretcher* or *board* or scoop*):ti,ab
#13	collar*:ti,ab
#14	(vacuum or air) near/2 (splint* or mattress* or immobili*):ti,ab
#15	(mattress*) near/2 (splint* or spine or spinal or immobili*):ti,ab
#16	head next block*:ti,ab
#17	sand next bag*:ti,ab
#18	(headblock or sandbag):ti,ab
#19	(strapping or strapped or straps or tapes or taping or pads or padding):ti,ab
#20	MeSH descriptor: [patient positioning] this term only
#21	MeSH descriptor: [moving and lifting patients] this term only
#22	logroll*:ti,ab
#23	log next roll*:ti,ab
#24	neutral next position*:ti,ab
#25	lift* near/2 (slide* or vertical or straddle or translation or dutch or spoon):ti,ab
#26	(casualt* or patient*) near/3 (evacuat* or move* or moving or lift* or transport* or position* or carry*):ti,ab
#27	(extricat* or immobili* or mobili* or stabili* or ortho* or protect*) near/3 (technique* or device* or strateg* or method*):ti,ab
#28	(spine or spinal or head or neck or trauma or cervical or manual) near/3 (stabili* or immobili* or protection or extricat* or align* or restrain*):ti,ab
#29	{or #7-#28}
#30	#6 and #29

1

2 F.3.2 Destination (immediate)

3 2. What is the optimal immediate destination of a person with suspected traumatic spinal injury?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Destinations		The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

5 Medline search terms

1	((prefer* or optim* or ideal or best or recommend* or favour* or favor* or decision* or choice* or choose*) adj4 (destination* or transport* or centre* or center* or unit* or service* or hospital* or protocol*)):ti,ab.
2	((patient* or casualt* or immediat* or urgent or direct* or initial or urgent or trauma*) adj4 (destination* or transport* or protocol*)):ti,ab.

3	((transport* or ambulance* or helicopter* or emergenc* or triage* or triaging or transit or prehospital* or pre hospital*) adj4 (destination* or protocol*)).ti,ab.
4	or/1-3
5	((spin* or trauma*) adj4 (centre* or center* or unit* or service* or institut* or network*)).ti,ab.
6	((level 1 or level i or level 2 or level ii or level 3 or level iii or level 4 or level iv or level 5 or level v) adj4 (spin* or trauma* or centre* or center* or unit* or service*)).ti,ab.
7	hospitals, special/
8	trauma centers/
9	((teaching or academic or tertiary or university) adj4 hospital*).ti,ab.
10	hospitals, teaching/
11	hospitals, university/
12	or/5-11
13	(destination* or transport* or transit* or triage* or triaging).ti,ab.
14	(prehospital* or pre hospital* or roadside* or road side*).ti,ab.
15	severity indice*.ti,ab.
16	((accident* or trauma) adj3 (site* or scene* or location*)).ti,ab.
17	"load and go".ti,ab.
18	"scoop and run".ti,ab.
19	ambulances/
20	air ambulances/
21	emergency medical services/
22	triage/
23	or/13-22
24	12 and 23
25	4 or 24

1

Embase search terms

1	((prefer* or optim* or ideal or best or recommend* or favour* or favor* or decision* or choice* or choose*) adj4 (destination* or transport* or centre* or center* or unit* or service* or hospital* or protocol*)).ti,ab.
2	((patient* or casual* or immediat* or urgent or direct* or initial or urgent or trauma*) adj4 (destination* or transport* or protocol*)).ti,ab.
3	((transport* or ambulance* or helicopter* or emergenc* or triage* or triaging or transit or prehospital* or pre hospital*) adj4 (destination* or protocol*)).ti,ab.
4	or/1-3
5	((spin* or trauma*) adj4 (centre* or center* or unit* or service* or institut* or network*)).ti,ab.
6	((level 1 or level i or level 2 or level ii or level 3 or level iii or level 4 or level iv or level 5 or level v) adj4 (spin* or trauma* or centre* or center* or unit* or service*)).ti,ab.
7	((teaching or academic or tertiary or university) adj4 hospital*).ti,ab.
8	teaching hospital/
9	university hospital/
10	or/5-9
11	(destination* or transport* or transit* or triage* or triaging).ti,ab.
12	(prehospital* or pre hospital* or roadside* or road side*).ti,ab.
13	severity indice*.ti,ab.

14	((accident* or trauma) adj3 (site* or scene* or location*)):ti,ab.
15	"load and go".ti,ab.
16	"scoop and run".ti,ab.
17	ambulance/
18	air medical transport/
19	emergency care/
20	emergency health service/
21	or/11-20
22	10 and 21
23	4 or 22

1

Cochrane search terms

#1	((prefer* or optim* or ideal or best or recommend* or favour* or favor* or decision* or choice* or choose*) next/4 (destination* or transport* or centre* or center* or unit* or service* or hospital* or protocol*)):ti,ab
#2	((patient* or casual* or immediat* or urgent or direct* or initial or urgent or trauma*) next/4 (destination* or transport* or protocol*)):ti,ab
#3	((transport* or ambulance* or helicopter* or emergenc* or triage* or triaging or transit or prehospital* or pre hospital*) next/4 (destination* or protocol*)):ti,ab
#4	{or #1-#3}
#5	((spin* or trauma*) next/4 (centre* or center* or unit* or service* or institut* or network*)):ti,ab
#6	((level 1 or level i or level 2 or level ii or level 3 or level iii or level 4 or level iv or level 5 or level v) next/4 (spin* or trauma* or centre* or center* or unit* or service*)):ti,ab
#7	MeSH descriptor: [hospitals, special] this term only
#8	MeSH descriptor: [trauma centers] this term only
#9	((teaching or academic or tertiary or university) next/4 hospital*):ti,ab
#10	MeSH descriptor: [hospitals, teaching] this term only
#11	MeSH descriptor: [hospitals, university] this term only
#12	{or #5-#11}
#13	(destination* or transport* or transit* or triage* or triaging):ti,ab
#14	(prehospital* or pre hospital* or roadside* or road side*):ti,ab
#15	severity indice*:ti,ab
#16	((accident* or trauma) next/3 (site* or scene* or location*)):ti,ab
#17	"load and go":ti,ab
#18	"scoop and run":ti,ab
#19	MeSH descriptor: [ambulances] this term only
#20	MeSH descriptor: [air ambulances] this term only
#21	MeSH descriptor: [emergency medical services] this term only
#22	MeSH descriptor: [triage] this term only
#23	{or #13-#22}
#24	#12 and #23
#25	{or #4, #24}

2 F.3.3 Diagnostic imaging

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

- 1 3. What is the diagnostic accuracy of i) X-ray, ii) dynamic fluoroscopy), iii) CT and iv) MRI for people
2 with traumatic spinal cord injury (with or without column injury)?
3 4. What is the diagnostic accuracy of i) X-ray, ii) dynamic fluoroscopy), iii) CT and iv) MRI for people
4 with traumatic spinal column injury alone?

