

Draft

Service Delivery

Search strategies appendix

Clinical guideline

Appendices

10 June 2015

Draft

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

Disclaimer

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

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Appendix A: Literature search strategies

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

Table 1: Database date parameters

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

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

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

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

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

A.2 Population search strategies

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

A.2.1 Standard major trauma population

Medline search

1.	(trauma* or polytrauma*).ti,ab.
2.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*)).ti,ab.
3.	multiple trauma/
4.	wounds, gunshot/ or wounds, stab/ or accidents, traffic/ or accidental falls/ or blast injuries/ or accidents, aviation/
5.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) adj3 (accident* or crash* or collision* or smash*)).ti,ab.
6.	(mvas or mva or rtas or rta).ti,ab.
7.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm\$ or bullet* or knife* or knives or dagger).ti,ab.
8.	or/1-7

Embase search terms

1.	(trauma* or polytrauma*).ti,ab.
2.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*)).ti,ab.
3.	multiple trauma/
4.	gunshot injury/ or stab wound/ or traffic accident/ or falling/ or blast injury/ or aircraft accident/
5.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) adj3 (accident* or crash* or collision* or smash*)).ti,ab.
6.	(mvas or mva or rtas or rta).ti,ab.
7.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm\$ or bullet* or knife* or knives or dagger).ti,ab.
8.	or/1-7

Cochrane search terms

#1.	MeSH descriptor: [multiple trauma] this term only
#2.	(trauma* or polytrauma*):ti
#3.	((serious* or severe* or major) near/3 (accident* or injur* or fall*)):ti
#4.	MeSH descriptor: [wounds, gunshot] this term only
#5.	MeSH descriptor: [wounds, stab] this term only
#6.	MeSH descriptor: [accidents, traffic] this term only
#7.	MeSH descriptor: [accidental falls] this term only
#8.	MeSH descriptor: [blast injuries] this term only
#9.	MeSH descriptor: [accidents, aviation] this term only
#10.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike*) near/3 (accident* or crash* or collision* or smash*)):ti
#11.	(mvas or mva or rtas or rta):ti
#12.	(stabbed or stabbing or stab or gunshot or gun or gunfire or firearm* or bullet or knife* or knives or dagger or shot):ti
#13.	{or #1-#12}

CINAHL search terms

S1.	TX (trauma* or polytrauma*)
S2.	TX ((serious* or severe* or major or life threaten*) AND (accident* or injur* or fall*))
S3.	(MH "trauma") or (mh "multiple trauma")
S4.	(MH "wounds, gunshot")
S5.	(MH "wounds, stab")
S6.	(MH "accidents, traffic")
S7.	(MH "accidental falls")
S8.	(MH "blast injuries")
S9.	(MH "accidents, aviation")
S10.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) and (accident* or crash* or collision* or smash*))
S11.	(mvas or mva or rtas or rta)
S12.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger)
S13.	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12

HMIC search terms

1.	(trauma* or polytrauma*).ti,ab.
2.	((serious* or severe* or major or life threaten*) adj3 (accident* or injur* or fall*)).ti,ab.
3.	((motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike* or head on or pile up) adj3 (accident* or crash* or collision* or smash*)).ti,ab.
4.	(mvas or mva or rtas or rta).ti,ab.
5.	(stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm\$ or bullet* or knife* or knives or dagger).ti,ab.
6.	wounds & injuries/
7.	exp road traffic accidents/
8.	falling/
9.	exp blast injuries/
10.	exp transport accidents/
11.	accidents/
12.	or/1-11