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

Population	Interventions / exposure	Comparison	Study filter used	Date parameters
Modified spinal injuries population to exclude neck fractures	Imaging techniques		The following filters were used in Medline and Embase only: Expanded DIAG combined with OBS or RCT or SR See note in F.2.3	See Table 1 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1	exp spinal injuries/
2	exp spinal cord injuries/
3	spinal cord compression/
4	((spine or spinal or vertebr* 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	or/1-6
8	radiography/ or exp fluoroscopy/
9	(fluoroscop* or fluroscop* or x ray* or xray* or mdct* or magnetic resonance imag* or mri* or mr imag* or nmr or ct or radiograph*).ti,ab.
10	(cat adj (scan or imag*)).ti,ab.
11	(compute* adj2 tomograph*).ti,ab.
12	magnetic resonance imaging/
13	exp tomography, emission-computed/ or exp tomography, x-ray/
14	or/8-13
15	7 and 14

7 **Embase search terms**

1	exp spine injury/
2	whiplash injury/
3	exp spinal cord injury/
4	((spine or spinal or vertebr* 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	or/1-6
8	radiography/
9	exp radiodiagnosis/
10	exp fluoroscopy/

11	nuclear magnetic resonance imaging/
12	exp computer assisted emission tomography/ or exp computer assisted tomography/ or emission tomography/
13	(fluoroscop* or fluroscop* or x ray* or xray* or mdct* or magnetic resonance imag* or mri* or mr imag* or nmr or ct or radiograph*).ti,ab.
14	(cat adj (scan or imag*)).ti,ab.
15	(compute* adj2 tomograph*).ti,ab.
16	or/8-15
17	7 and 16

1

Cochrane search terms

#1	MeSH descriptor: [spinal injuries] explode all trees
#2	MeSH descriptor: [spinal cord injuries] explode all trees
#3	MeSH descriptor: [spinal cord compression] this term only
#4	((spine or spinal or vertebr* 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
#5	(central cord syndrome or central spinal cord syndrome):ti,ab,kw
#6	(conus medullaris syndrome or cauda equina syndrome):ti,ab,kw
#7	{or #1-#6}
#8	MeSH descriptor: [radiography] this term only
#9	MeSH descriptor: [fluoroscopy] this term only
#10	MeSH descriptor: [magnetic resonance spectroscopy] this term only
#11	MeSH descriptor: [tomography] explode all trees
#12	(fluoroscop* or fluroscop* or x ray* or xray* or mdct* or mri* or nmr or ct or radiograph*):ti,ab
#13	magnetic resonance imag*:ti,ab
#14	mr imag*:ti,ab
#15	cat scan:ti,ab
#16	cat imag*:ti,ab
#17	compute* near/2 tomograph*:ti,ab
#18	{or #8-#17}
#19	#7 and #18

2 F.3.4 Further imaging

3 5. For people who have clinical signs of traumatic spinal cord or column injury, but who have
4 normal or indeterminate findings on initial imaging, what is the most clinically and cost effective
5 further imaging strategy?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Further imaging techniques		The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

1

Medline search terms

1	radiography/ or exp fluoroscopy/
2	magnetic resonance imaging/
3	exp tomography, emission-computed/ or exp tomography, x-ray/
4	(fluoroscop* or fluroscop* or x ray* or xray* or mdct* or mri* or nmr or ct or radiograph* or cat or tomograph*).ti,ab.
5	(scan* or imag*).ti,ab.
6	or/1-5
7	(reimag* or re-imag* or repeat* or subsequent* or second* or follow-up* or recur* or addition* or enhance* or further or false negative* or incomplete* or indetermin* or false positive* or frequen* or strateg* or polic* or approach* or ensue* or ensuing or supplement* or auxiliary or extra*).ti,ab.
8	6 and 7

2

Embase search terms

1	radiography/
2	exp radiodiagnosis/
3	exp fluoroscopy/
4	nuclear magnetic resonance imaging/
5	exp computer assisted emission tomography/ or exp computer assisted tomography/ or emission tomography/
6	(fluoroscop* or fluroscop* or x ray* or xray* or mdct* or mri* or nmr or ct or radiograph* or cat or tomograph*).ti,ab.
7	(scan* or imag*).ti,ab.
8	or/1-7
9	(reimag* or re-imag* or repeat* or subsequent* or second* or follow-up* or recur* or addition* or enhance* or further or false negative* or incomplete* or indetermin* or false positive* or frequen* or strateg* or polic* or approach* or ensue* or ensuing or supplement* or auxiliary or extra*).ti,ab.
10	8 and 9

3

Cochrane search terms

#1	MeSH descriptor: [radiography] this term only
#2	MeSH descriptor: [fluoroscopy] this term only
#3	MeSH descriptor: [magnetic resonance imaging] this term only
#4	MeSH descriptor: [tomography] explode all trees
#5	(fluoroscop* or fluroscop* or x ray* or xray* or mdct* or mri* or nmr or ct or radiograph* or cat or tomograph*).ti,ab
#6	(scan* or imag*).ti,ab
#7	{or #1-#6}
#8	(reimag* or re-imag* or repeat* or subsequent* or second* or follow-up* or recur* or addition* or enhance* or further or incomplete* or indetermin* or frequen* or strateg* or polic* or approach* or ensue* or ensuing or supplement* or auxiliary or extra*).ti,ab
#9	false negative*.ti,ab
#10	false positive*.ti,ab
#11	{or #8-#10}
#12	#7 and #11

1 **F.3.5 Non-imaging**

2 6. What tools are most predictive of outcome in people with in people with suspected traumatic
3 spinal injury when trying to exclude spinal cord injury (with or without spinal column injury)?

4
5 7. What tools are most predictive of outcome in people with in people with suspected traumatic
6 spinal injury when trying to exclude isolated spinal column injury?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Non-imaging methods		The following filters were used in Medline and Embase only: DIAG, OBS, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

8 **Medline search terms**

1	((Canadian or c spine or cervical spine) adj4 rule*).ti,ab.
2	CCR.ti,ab.
3	(National Emergency X-Radiography Utilization Study or nexus).ti,ab.
4	SPINEX*.ti,ab.
5	(Australian adj3 card*).ti,ab.
6	(American Spinal Injury Association or asia).ti,ab.
7	NASCIS* or National Acute Spinal Cord Injury Study).ti,ab.
8	or/1-7

9 **Embase search terms**

1	((Canadian or c spine or cervical spine) adj4 rule*).ti,ab.
2	CCR.ti,ab.
3	(National Emergency X-Radiography Utilization Study or nexus).ti,ab.
4	SPINEX*.ti,ab.
5	(Australian adj3 card*).ti,ab.
6	(American Spinal Injury Association or asia).ti,ab.
7	(NASCIS* or National Acute Spinal Cord Injury Study).ti,ab.
8	or/1-7

10 **Cochrane search terms**

#1	((Canadian or c spine or cervical spine) near/4 rule*):ti,ab
#2	CCR:ti,ab
#3	("X-Radiography Utilization" or nexus):ti,ab
#4	SPINEX*:ti,ab
#5	(Australian near/3 card*):ti,ab
#6	(American Spinal Injury Association or asia):ti,ab
#7	(NASCIS*):ti,kw
#8	(National next Acute next Spinal):ti,kw
#9	{or #1-#8}

1 **F.3.6 Radiation risk**

2 8. For people with clinical signs of spinal injury what are the radiation risks of having a x-ray(s)
3 and/or CT scans?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
No population	X-ray or CT		The following filters were used in Medline and Embase only: OBS, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