CRD search terms

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

HEED search terms

1.	TI=serious* or severe* or major or life threatening or multiple
2.	AB=serious* or severe* or major or life threatening or multiple
3.	CS=1 or 2
4.	TI=accident* or injur* or fall or blood loss or bleeding or hemorrhag* or haemorrhag* or hematoma* or haematoma*
5.	AB=accident* or injur* or fall or blood loss or bleeding or hemorrhag* or haemorrhag* or hematoma* or haematoma*
6.	CS=4 or 5
7.	CS=3 and 6
8.	TI=trauma* or polytrauma*
9.	AB=trauma* or polytrauma*
10.	TI=stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife* or knives or dagger
11.	AB=stabbed or stabbing or stab or gunshot* or gun or gunfire or firearm* or bullet* or knife*

	or knives or dagger
12.	TI=motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike*
13.	AB=motor* or motorbike* or vehicle* or road or traffic or car or cars or cycling or bicycle* or automobile* or bike*
14.	CS=12 or 13
15.	TI=accident* or crash* or collision* or smash*
16.	AB=accident* or crash* or collision* or smash*
17.	CS=15 or 16
18.	CS=14 and 17
19.	CS=7 or 8 or 9 or 10 or 11
20.	CS=18 or 19

A.2.2 Expanded trauma population

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

Medline search

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

Embase search terms

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

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

Cochrane search terms

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

CRD search terms

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

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

A.3 Study filter search terms

A.3.1 Systematic review (SR) search terms

Medline search terms

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

Embase search terms

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

A.3.2 Randomised controlled trials (RCTs) search terms

Medline search terms

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

Embase search terms

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

A.3.3 Observational studies (OBS) search terms

Medline search terms

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

Embase search terms

1.	clinical study/
2.	exp case control study/
3.	family study/
4.	longitudinal study/
5.	retrospective study/
6.	prospective study/
7.	cross-sectional study/
8.	cohort analysis/

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

A.3.4 Qualitative studies (QUAL) search terms

Medline search terms

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

Embase search terms

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

Cinahl search terms

S1.	(MH "qualitative studies+")
S2.	(MH "qualitative validity+")
S3.	(MH "interviews+") or (MH "focus groups") or (MH "surveys") or (MH "questionnaires+")
S4.	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*)
S5.	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic or phenomenolog* or grounded theory or constant compar* or (thematic* adj3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*)
S6.	S1 or S2 or S3 or S4 or S5

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

Medline search terms

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

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

Embase search terms

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

Cochrane search terms

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

A.3.6 Health economics (HE) search terms

Medline search terms

1.	economics/
2.	value of life/
3.	exp "costs and cost analysis"/

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

Embase search terms

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

A.3.7 Health economic modelling (MOD) search terms

Medline search terms

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

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

Embase search terms

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

A.3.8 Excluded study designs and publication types

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

Medline search terms

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

Embase search terms

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

CINAHL search terms

S1.	PT anecdote or PT audiovisual or PT bibliography or PT biography or PT book or PT book review or PT brief item or PT cartoon or PT commentary or PT computer program or PT editorial or PT games or PT glossary or PT historical material or PT interview or PT letter or PT listservs or PT masters thesis or PT obituary or PT pamphlet or PT pamphlet chapter or PT pictorial or PT poetry or PT proceedings or PT "questions and answers" or PT response or PT software or PT teaching materials or PT website
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A.4 Searches for specific questions (clinical (C) and health economics (HE))

A.4.1 Pre-hospital alert and triage tools

Two searches were combined for this question.

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

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

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
A	Major trauma	Clinical triage tools in emergency settings	<p>The following filters were used for clinical searches in Medline and Embase only: PRE-RULE, RCT, SR</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1 HEED Inception – 05/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE) English only Exclusion filter applied in Medline and</p>

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

Medline search terms – search A

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

Embase search terms – search A

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

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

Cochrane search terms – search A

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

CRD search terms – search A

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

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

HEED search terms – search A

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

Medline search terms – search B

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

Embase search terms – search B

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

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

Cochrane search terms – search B

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

CRD search terms – search B

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

HEED search terms – search B

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

A.4.2 Tiered teams and multidisciplinary management

Two searches were combined for the following two questions:

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

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

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
A	Major trauma	Trauma teams or multidisciplinary teams	<p>The following filters were used for clinical searches in Medline and Embase only: OBS, RCT, SR</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1 Date of last search: 23/03/2015 HEED – Inception – 05/11/2014 English only Exclusion filter applied in Medline, Embase and CINAHL</p>
B	n/a	Trauma teams	No filters were added for the clinical searches.	As search A except HEED last searched 03/12/2014

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
			The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	

Medline search terms – search A

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

Embase search terms – search A

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

Cochrane search terms –search A

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

#6.	[mh ^"emergency service, hospital"/ma,og]
#7.	[mh ^"patient care team"/ma,og]
#8.	[mh ^"trauma centers"/ma,og]
#9.	[mh ^"hospital units"/ma,og]
#10.	[mh "intensive care units"/ma,og]
#11.	{or #1-#10}

CINAHL search terms – search A

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

CRD search terms – search A

#1.	((trauma near2 team*))
#2.	((tier* near2 (team* or response* or staff*)))
#3.	((standard or advanced or basic or core or full or reduced or extra) near2 (team* or response* or staff*))
#4.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) near2 (work* or team* or care or ward*))
#5.	((specialist* or specialit*))
#6.	MeSH descriptor emergency service, hospital with qualifier ma
#7.	MeSH descriptor emergency service, hospital with qualifier og
#8.	MeSH descriptor patient care team with qualifier og
#9.	MeSH descriptor trauma centers with qualifier ma
#10.	MeSH descriptor trauma centers with qualifier og
#11.	MeSH descriptor hospital units with qualifier ma
#12.	MeSH descriptor hospital units with qualifier og
#13.	MeSH descriptor intensive care units explode all trees with qualifier ma
#14.	MeSH descriptor intensive care units explode all trees with qualifier og
#15.	(#1 or #2 or #3or #4 or #5 or #6 or #17 or #8 or #9 or #10 or #11 or #12 or #13 or #14)

HEED search terms – search A

1.	AX=interdisciplinary or multidisciplinary or combin* or interprofessional or multiprofessional
2.	AX='inter professional'
3.	AX='multi professional'
4.	AX='multi disciplinary'
5.	AX='inter disciplinary'
6.	CS=1 or 2 or 3 or 4 or 5
7.	AX=work* or team* or care or ward*
8.	CS=6 and 7
9.	AX=tier* or standard or advanced or basic or core or full or reduced or extra

10.	AX=team* or response* or staff*
11.	CS=9 and 10
12.	AX=trauma* and team
13.	AX=specialist* or specialit*
14.	CS=8 or 11 or 12 or 13

Medline search terms – search B

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

Embase search terms – search B

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

Cochrane search terms –search B

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

CRD search terms – search B

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

HEED search terms – search B

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

A.4.3 Retrieval teams

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma	Retrieval service	n/a	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				<p>2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1 HEED Inception – 18/11/2015 Date of last search: 19/03/2015 (C) 24/03/2015 English only Exclusion filter applied in Medline and Embase</p>

Medline search terms

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

Embase search terms

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

4.	or/1-3
----	--------

Cochrane search terms

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

CRD search terms

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

HEED search terms

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

A.4.4 Trauma coordination

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
n/a	Trauma coordinator	n/a	<p>No filters were added for the clinical searches.</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were</p>

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				<p>not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1 HEED Inception – 04/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE) English only Exclusion filter applied in Medline, Embase and CINAHL</p>

Medline search terms

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

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

Cochrane search terms

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

CINAHL search terms

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

CRD search terms

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

HEED search terms

1.	TI=trauma*
2.	AB=trauma*
3.	CS=1 or 2
4.	TI=co-ordinat* or nurse* or coordinat* or lead or keyworker* or administrat*

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

A.4.5 Documentation

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma OR Fractures OR Emergencies settings	Documentation	n/a	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				or 'online early' publications. Where possible searches were limited to retrieve material published in English. Table 1 Date of last search: 20/03/2015 (C) 24/03/2015 (HE) English only Exclusion filter applied in Medline, Embase and CINAHL

Medline search terms

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

25.	*medical records/
26.	nursing records/mt, st, ut [methods, standards, utilization]
27.	*nursing records/
28.	documentation/mt, st, ut [methods, standards, utilization]
29.	*documentation/
30.	or/15-29
31.	14 and 30