5 **Medline search terms**

1	radiography/
2	exp fluoroscopy/ or exp tomography, x-ray/ or tomography, emission-computed/
3	(fluoroscop* or fluroscop* or x ray* or xray* or mdct* or ct or radiograph or radiographic).ti,ab.
4	(cat adj (scan* or imag*)).ti,ab.
5	(compute* adj2 tomograph*).ti,ab.
6	(cardiac* adj2 catheteri?ation*).ti,ab.
7	or/1-6
8	((radiat* or irradiat* or millisievert* or msv or x ray* or xray* or milligray* or mgy) adj5 (dose or dosage or doses or expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
9	(malignan* or neoplas* or cancer* or myelodysplas* or tumo?* or carcinom* or adenocarcinoma* or lymphoma* or leuk?emia* or cataract*).ti,ab.
10	(skin adj4 (change* or burn* or erythema or reddening)).ti,ab.
11	(tissue adj4 (injur* or damag*)).ti,ab.
12	((birth or genetic*) adj4 (defect* or mutation*)).ti,ab.
13	or/9-12
14	7 and 13
15	8 and 14
16	((malignan* or neoplas* or cancer* or myelodysplas* or tumo?* or carcinom* or adenocarcinoma* or lymphoma* or leuk?emia* or cataract*) adj3 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
17	(skin adj4 (change* or burn* or erythema or redd*) adj4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
18	(tissue adj4 (injur* or damag*) adj4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
19	((birth or genetic*) adj4 (defect* or mutation*) adj4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
20	or/16-19
21	(radiat* or irradiat* or millisievert* or msv or x ray beam* or milligray* or mgy).ti,ab.
22	20 and 21
23	7 and 22
24	(exp *radiation dosage/ or *radiation injuries/) and exp *neoplasms/
25	*leukemia, radiation-induced/ or *neoplasms, radiation-induced/

26	beir.ti,ab.
27	or/24-26
28	7 and 27
29	15 or 23 or 28

1

Embase search terms

1	exp computer assisted emission tomography/ or exp computer assisted tomography/ or emission tomography/ or exp fluoroscopy/ or Radiography/
2	(fluoroscop* or fluroscop* or x ray* or xray* or MDCT* or CT or radiograph*).ti,ab.
3	(cat adj (scan* or imag*)).ti,ab.
4	(compute* adj2 tomograph*).ti,ab.
5	(cardiac* adj2 catheteri?ation*).ti,ab.
6	or/1-5
7	((radiat* or irradiat* or millisievert* or msv or x ray* or xray* or milligray* or mgy) adj5 (dose or dosage or doses or expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
8	(malignan* or neoplas* or cancer* or myelodysplas* or tumo?r* or carcinom* or adenocarcinoma* or lymphoma* or leuk?emia* or cataract*).ti,ab.
9	(skin adj4 (change* or burn* or erythema or reddening)).ti,ab.
10	(tissue adj4 (injur* or damag*)).ti,ab.
11	((birth or genetic*) adj4 (defect* or mutation*)).ti,ab.
12	or/8-11
13	7 and 12
14	6 and 13
15	((malignan* or neoplas* or cancer* or myelodysplas* or tumo?r* or carcinom* or adenocarcinoma* or lymphoma* or leuk?emia* or cataract*) adj3 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
16	(skin adj4 (change* or burn* or erythema or redd*) adj4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
17	(tissue adj4 (injur* or damag*) adj4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
18	((birth or genetic*) adj4 (defect* or mutation*) adj4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)).ti,ab.
19	or/15-18
20	(radiat* or irradiat* or millisievert* or msv or x ray beam* or milligray* or mgy).ti,ab.
21	19 and 20
22	6 and 21
23	(*radiation dose/ or exp *radiation injury/) and exp *neoplasm/
24	beir.ti,ab.
25	or/23-24
26	6 and 25
27	14 or 22 or 26

2

Cochrane search terms

#1	MeSH descriptor: [radiography] this term only
#2	MeSH descriptor: [fluoroscopy] explode all trees
#3	MeSH descriptor: [tomography, x-ray] explode all trees
#4	MeSH descriptor: [tomography, emission-computed] this term only

#5	(fluoroscop* or fluroscop* or ray* or xray* or mdct* or ct* or radiograph*):ti,ab
#6	(cat next (scan* or imag*)):ti,ab
#7	(compute* near/2 tomograph*):ti,ab
#8	(catheter* near/2 cardiac*):ti,ab
#9	{or #1-#8}
#10	((radiat* or irradiat* or millisievert* or msv or ray* or xray* or milligray* or mgy) near/5 (dose or dosage or doses or expos* or risk* or induced or induct* or danger* or hazard* or harm*)):ti,ab
#11	(malignan* or neoplas* or cancer* or myelodysplas* or tumour* or tumor* or carcinom* or adenocarcinoma* or lymphoma* or leukaemia* or leukemia* or cataract*):ti,ab
#12	(skin near/4 (change* or burn* or erythema or reddening)):ti,ab
#13	(tissue near/4 (injur* or damag*)):ti,ab
#14	((birth or genetic*) near/4 (defect* or mutation*)):ti,ab
#15	{or #11-#14}
#16	#10 and #15
#17	#9 and #16
#18	((malignan* or neoplas* or cancer* or myelodysplas* or tumor* or tumour* or carcinom* or adenocarcinoma* or lymphoma* or leukaemia* or leukemia* or cataract*) near/3 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)):ti,ab
#19	(skin near/4 (change* or burn* or erythema or redd*) near/4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)):ti,ab
#20	(tissue near/4 (injur* or damag*) near/4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)):ti,ab
#21	((birth or genetic*) near/4 (defect* or mutation*) near/4 (expos* or risk* or induced or induct* or danger* or hazard* or harm*)):ti,ab
#22	{or #18-#21}
#23	(radiat* or irradiat* or millisievert* or msv or ray* or xray* or milligray* or mgy):ti,ab
#24	#22 and #23
#25	#9 and #24
#26	MeSH descriptor: [radiation dosage] explode all trees
#27	MeSH descriptor: [radiation injuries] this term only
#28	{or #26-#27}
#29	MeSH descriptor: [neoplasms] explode all trees
#30	#28 and #29
#31	MeSH descriptor: [leukemia, radiation-induced] this term only
#32	MeSH descriptor: [neoplasms, radiation-induced] this term only
#33	beir:ti,ab
#34	{or #31-#33}
#35	#30 or #34
#36	#9 and #35
#37	#17 or #25 or #36

1 F.3.7 Dislocation

2 9. What is the clinical and cost-effectiveness of emergency closed reduction of cervical facet joint
3 dislocation of the cervical spine?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Reduced spinal injuries population focusing only on acute traumatic cervical dislocations	Emergency closed reduction		None	See Table 1 English only Exclusion filter* applied in Medline and Embase

1 *Line 7 (Medline) and line 4 (Embase) removed from Excluded studies filters to prevent removal of papers
2 reporting case series

3 **Medline search terms**

1	spinal fractures/
2	spinal cord compression/
3	((spine or spinal or vertebr* or cervical) adj4 (trauma* or fracture* or dislocat* or compress*)).ti,ab.
4	or/1-3
5	(early or emergenc* or immediat* or 4 hour* or acute).ti,ab.
6	emergency medicine/ or emergency medical services/ or advanced trauma life support care/ or emergency service, hospital/ or trauma centers/
7	or/5-6
8	((dislocat* or fracture* or spine or spinal or cervical) adj5 (reduced or reduction* or manipulation)).ti,ab.
9	7 and 8
10	((close* or early or emergenc* or immediat*) adj5 (reduced or reduction*)).ti,ab.
11	9 or 10
132	4 and 11

4 **Embase search terms**

1	spine injury/ or exp spine fracture/ or vertebra compression/ or exp vertebra dislocation/
2	((spine or spinal or vertebr* or cervical) adj4 (trauma* or fracture* or dislocat* or compress*)).ti,ab.
3	or/1-2
4	(early or emergenc* or immediat* or 4 hour* or acute).ti,ab.
5	emergency medicine/ or emergency health service/ or emergency/
6	or/4-5
7	((dislocat* or fracture* or spine or spinal or cervical) adj5 (reduced or reduction* or manipulation)).ti,ab.
8	6 and 7
9	((close* or early or emergenc* or immediat*) adj5 (reduced or reduction*)).ti,ab.
10	8 or 9
11	3 and 10

5 **Cochrane search terms**

#1	MeSH descriptor: [spinal fractures] this term only
#2	MeSH descriptor: [spinal cord compression] this term only
#3	((spine or spinal or vertebr* or cervical) near/4 (trauma* or fracture* or dislocat* or compress*)):ti,ab,kw
#4	{or #1-#3}

#5	(early or emergenc* or immediat* or 4 hour* or acute):ti,ab,kw
#6	MeSH descriptor: [emergency medicine] this term only
#7	MeSH descriptor: [emergency medical services] this term only
#8	MeSH descriptor: [advanced trauma life support care] this term only
#9	MeSH descriptor: [emergency service, hospital] this term only
#10	MeSH descriptor: [trauma centers] this term only
#11	{or #5-#10}
#12	((dislocat* or fracture* or spine or spinal or cervical) near/5 (reduced or reduction* or manipulation)):ti,ab,kw
#13	#11 and #12
#14	((close* or early or emergenc* or immediat*) near/5 (reduced or reduction*)):ti,ab,kw
#15	#13 or #14
#16	#4 and #15

1 F.3.8 Stabilisation

- 2 10. What is the clinical and cost effectiveness of routine spinal protection of all children, young
3 people and adults experiencing trauma compared to selective protection, based on the use of a
4 risk assessment tool or clinical assessment at the scene of the incident or at initial presentation?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Expanded spinal injury population. Detailed with intervention terms below	Pre-hospital spinal protection risk assessment tools/ clinical assessment		The following filters were used in Medline and Embase only: OBS, PROG, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

6 Medline search terms

1	exp spinal injuries/
2	exp spinal cord injuries/
3	spinal cord compression/
4	exp neck injuries/
5	(spine* or spinal or vertebr* or cervical or cord or whiplash).ti,ab.
6	or/1-5
7	exp logistic models/ or exp risk assessment/ or exp risk factors/
8	((risk* or predict* or decision*) adj2 (tool* or rule* or instrument* or index* or technique* or analys* or model* or scale* or system* or factor* or algorithm* or criteria or score* or scoring or rating or stratif* or assess*)):ti,ab.
9	((assess* or rating or score* or scoring or stratif*) adj2 (tool* or rule* or instrument* or index* or test* or technique* or analys* or model* or scale* or system* or algorithm* or criteria)):ti,ab.
10	decision support.ti,ab.
11	(evidence adj2 (algorithm* or index* or system* or criteria)).ti,ab.
12	((canadian or c spine or cervical spine) adj2 rule*).ti,ab.
13	ccr.ti,ab.
14	(jrcalc or joint royal colleges ambulance liaison committee).ti,ab.

15	or/7-14
16	emergency medical services/ or advanced trauma life support care/ or emergency medical service communication systems/ or emergency service, hospital/ or trauma centers/ or triage/
17	(prehospital* or pre hospital* or roadside* or road side* or triage or triaging).ti,ab.
18	((accident* or trauma) adj2 (site* or scene* or location*)).ti,ab.
19	((outside or out) adj2 hospital).ti,ab.
20	((in or on) adj2 field).ti,ab.
21	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon* or rescue*).ti,ab.
22	(transport* or transfer* or transit or extricat*).ti,ab.
23	(extraction adj2 (patient* or casual*)).ti,ab.
24	or/16-23
25	6 and 15 and 24

1

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 cervical or cord or whiplash).ti,ab.
5	or/1-4
6	risk factor/ or risk assessment/
7	((risk* or predict* or decision*) adj2 (tool* or rule* or instrument* or index* or technique* or analys* or model* or scale* or system* or factor* or algorithm* or criteria or score* or scoring or rating or stratif* or assess*)).ti,ab.
8	((assess* or rating or score* or scoring or stratif*) adj2 (tool* or rule* or instrument* or index* or test* or technique* or analys* or model* or scale* or system* or algorithm* or criteria)).ti,ab.
9	decision support.ti,ab.
10	(evidence adj2 (algorithm* or index* or system* or criteria)).ti,ab.
11	((canadian or c spine or cervical spine) adj2 rule*).ti,ab.
12	ccr.ti,ab.
13	(jrcalc or joint royal colleges ambulance liaison committee).ti,ab.
14	or/7-14
15	emergency care/ or emergency health service/ or rescue personnel/ or emergency patient/ or emergency treatment/
16	injury/
17	(prehospital* or pre hospital* or roadside* or road side* or triage or triaging).ti,ab.
18	((accident* or trauma) adj2 (site* or scene* or location*)).ti,ab.
19	((outside or out) adj2 hospital).ti,ab.
20	((in or on) adj2 field).ti,ab.
21	(ambulance* or helicopter* or paramedic* or emergency medic* or emergency service* or emergency care or first respon* or rescue*).ti,ab.
22	(transport* or transfer* or transit or extricat*).ti,ab.
23	(extraction adj2 (patient* or casual*)).ti,ab.
24	or/15-23
25	6 and 14 and 24

2

Cochrane search terms

#1	MeSH descriptor: [spinal injuries] explode all trees
#2	MeSH descriptor: [spinal cord injuries] explode all trees
#3	MeSH descriptor: [spinal cord compression] this term only
#4	MeSH descriptor: [neck injuries] explode all trees
#5	(spine* or spinal or vertebr* or cervical or cord or whiplash):ti,ab
#6	{or #1-#5}
#7	MeSH descriptor: [logistic models] this term only
#8	MeSH descriptor: [risk assessment] this term only
#9	MeSH descriptor: [risk factors] this term only
#10	(decision* or predict* or assess* or screen* or score* or scoring or stratif* or risk*) near/1 (tool* or rule* or instrument* or index* or test* or technique* or analys* or model* or factor*):ti,ab
#11	(risk* or predict* or decision*) near/2 (tool* or rule* or instrument* or index* or technique* or analys* or model* or scale* or system* or factor* or algorithm* or criteria or score* or scoring or rating or stratif* or assess*):ti,ab
#12	(assess* or rating or score* or scoring or stratif*) near/2 (tool* or rule* or instrument* or index* or test* or technique* or analys* or model* or scale* or system* or algorithm* or criteria):ti,ab
#13	evidence near/2 (algorithm* or index* or system* or criteria):ti,ab
#14	decision support*:ti,ab
#15	canadian near/2 rule*:ti,ab
#16	"c spine" near/2 rule*:ti,ab
#17	"cervical spine" near/2 rule*:ti,ab
#18	ccr:ti,ab
#19	(joint royal colleges ambulance liaison committee):ti,ab
#20	jrcalc:ti,ab
#21	{or #7-#20}
#22	MeSH descriptor: [emergency medical services] this term only
#23	MeSH descriptor: [advanced trauma life support care] this term only
#24	MeSH descriptor: [emergency medical service communication systems] this term only
#25	MeSH descriptor: [emergency service, hospital] this term only
#26	MeSH descriptor: [emergency service, hospital] this term only
#27	MeSH descriptor: [trauma centers] this term only
#28	MeSH descriptor: [triage] this term only
#29	(prehospital* or roadside* or triage or triaging):ti,ab
#30	pre next hospital*:ti,ab
#31	road next side*:ti,ab
#32	(accident* or trauma) near/2 (site* or scene* or location*):ti,ab
#33	(outside or out) near/2 hospital:ti,ab
#34	(in or on) near/2 field:ti,ab
#35	(ambulance* or helicopter* or paramedic* or rescue*):ti,ab
#36	emergency next (medic* or service* or care*):ti,ab
#37	first next respon*:ti,ab
#38	(transport* or transfer* or transit or extraction or extricat*):ti,ab
#39	{or #22-#38}
#41	#6 and #21 and #39