Embase search terms

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

Cochrane search terms

#1.	<i>standard trauma population (see A.2.1)</i>
#2.	MeSH descriptor: [emergency service, hospital] explode all trees
#3.	MeSH descriptor: [emergency medical services] this term only
#4.	((emergency or emergencies) near/2 (department* or dept* or unit* or room* or ward* or service* or team* or hospital* or medic* or centre* or center*)):ti,ab
#5.	ed:ti,ab
#6.	"accident and emergency":ti,ab
#7.	a&e:ti,ab
#8.	walk-in centre*:ti,ab
#9.	minor injuries unit*:ti,ab
#10.	{or #2-#9}

#11.	MeSH descriptor: [fractures, bone] explode all trees
#12.	fracture*:ti,ab
#13.	#11 or #12
#14.	#1 or #10 or #13
#15.	MeSH descriptor: [continuity of patient care] this term only
#16.	MeSH descriptor: [patient handoff] this term only
#17.	(handoff* or hand-off* or handover* or hand-over*):ti,ab
#18.	((information* or document* or record* or form*) near/2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*)):ti,ab
#19.	(information* near/2 (loss or lost or flow* or gap*)):ti,ab
#20.	MeSH descriptor: [medical record linkage] this term only
#21.	MeSH descriptor: [medical records systems, computerized] explode all trees
#22.	MeSH descriptor: [medical records] this term only
#23.	MeSH descriptor: [nursing records] this term only
#24.	MeSH descriptor: [documentation] this term only
#25.	{or #15-#24}
#26.	#14 and #25

CINAHL search terms

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

HMIC search terms

1.	<i>standard trauma population (see A.2.1)</i>
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2.	"continuity of patient care"/
3.	(handoff* or hand-off* or handover* or hand-over*).ti,ab.
4.	((information* or document* or record* or form*) adj2 (transition* or transfer* or continuit* or co-ordinat* or coordinat* or exchange*)).ti,ab.
5.	(information* adj2 (loss or lost or flow* or gap*)).ti,ab.
6.	medical records/ or nursing records/
7.	computerised information handling/
8.	or/2-7
9.	1 and 8

CRD search terms

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

A.4.6 Audit

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

7. Is audit and feedback effective for improving health provider performance and healthcare outcomes?
8. What features are needed in a national audit system to ensure that audit improves service performance as measured by patient outcomes?

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

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
A	Major trauma OR Expanded trauma population	Audit	The following filters were used for clinical searches in Medline and Embase only: OBS, RCT, SR The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English. Table 1 Date of last search: 23/03/2015 (C) 25/03/2015 (HE) English only Exclusion filter applied in Medline and Embase
B	n/a	Audit and (health personnel or quality assurance)	As for search A	As for search A
C	n/a	Specific national or	As for search A with	As for search A

Search	Population	Intervention or exposure	Study design filter	Date parameters and other limits
		local registries/audits	the addition of the QUAL filter for clinical searches.	

Medline search terms – search A – trauma audits

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

Embase search terms – search A – trauma audits

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

Cochrane search terms – search A – trauma audits

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

#13.	{or #2-#12}
#14.	#1 and #13

CRD search terms – search A – trauma audits

#1.	<i>expanded trauma population (see A.2.2)</i>
#2.	((audit or audits or auditing or registry or registries or register*))
#3.	MeSH descriptor clinical audit
#4.	MeSH descriptor medical audit
#5.	MeSH descriptor nursing audit
#6.	MeSH descriptor management audit
#7.	MeSH descriptor registries
#8.	MeSH descriptor benchmarking
#9.	((benchmark*))
#10.	((practice or hospital*) near1 data))
#11.	MeSH descriptor commission on professional and hospital activities
#12.	MeSH descriptor utilization review
#13.	#2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12
#14.	1 and 13

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

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

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

1.	exp *health care personnel/
2.	exp *hospital/
3.	exp *professional practice/

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

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

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

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

#1.	MeSH descriptor health personnel explode all trees
#2.	MeSH descriptor hospitals explode all trees