1 **F.3.9 Medical intervention**

2 11. What is the clinical and cost-effectiveness of neuroprotective pharmacological interventions
3 (such as anti-inflammatories, antioxidants and anti-excitotoxins) in people with traumatic spinal
4 cord injury during the acute stage?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Neuroprotective pharmacological interventions		The following filters were used in Medline and Embase only: RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

6 **Medline search terms**

1	exp methylprednisolone/ or (methylprednisolone or medrone or solu medrone or depo medrone or medrol or metipred or urbason or 83-43-2).ti,ab,rn.
2	exp dexamethasone/ or (dexamethasone or millicorten or maxidex or decaspray or dexpak or dexasone or oradexon or decaject* or hexadecadrol or hexadrol or decameth or maxitrol or otomize or minims or 50-02-2).ti,ab,rn.
3	ibuprofen/ or (ibuprofen or brufen or fenbid or ibugel or ibumetin or motrin or dolgit or salprofen or nuprin or rufen or 15687-27-1).ti,ab,rn.
4	(celecoxib or celebrex or 169590-42-5 or artroxil or caditar or celcox or celebra or celecox or celib or coxel or coxid or dilox or eliflam or lexfin or onsenal or zycel).ti,ab,rn.
5	nimodipine/ or (nimodipine or nimotop or nimodipin or remontal or kenesil or brainal or admon or nimodipinisis or calnit or 66085-59-4).ti,ab,rn.
6	exp naloxone/ or (naloxone or naloxone or narcanti or nalone or narcan or mrz 2593 or mrz2593 or 465-65-6).ti,ab,rn.
7	thyrotropin-releasing hormone/ or (thyrotropin releasing adj2 (hormone* or factor*)).ti,ab.
8	(thyroliberin or protirelin or thypinone or stimutsh or stimu tsh or relefact or antepan or 24305-27-9).ti,ab,rn.
9	or/1-8

7 **Embase search terms**

1	methylprednisolone/ or (methylprednisolone or medrone or solu medrone or depo medrone or medrol or metipred or urbason or 83-43-2).ti,ab,rn.
2	dexamethasone/ or (dexamethasone or millicorten or maxidex or decaspray or dexpak or dexasone or oradexon or decaject* or hexadecadrol or hexadrol or decameth or maxitrol or otomize or minims or 50-02-2).ti,ab,rn.
3	ibuprofen/ or (ibuprofen or brufen or fenbid or ibugel or ibumetin or motrin or dolgit or salprofen or nuprin or rufen or 15687-27-1).ti,ab,rn.
4	celecoxib/ or (celecoxib or celebrex or 169590-42-5 or artroxil or caditar or celcox or celebra or celecox or celib or coxel or coxid or dilox or eliflam or lexfin or onsenal or zycel).ti,ab,rn.
5	nimodipine/ or (nimodipine or nimotop or nimodipin or remontal or kenesil or brainal or admon or nimodipinisis or calnit or 66085-59-4).ti,ab,rn.
6	naloxone/ or (naloxone or naloxone or narcanti or nalone or narcan or mrz 2593 or mrz2593 or 465-65-6).ti,ab,rn.
7	protirelin/ or (thyrotropin releasing adj2 (hormone* or factor*)).ti,ab.
8	(thyroliberin or protirelin or thypinone or stimutsh or stimu tsh or relefact or antepan or 24305-27-9).ti,ab,rn.

9	or/1-8
---	--------

1

Cochrane search terms

#1	MeSH descriptor: [methylprednisolone] explode all trees
#2	(methylprednisolone or medrone or solu medrone or depo medrone or medrol or metipred or urbason or 83-43-2):ti,ab,kw
#3	MeSH descriptor: [dexamethasone] explode all trees
#4	(dexamethasone or millicorten or maxidex or decaspray or dexpak or dexasone or oradexon or decaject* or hexadecadrol or hexadrol or decameth or maxitrol or otomize or minimis or 50-02-2):ti,ab,kw
#5	MeSH descriptor: [ibuprofen] this term only
#6	(ibuprofen or brufen or fenbid or ibugel or ibumetin or motrin or dolgit or salprofen or nuprin or rufen or 15687-27-1):ti,ab,kw
#7	(celecoxib or celebrex or 169590-42-5 or artroxil or caditar or celcox or celebra or celecox or celib or coxel or coxid or dilox or eliflam or lexfin or onsenal or zycel):ti,ab,kw
#8	MeSH descriptor: [nimodipine] this term only
#9	(nimodipine or nimotop or nimodipin or remontal or kenesil or brainal or admon or nimodipinisis or calnit or 66085-59-4):ti,ab,kw
#10	MeSH descriptor: [naloxone] explode all trees
#11	(naloxone or naloxone or narcanti or nalone or narcan or mrz 2593 or mrz2593 or 465-65-6):ti,ab,kw
#12	MeSH descriptor: [thyrotropin-releasing hormone] this term only
#13	(thyrotropin near/2 (hormone* or factor*)):ti,ab,kw
#14	(thyroliberin or protirelin or thypinone or stimutsh or stimu tsh or relefact or antepan or 24305-27-9):ti,ab,kw
#15	{or #1-#14}

2 F.3.10 Neuropathic pain

3 12. What are the optimum strategies given in the acute management stage to prevent later
4 neuropathic pain in people with traumatic spinal cord injury?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Strategies to prevent later neuropathic pain		The following filters were used in Medline and Embase only: RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

6

Medline search terms

1	amitriptyline/
2	(amitrip* or amineurin or amitrol or anapsique or damilen or domical or elavil or endep or laroxyl or lentizol or novoprotect or saroten or sarotex or syneudon or triptafen or tryptanol or tryptine or tryptizol).ti,ab,rn.
3	trazodone/
4	(trazodon* or molipaxin or deprax or desyrel or thombran or trazon or trittico).ti,ab,rn.
5	(duloxetine or cymbalta or yentreve or ariclaim or xeristar or duzela or dulane).ti,ab,rn.
6	(venlafaxine or dobupal or efexor or trevilor or vandral or depefex or foraven or politid or

	tonpular or venaxx or venladex or venlalic or viepax or alventa or bonilux or depefex or ranfaxine or tifaxin or vensir or winfex).ti,ab,rn.
7	(lamotrigine or crisomet or labileno or lamictal or lamiktal).ti,ab,rn.
8	mexiletine/
9	(mexilitine or mexitil or mexityl or mexiletine).ti,ab,rn.
10	carbamazepine/
11	(carbamazepine or carbazepin or epitol or finlepsin or neurotol or tegretol or equetro).ti,ab,rn.
12	(gabapentin or convalis or neurontin).ti,ab,rn.
13	(pregabalin or lyrica).ti,ab,rn.
14	(topiramate or epitomax or topamax).ti,ab,rn.
15	valproic acid/
16	(sodium adj2 valporate).ti,ab,rn.
17	(epival or depacon or valpro or valprease or orlept or epival or epiject or convulex or valparin or stavzor or depakene or depakine or depakote or divalproex or ergenyl or vupral or epilim or episenta).ti,ab,rn.
18	clonidine/
19	(clonidine or catapres* or chlrophazolin or clofelin or clofenil or clopheline or dixarit or gemiton or hemiton or isoglaucan or klofelin or klofenil).ti,ab,rn.
20	(levetiracetam or etiracetam or keppra or desitrend).ti,ab,rn.
21	ketamine/
22	(ketamine or calipsol or calypsol or kalipsol or ketalar or ketanest or ketaset).ti,ab,rn.
23	alfentanil/
24	(alfentanil or alfenta or alfentanyl or fanaxal or limifen or rapifen).ti,ab,rn.
25	lidocaine/
26	(lidocaine or xylocaine or lignocaine or dalcaine or octocaine or xylesthesin or xylocaine or xylocitin or xyloneural or minijet).ti,ab,rn.
27	or/1-26

1

Embase search terms

1	amitriptyline/
2	(amitrip* or amineurin or amitrol or anapsique or damilen or domical or elavil or endep or laroxyl or lentizol or novoprotect or saroten or sarotex or syneudon or triptafen or tryptanol or tryptine or tryptizol).ti,ab,rn.
3	trazodone/
4	(trazodon* or molipaxin or deprax or desyrel or thombran or trazon or trittico).ti,ab,rn.
5	duloxetine/
6	(duloxetine or cymbalta or yentreve or ariclaim or xeristar or duzela or dulane).ti,ab,rn.
7	venlafaxine/
8	(venlafaxine or dobupal or efexor or trevilor or vandral or depefex or foraven or politid or tonpular or venaxx or venladex or venlalic or viepax or alventa or bonilux or depefex or ranfaxine or tifaxin or vensir or winfex).ti,ab,rn.
9	lamotrigine/
10	(lamotrigine or crisomet or labileno or lamictal or lamiktal).ti,ab,rn.
11	mexiletine/
12	(mexilitine or mexitil or mexityl or mexiletine).ti,ab,rn.
13	carbamazepine/
14	(carbamazepine or carbazepin or epitol or finlepsin or neurotol or tegretol or equetro).ti,ab,rn.
15	gabapentin/

16	(gabapentin or convalis or neurontin).ti,ab,rn.
17	pregabalin/
18	(pregabalin or lyrica).ti,ab,rn.
19	topiramate/
20	(topiramate or epitomax or topamax).ti,ab,rn.
21	valproic acid/
22	(valporic adj acid*).ti,ab.
23	(sodium adj2 valporate).ti,ab,rn.
24	(epival or depacon or valpro or valprease or orlept or epival or epiject or convulex or valparin or stavzor or depakene or depakine or depakote or divalproex or ergenyl or vupral or epilim or episenta).ti,ab,rn.
25	clonidine/
26	(clonidine or catapres* or chlophazolin or clofelin or clofenil or clopheline or dixarit or gemiton or hemiton or isoglaucou or klofelin or klofenil).ti,ab,rn.
27	etiracetam/
28	(levetiracetam or etiracetam or keppra or desitrend).ti,ab,rn.
29	ketamine/
30	(ketamine or calipsol or calypsol or kalipsol or ketalar or ketanest or ketaset).ti,ab,rn.
31	alfentanil/
32	(alfentanil or alfenta or alfentanyl or fanaxal or limifen or rapifen).ti,ab,rn.
33	lidocaine/
34	(lidocaine or xylocaine or lignocaine or dalcaine or octocaine or xylesthesin or xylocaine or xylocitin or xyloneural or minijet).ti,ab,rn.
35	or/1-34

1

Cochrane search terms

#1	MeSH descriptor: [amitriptyline] this term only
#2	(amitrip* or amineurin or amitrol or anapsique or damilen or domical or elavil or endep or laroxyl or lentizol or novoprotect or saroten or sarotex or syneudon or triptafen or tryptanol or tryptine or tryptizol):ti,ab
#3	MeSH descriptor: [trazodone] this term only
#4	(trazodon* or molipaxin or deprax or desyrel or thombran or trazon or trittico):ti,ab
#5	(duloxetine or cymbalta or yentreve or ariclaim or xeristar or duzela or dulane):ti,ab
#6	(venlafaxine or dobupal or efexor or trevilor or vandral or depefex or foraven or politid or tonpular or venaxx or venladex or venlalic or viepax or alventa or bonilux or depefex or ranfaxine or tifaxin or vensir or winfex):ti,ab
#7	(lamotrigine or crisomet or labileno or lamictal or lamiktal):ti,ab
#8	MeSH descriptor: [mexiletine] this term only
#9	(mexilitine or mexitil or mexityl or mexiletine):ti,ab
#10	MeSH descriptor: [carbamazepine] this term only
#11	(carbamazepine or carbazepin or epitol or finlepsin or neurotol or tegretol or equetro):ti,ab
#12	(gabapentin or convalis or neurontin):ti,ab
#13	(pregabalin or lyrica):ti,ab
#14	(topiramate or epitomax or topamax):ti,ab
#15	MeSH descriptor: [valproic acid] this term only
#16	sodium next/2 valporate:ti,ab
#17	valporic next acid:ti,ab

#18	(epival or depacon or valpro or valprease or orlept or epival or epiject or convulex or valparin or stavzor or depakene or depakine or depakote or divalproex or ergenyl or vupral or epilim or episenta):ti,ab
#19	MeSH descriptor: [clonidine] this term only
#20	(clonidine or catapres* or chlophazolin or clofelin or clofenil or clopheline or dixarit or gemiton or hemiton or isoglaucon or klofelin or klofenil):ti,ab
#21	(levetiracetam or etiracetam or keppra or desitrend):ti,ab
#22	MeSH descriptor: [ketamine] this term only
#23	(ketamine or calipsol or calypsol or kalipsol or ketalar or ketanest or ketaset):ti,ab
#24	MeSH descriptor: [alfentanil] this term only
#25	(alfentanil or alfenta or alfentanyl or fanaxal or limifen or rapifen):ti,ab
#26	MeSH descriptor: [lidocaine] this term only
#27	(lidocaine or xylocaine or lignocaine or dalcaine or octocaine or xylesthesin or xylocaine or xylocitin or xyloneural or minijet):ti,ab
#28	{or #1-#27}

1 F.3.11 Timing of referral

2 13. Is there a benefit of early liaison and referral (within 4 hours) and to spinal cord injury centres
3 compared to delayed liaison?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Referral		The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

5 Medline search terms

1	exp "referral and consultation"/
2	(transfer* or dumping).ti,ab.
3	(refer or referr* or refers).ti,ab.
4	(consultation* or consult or consults or consulting).ti,ab.
5	((liais* or co operat* or cooperat* or contact* or relationship* or convers* or dialog* or talk* or exchange* or discuss*) adj8 (specialist* or expert* or consultant* or center* or centre* or spine or spinal or cervical or cord or lumbar or sacral or thoracic)).ti,ab.
6	or/1-5
7	time factors/
8	(early or earlie* or late or later or time* or timing* or schedul* or hour* or rapid* or fast* or slow* or delay* or immediate*).ti,ab.
9	or/7-8
10	6 and 9
11	tertiary care centers/
12	scic*.ti,ab.
13	(spinal adj1 (injur* or treatment) adj1 (unit* or centre*)).ti,ab.
14	(royal national orthopaedic hospital or london spinal cord injury centre).ti,ab.