#3.	MeSH descriptor professional practice explode all trees
#4.	MeSH descriptor professional competence
#5.	MeSH descriptor clinical competence
#6.	(((health* personnel or physician* or doctor* or clinician* or nurse* or provider* or practitioner* or resident* or professional* or nursing or clinical) near3 (skill or skills or behaviour or behavior or competence)))
#7.	(((clinical or medical or private or general or professional or hospital*) near1 practice*))
#8.	(((influnc* or chang*) near3 (behaviour* or behavior*)))
#9.	((practice pattern* or pattern of practice))
#10.	(performance)
#11.	MeSH descriptor quality assurance, health care
#12.	MeSH descriptor quality of health care
#13.	((quality near1 (assurance or improvement or control)))
#14.	((health care quality or healthcare quality or quality of healthcare or quality of health care or quality of care))
#15.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14
#16.	((audit or audits or auditing or registry or registries or register*))
#17.	MeSH descriptor clinical audit
#18.	MeSH descriptor medical audit
#19.	MeSH descriptor nursing audit
#20.	MeSH descriptor management audit
#21.	MeSH descriptor registries
#22.	MeSH descriptor benchmarking
#23.	((benchmark*))
#24.	(((practice or hospital*) near1 data))
#25.	MeSH descriptor commission on professional and hospital activities
#26.	MeSH descriptor utilization review
#27.	#16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26
#28.	#15 and #27

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

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

16.	(haemorrhage or suicide).ti.
17.	15 and 16
18.	"chronic kidney disease in primary care".ti.
19.	audit*.ti.
20.	18 and 19
21.	14 or 17 or 20

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

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

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

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

#16.	#14 and #15
#17.	"chronic kidney disease in primary care":ti
#18.	audit*:ti
#19.	#17 and #18
#20.	#13 or #16 or #19

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

S1.	TI (national n4 (audit* or registry or registries or register*))
S2.	TI trauma audit and research network
S3.	TI tarn
S4.	TI falls and fragility fracture* w0 audit
S5.	TI fffap
S6.	TI ("familial hypercholesterolemia" n3 (register* or audit*))
S7.	TI (national vascular w0 (database* or registry or registries or register*))
S8.	TI head and neck cancer and (audit* or registry or registries or register*))
S9.	TI national care of the dying audit
S10.	TI ncepod
S11.	TI "national confidential enquiry into patient outcome and death"
S12.	TI ("patient outcome" n2 (programme* or audit* or registry or registries or register*))
S13.	TI ncapop
S14.	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13
S15.	TI ((medical or health or surgical) w0 corp)
S16.	TI (haemorrhage or suicide)
S17.	S15 and S16
S18.	TI chronic kidney disease in primary care
S19.	TI audit*
S20.	S18 and S19
S21.	S14 or S17 or S20

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

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

#17.	#14 and #15
#18.	(chronic kidney disease in primary care):TI
#19.	(audit*):TI
#20.	#18 and #19
#21.	#14 or #17 or #20

A.4.7 Paediatric training

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma	Paediatric training	n/a	<p>No filters were added for the clinical searches.</p> <p>The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD</p>	<p>See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1</p>

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				HEED Inception to 05/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE) English only Exclusion filter applied in Medline, Embase and CINAHL

Medline search terms

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

Embase search terms

1.	exp child/
2.	exp pediatrics/
3.	child*.ti,ab.
4.	infan*.ti,ab.
5.	(baby or babies).ti,ab.
6.	exp adolescent/ or adolescen*.ti,ab.
7.	(pediatric*1 or paediatric*1).ti,ab.