15	(stoke mandeville or national spinal cord injury centre).ti,ab.
16	duke of cornwall spinal treatment centre.ti,ab.
17	princess royal spinal injuries centre.ti,ab.
18	midlands centre for spinal injuries.ti,ab.
19	(pinderfields hospital or regional spinal injuries centre).ti,ab.
20	("southport and ormskirk hospital" or north west regional spinal injuries centre).ti,ab.
21	golden jubilee regional spinal cord injuries centre.ti,ab.
22	queen elizabeth national spinal injury unit.ti,ab.
23	rookwood hospital.ti,ab.
24	musgrave park hospital.ti,ab.
25	(dublin national spinal cord injury service or mater misericordiae university hospital).ti,ab.
26	or/11-25
27	10 or 26

1

Embase search terms

1	patient referral/
2	(transfer* or dumping).ti,ab.
3	(refer or referr* or refers).ti,ab.
4	(consultation* or consult or consults or consulting).ti,ab.
5	((liais* or co operat* or cooperat* or contact* or relationship* or convers* or dialog* or talk* or exchange* or discuss*) adj8 (specialist* or expert* or consultant* or center* or centre* or spine or spinal or cervical or cord or lumbar or sacral or thoracic)).ti,ab.
6	or/1-5
7	time/ or turnaround time/
8	(early or earlie* or late or later or time* or timing* or schedul* or hour* or rapid* or fast* or slow* or delay* or immediate*).ti,ab.
9	or/7-8
10	6 and 9
11	tertiary health care/
12	scic*.ti,ab.
13	(spinal adj1 (injur* or treatment) adj1 (unit* or centre*)).ti,ab.
14	(royal national orthopaedic hospital or london spinal cord injury centre).ti,ab.
15	(stoke mandeville or national spinal cord injury centre).ti,ab.
16	duke of cornwall spinal treatment centre.ti,ab.
17	princess royal spinal injuries centre.ti,ab.
18	midlands centre for spinal injuries.ti,ab.
19	(pinderfields hospital or regional spinal injuries centre).ti,ab.
20	("southport and ormskirk hospital" or north west regional spinal injuries centre).ti,ab.
21	golden jubilee regional spinal cord injuries centre.ti,ab.
22	queen elizabeth national spinal injury unit.ti,ab.
23	rookwood hospital.ti,ab.
24	musgrave park hospital.ti,ab.
25	(dublin national spinal cord injury service or mater misericordiae university hospital).ti,ab.
26	or/11-25
27	10 or 26

2

Cochrane search terms

#	MeSH descriptor: [referral and consultation] explode all trees
#2	(transfer* or dumping):ti,ab
#3	(refer or ferr* or refers):ti,ab
#4	(consultation* or consult or consults or consulting):ti,ab
#5	((liais* or cooperat* or contact* or relationship* or convers* or dialog* or talk* or exchange* or discuss*) near/8 (specialist* or expert* or consultant* or center* or centre* or spine or spinal or cervical or cord or lumbar or sacral or thoracic)):ti,ab
#6	{or #1-#5}
#7	MeSH descriptor: [time factors] this term only
#8	(early or earlie* or late or later or time* or timing* or schedul* or hour* or rapid* or fast* or slow* or delay* or immediate*):ti,ab
#9	{or #7-#8}
#10	#6 and #9
#11	MeSH descriptor: [tertiary care centers] this term only
#12	scic*:ti,ab
#13	(spinal near/1 (injur* or treatment) near/1 (unit* or centre*)):ti,ab
#14	(royal national orthopaedic hospital or london spinal cord injury centre):ti,ab
#15	(stoke mandeville or national spinal cord injury centre):ti,ab
#16	(duke of cornwall spinal treatment centre):ti,ab
#17	(princess royal spinal injuries centre):ti,ab
#18	(midlands centre for spinal injuries):ti,ab
#19	(pinderfields hospital or regional spinal injuries centre):ti,ab
#20	("southport and ormskirk hospital" or north west regional spinal injuries centre):ti,ab
#21	(golden jubilee regional spinal cord injuries centre):ti,ab
#22	(queen elizabeth national spinal injury unit):ti,ab
#23	(rookwood hospital):ti,ab
#24	(musgrave park hospital):ti,ab
#25	(dublin national spinal cord injury service or mater misericordiae university hospital):ti,ab
#26	{or #11-#25}
#27	#10 or #26

1 F.3.12 Tertiary services

2 14. What are the clinical factors associated with a positive outcome after transfer to an SCIC for
3 patients with spinal trauma?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injury	Transfer/acceptance to SCIC		The following filters were used in Medline and Embase only: OBS, PROG, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

5 Medline search terms

1	exp "referral and consultation"/ or patient transfer/
2	(transfer* or dumping).ti,ab.

3	(refer or referr* or refers).ti,ab.
4	(acceptance or refus*).ti,ab.
5	(patient* adj2 (movement or transport*)).ti,ab.
6	or/1-5
7	(specialist* or center* or centre* or unit* or rehabilitation or system or systems or service* or institut* or network*).ti,ab.
8	tertiary care centers/
9	scic*.ti,ab.
10	royal national orthopaedic hospital.ti,ab.
11	stoke mandeville.ti,ab.
12	pinderfields hospital.ti,ab.
13	"southport and ormskirk hospital".ti,ab.
14	rookwood hospital.ti,ab.
15	musgrave park hospital.ti,ab.
16	mater misericordiae university hospital.ti,ab.
17	or/7-16
18	6 and 17

1

Embase search terms

1	patient referral/ or patient transport/
2	(transfer* or dumping).ti,ab.
3	(refer or referr* or refers).ti,ab.
4	(acceptance or refus*).ti,ab.
5	(patient* adj2 (movement or transport*)).ti,ab.
6	or/1-5
7	(specialist* or center* or centre* or unit* or rehabilitation or system or systems or service* or institut* or network*).ti,ab.
8	tertiary health care/
9	scic*.ti,ab.
10	royal national orthopaedic hospital.ti,ab.
11	stoke mandeville.ti,ab.
12	pinderfields hospital.ti,ab.
13	"southport and ormskirk hospital".ti,ab.
14	rookwood hospital.ti,ab.
15	musgrave park hospital.ti,ab.
16	mater misericordiae university hospital.ti,ab.
17	or/7-16
18	6 and 17

2

Cochrane search terms

#1	MeSH descriptor: [referral and consultation] explode all trees
#2	MeSH descriptor: [patient transfer] this term only
#3	(transfer* or dumping):ti,ab
#4	(refer or referr* or refers):ti,ab
#5	(acceptance or refus*):ti,ab
#6	(patient* near/2 (movement or transport*)):ti,ab

#7	{or #1-#6}
#8	(specialist* or center* or centre* or unit* or rehabilitation or system or systems or service* or institut* or network*):ti,ab
#9	MeSH descriptor: [tertiary care centers] this term only
#10	scic*:ti,ab
#11	{or #8-#10}
#12	#7 and #11

1 **F.3.13 Information and support**

- 2 15. What information and support do people with suspected traumatic spinal cord/column injury
3 and their families want in the early stages after trauma before a definitive diagnosis has been
4 made?
5 16. What information and support do people with a confirmed traumatic spinal cord/column injury
6 and their families want in the early stages after trauma before transfer to specialist care?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Information and support			See Table 1 English only Exclusion filter applied in Medline, Embase and CINAHL

8 **Medline search terms**

1	exp consumer health information/ or patient education as topic/
2	(publications/ or pamphlets/ or posters as topic/) and (client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*).ti,ab.
3	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*) adj3 (information* or educat* or learn* or train* or program* or advi?e* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*)).ti,ab.
4	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*) adj3 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*)).ti,ab.
5	((information* or educat* or learn* or train* or program* or advi?e* or instruction* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*) adj3 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*)).ti,ab.
6	((information* or educat*) adj3 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*)).ti,ab.
7	or/1-6

9 **Embase search terms**

1	consumer health information/ or patient education/
2	publication/ and (client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*).ti,ab.
3	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*) adj3 (information* or educat* or learn* or train* or

	program* or advi?e* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*).ti,ab.
4	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*) adj3 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*).ti,ab.
5	((information* or educat* or learn* or train* or program* or advi?e* or instruction* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*) adj3 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*).ti,ab.
6	((information* or educat*) adj3 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*).ti,ab.
7	or/1-6

1

Cochrane search terms

#1	MeSH descriptor: [publications] this term only
#2	MeSH descriptor: [pamphlets] this term only
#3	MeSH descriptor: [posters as topic] this term only
#4	{or #1-#3}
#5	(client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*).ti,ab
#6	#4 and #5
#7	MeSH descriptor: [consumer health information] explode all trees
#8	MeSH descriptor: [patient education as topic] this term only
#9	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*) near/3 (information* or educat* or learn* or train* or program* or advice* or advise* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*).ti,ab
#10	((client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*) near/3 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*).ti,ab
#11	((information* or educat* or learn* or train* or program* or advice* or advise* or instruction* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*) near/3 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*).ti,ab
#12	((information* or educat*) near/3 (model* or program* or need* or requirement* or support* or seek* or access* or disseminat*).ti,ab
#13	{or #7-#12}
#14	#6 or #13

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CINAHL search terms

S1	(MH "pamphlets")
S2	(MH "posters")
S3	S1 or S2
S4	TX (client* or patient* or user* or carer* or consumer* or customer* or famil* or parent* or father* or mother* or caregiver*)
S5	S3 and S4
S6	(MH "consumer health information")
S7	(MM "patient education+")

S8	TX (patient* n2 (information* or educat* or learn* or train* or program* or advice* or advise* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*))
S9	TX (famil* n2 (information or information* or educat* or learn* or train* or program* or advice* or advise* or instruct* or teach* or knowledge or understanding or misunderstanding or communicat* or involvement or support*))
S10	TX (information* n2 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd*))
S11	S6 or S7 or S8 or S9 or S10
S12	S5 or S11

1 F.3.14 Documentation

2 17. What documentation tool should be routinely used to record baseline neurological function in
3 people with spinal injuries?

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries	Documentation tools		The following filters were used in Medline and Embase only: OBS, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

5 Medline search terms

1	exp *neurologic examination/
2	(neurologic* adj5 (exam* or assess* or evaluat* or tool* or record* or document* or note or notes or template* or design* or layout*)):ti,ab.
3	((american spinal injury association or asia or ais) adj4 (classifi* or impairment or scale* or record* or document* or grade* or grading or function*)):ti,ab.
4	(nascis* or national acute spinal cord injury study).ti,ab.
5	frankel*.ti,ab.
6	or/1-5

6 Embase search terms

1	exp *neurologic examination/
2	(neurologic* adj5 (exam* or assess* or evaluat* or tool* or record* or document* or note or notes or template* or design* or layout*)):ti,ab.
3	((american spinal injury association or asia or ais) adj4 (classifi* or impairment or scale* or record* or document* or grade* or grading or function*)):ti,ab.
4	(nascis* or national acute spinal cord injury study).ti,ab.
5	frankel*.ti,ab.
6	or/1-5

7 Cochrane search terms

#1	MeSH descriptor: [neurologic examination] explode all trees
#2	(neurologic* near/5 (exam* or assess* or evaluat* or tool* or record* or document* or note or notes or template* or design* or layout*)):ti,ab

#3	((american spinal injury association or asia or ais) near/4 (classifi* or impairment or scale* or record* or document* or grade* or grading or function*)):ti,ab
#4	(nascis* or national acute spinal cord injury study):ti,ab
#5	frankel*:ti,ab
#6	{or #1-#5}

1 F.4 Economics searches

2 F.4.1 Health economics

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries			The following filters were used in Medline and Embase only: HE, MOD	Medline and Embase: 2011 – 31 st March 2015 CRD: All dates – 31 st March 2015 HEED: All dates – 30 th July 2014 English only Exclusion filter applied in Medline and Embase

4 F.4.2 Quality of life

5 Searches for quality of life data were run in Medline (OVID) and Embase (OVID).

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

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Spinal injuries			The following filters were used in Medline and Embase only: QoL	Medline and Embase: 2011 – 31 st July 2014 English only Exclusion filter applied in Medline and Embase

7 F.4.3 Radiation risk

8 18. For people with clinical signs of spinal injury what are the radiation risks of having a x-ray(s)
9 and/or CT scans?

10 These searches were conducted in Medline, Embase, HEED and Cochrane Library for NHS EED and
11 HTA.

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
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Population	Intervention / exposure	Comparison	Study filter used	Date parameters
No population	X-ray or CT		The following filters were used in Medline and Embase only: HE	Medline and Embase: 2011 – 31 st March 2015 Cochrane NHSEED and HTA: All years –2015 Issue 1 of 4 HEED: All dates – 30 th July 2014

1 **Medline search terms**

1	See F.3.6 for Medline terms
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2 **Embase search terms**

1	See F.3.6 for Embase terms
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3 **Cochrane search terms**

1	See F.3.6 for Cochrane Library terms
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4 **HEED search terms**

1	AX=fluoroscop* or fluroscop* or ray* or xray* or MDCT* or CT* or tomograph*
2	AX=radiat* or irradiat* or millisievert* or mSv or milligray* or mGy or BEIR
3	AX= dose or dosage or doses or expos* or risk* or induced or induct* or danger* or hazard* or harm*
4	AX=malignan* or neoplas* or cancer* or myelodysplas* or tumour* or tumor* or carcinom* or adenocarcinoma* or lymphoma* or leukaemia* or leukemia* or cataract* or burn* or erythema or reddening or tissue or defect* or mutation*
5	CS=1 and 2
6	CS=1 and 3
7	CS=4 and 6
8	CS=5 or 7

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References

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