8.	(neonat* or newborn*).ti,ab.
9.	or/1-8
10.	*clinical competence/
11.	(apls or atls).ti,ab.
12.	advanced p?ediatric life support.ti,ab.
13.	advanced trauma life support.ti,ab.
14.	*medical education/
15.	((paediatric* or pediatric* or trauma*) adj6 (train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*).ti,ab.
16.	or/10-15
17.	9 and 16

Cochrane search terms

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

CINAHL search terms

S1.	(MH "child+") or (MH "adolescence+") or (MH "pediatrics+")
S2.	child*
S3.	infan* or baby or babies
S4.	adolescen*
S5.	pediatric* or paediatric*
S6.	neonat* or newborn*

S7.	S1 or S2 or S3 or S4 or S5 or S6
S8.	(MH "clinical competence") or (MH "emergency medicine/ed") or (MH "emergency nursing+/ed") or (MH "emergency medical technicians/ed")
S9.	(MH "pediatric advanced life support") or (MH "advanced cardiac life support/ed") or (MH "education, medical, continuing") or (MH "advanced trauma life support care")
S10.	apls or atls
S11.	advanced trauma life support
S12.	advanced paediatric life support or advanced pediatric life support
S13.	((paediatric* or pediatric* or trauma*) n6 (train* or course* or competen* or skill* or educat* or qualif* or capabilit* or knowledge* or expert*))
S14.	S8 or S9 or S10 or S11 or S12 or S13
S15.	S7 and S14

CRD search terms

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

HEED search terms

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

A.4.8 Information and support

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Major trauma	Information and support	n/a	The following filter was used in Medline, Embase and CINAHL for the clinical questions: QUAL The same search was run for the health economics using the	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
			following filters in Medline and Embase only: HE, MOD	<p>the methodology in the NICE guidelines manual 2012.1 Final searches were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1 Date of last search: 20/03/2015 English only Exclusion filter applied in Medline, Embase and CINAHL</p>

Medline search terms

1.	patients/ or inpatients/ or outpatients/
2.	caregivers/ or exp family/ or exp parents/ or exp legal-guardians/
3.	(patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin).ti,ab.

4.	or/1-3
5.	popular-works-publication-type/ or publications/ or books/ or pamphlets/ or patient education handout/
6.	((inform* or educat* or learn* or advi?e* or knowledge or understand* or involvement or support*) adj4 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd* or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*)).ti,ab.
7.	((information* or support* or advi?e*) adj4 (provision* or provide* or deliver* or facilitat* or establish* or arrang*)).ti,ab.
8.	(trauma* adj2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*)).ti,ab.
9.	((name* or designate*) adj1 (nurse* or doctor* or physician* or consultant*)).ti,ab.
10.	or/5-9
11.	4 and 10
12.	((patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj4 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd* or education or educate or educating or literature or information or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*)).ti,ab.
13.	patient education as topic/
14.	consumer health information/
15.	(teletrauma* or tele-trauma* or tele-rehab* or telerehab* or telehealth* or tele-health* or telemedicine* or tele-medicine* or telecommunication* or tele-monitor* or telemonitor* or telemanagement or tele-management or teleconsultation or tele-consultation or telecare* or tele-care* or telematic* or telepharmacy or tele-pharmacy or telenurs* or tele-nurs* or remote consult* or tele-homecare or telehomecare or remote care or tele-support or telesupport or mobile health* or computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health*).ti,ab.
16.	telemedicine/ or telenursing/
17.	or/11-16

Embase search terms

1.	*patient/ or *hospital patient/ or *outpatient/
2.	*caregiver/ or exp *family/ or exp *parent/
3.	(patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin).ti,ab.
4.	or/1-3
5.	*information service/ or *information center/ or *publication/ or *book/ or *counseling/ or *directive counseling/
6.	((inform* or educat* or learn* or advi?e* or knowledge or understand* or involvement or support*) adj4 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd* or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*)).ti,ab.
7.	((information* or support* or advi?e*) adj4 (provision* or provide* or deliver* or facilitat* or establish* or arrang*)).ti,ab.
8.	(trauma* adj2 (nurse* or coordinat* or co-ordinat* or key worker* or case manag* or lead or keyworker* or administrat*)).ti,ab.
9.	((name* or designate*) adj1 (nurse* or doctor* or physician* or consultant*)).ti,ab.

10.	or/5-9
11.	4 and 10
12.	((patient* or carer* or famil* or parent* or father* or mother* or caregiver* or next of kin) adj4 (pamphlet* or leaflet* or booklet* or manual* or brochure* or publication* or handout* or website* or web site* or web page* or webpage* or video* or dvd* or education or educate or educating or literature or information or internet or computer* or program* or interactive or email* or e-mail* or wireless or bluetooth or telephone or phone or sms or text*)).ti,ab.
13.	*patient information/ or *consumer health information/
14.	*patient education/
15.	(teletrauma* or tele-trauma* or tele-rehab* or telerehab* or telehealth* or tele-health* or telemedicine* or tele-medicine* or telecommunication* or tele-monitor* or telemonitor* or telemanagement or tele-management or teleconsultation or tele-consultation or telecare* or tele-care* or telematic* or telepharmacy or tele-pharmacy or telenurs* or tele-nurs* or remote consult* or tele-homecare or telehomecare or remote care or tele-support or telesupport or mobile health* or computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health*).ti,ab.
16.	*telemedicine/ or *telehealth/ or *telenursing/
17.	or/11-16

CINAHL search terms

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

S16.	(MH "telemedicine") or (MH "telehealth") or (MH "telenursing")
S17.	S11 or S12 or S13 or S14 or S15 or S16

A.4.9 Rehabilitation assessment

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

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				published in English. Table 1 HEED Inception – 05/12/2014 Date of last search: 20/03/2015 (C) 24/03/2015 (HE) English only Exclusion filter applied in Medline, Embase and CINAHL

Medline search terms

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

Embase search terms

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

Cochrane search terms

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

#18.	((physiotherap* or physical next therap*) near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#19.	((occupational or speech) near/2 therap* near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#20.	(mental health near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#21.	(goal* near/2 set* near/6 (early or earlie* or time* or timing* or hour* or day* or rapid* or fast* or immediate* or initial* or soon* or quick* or prompt*)):ti,ab
#22.	((rehab* or habilitat*) near/1 (assess* or evaluat*)):ti,ab
#23.	{or #17-#22}
#24.	#16 and #23

CINAHL search terms

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

CRD search terms

#1.	<i>standard trauma population (see A.2.1)</i>
#2.	MeSH descriptor spinal injuries explode all trees

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

HEED search terms

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

13.	1 and 12
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A.4.10 Access to services – timing of airway management

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

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				Table 1 HEED Inception – 04/11/2014 Date of last search: 19/03/2015 (C) 23/03/2015 (HE) English only Exclusion filter applied in Medline and Embase

Medline search terms

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

Embase search terms

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

	earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
9.	((cricothyrot* or cricothyroidot* or thyrocricot* or inferior laryngot* or intercricothyro* or coniot*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
10.	or/3-9

Cochrane search terms

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

CRD search terms

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

	coniot*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))
#13.	(#6 or #7 or #8 or #9 or #10 or #11 or #12)

HEED search terms

1	AX=delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*
2	AX=intubat* or airway* or ventilat* or tracheal or endotracheal or supralaryngeal or supraglottic or laryngeal or guedel or oropharyngeal or nasopharyngeal or oesophageal or esophageal or perilaryngeal or pharyngeal or cricothyrot* or cricothyroidot* or thyrocricot* or intercricothyro* or coniot*
3	CS=1 and 2

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

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

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

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				<p>routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1</p> <p>HEED Inception – 15/11/2015</p> <p>Date of last search: 23/03/2015 (C) 24/03/2015 (HE)</p> <p>English only</p> <p>Exclusion filter applied in Medline and Embase</p>

Medline search terms

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

18.	spleen/in [injuries]
19.	liver/in [injuries]
20.	kidney/in [injuries]
21.	or/16-20
22.	1 and (11 or 15 or 21)
23.	((abdom* and (repack* or re-pack* or pack* or clos*)) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
24.	laparotomy/
25.	thoracotomy/
26.	time factors/
27.	(24 or 25) and 26
28.	((laparotom* or thoracotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
29.	27or 28
30.	radiology, interventional/ or embolization, therapeutic/ or radiography, interventional/
31.	stents/
32.	catheterization/ or balloon occlusion/ or catheterization, central venous/
33.	angiography/
34.	endovascular procedures/
35.	angioplasty/ or exp angioplasty, balloon/
36.	mechanical thrombolysis/
37.	portasystemic shunt, transjugular intrahepatic/
38.	or/30-37
39.	time factors/
40.	38 and 39
41.	((therapeutic* or vascular or surgical) adj3 ((radiolog* or radiogra*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))).ti,ab.
42.	(intervention* adj3 (radiolog* or radiogra* or therap* or treatment*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
43.	((embolization* or embolotherap* or stent* or gelfoam or gel foam* or spongstan or plug* or balloon* or amplatzer or mechanic* occlu* or thrombin* or embolic* or coil or coiling or microcoil* or particle*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
44.	((polyvinyl alcohol or pva or microsphere* or tagm or embosphere* or embozene or bead block* or quadra spheres or hydrogel or n-butyl cyanoacrylate or ethylene vinyl alcohol copolymer) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
45.	(gelatin adj2 sponge* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
46.	(percutaneous adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
47.	((catheter* or transcatheter* or microcatheter*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
48.	((minimally invasive or non-invasive or noninvasive) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
49.	((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) adj2 guided adj10

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

Embase search terms

1.	<i>standard major trauma population (see A.2.1)</i>
2.	exp *hypovolemia/ or *hemorrhagic shock/ or *traumatic shock/ or exp *bleeding/ or

	*exsanguination/
3.	(h?emorrhag* or hypovol?em* or shock or exsanguin* or olig?em* or hypoperfus*).ti,ab.
4.	(bleed* or bloodloss*).ti,ab.
5.	(blood* adj3 loss*).ti,ab.
6.	(coagulopath* or (abnormal* adj2 coagulation) or hyperfibrinolysis).ti,ab.
7.	*aorta rupture/
8.	*aorta injury/
9.	*blood vessel injury/
10.	((aort* or arter* or vessel*) adj3 (rupture* or disrupt* or injur* or trans#ct* or tear or torn or dissect*).ti,ab.
11.	((venous or arterial or vascular* or circulat*) adj3 (injur* or problem* or compromise*).ti,ab.
12.	or/2-11
13.	exp pelvis fracture/
14.	((pelvic or pelvis) adj3 (trauma* or injur* or rupture* or tear*).ti,ab.
15.	((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) adj3 (fracture* or break or breaks or broken or crack* or frx)).ti,ab.
16.	or/13-15
17.	*abdominal injury/ or *abdominal blunt trauma/ or *abdominal organ rupture/ or *abdominal penetrating trauma/ or *spleen injury/ or *digestive system injury/ or *digestive system perforation/ or *digestive system rupture/ or *liver injury/ or *stomach injury/ or *kidney injury/
18.	((abdomen or abdominal or stomach or splen* or spleen* or diaphragm* or gastric* or kidney* or renal or liver* or hepatic or organ*) adj3 (trauma* or injur* or rupture* or tear*).ti,ab.
19.	or/17-18
20.	1 and (12 or 16 or 19)
21.	((abdom* and (repack* or re-pack* or pack* or clos*)) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
22.	*laparotomy/
23.	*thoracotomy/
24.	*time/
25.	(22 or 23) and 24
26.	((laparotom* or thoracotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*).ti,ab.
27.	or/25-26
28.	*nonsurgical invasive therapy/ or exp *artificial embolism/ or *balloon dilatation/ or *interventional cardiovascular procedure/ or *interventional radiology/
29.	*catheterization/ or central venous catheterization/ or vein catheterization/ or blood vessel catheterization/ or *balloon embolectomy/ or exp *blood vessel catheterization/ or exp *endovascular surgery/ or *angiography/ or *arteriography/
30.	*stent/ or exp *cardiovascular stent/ or *metal stent/ or *nitinol stent/ or *plastic stent/ or *self expanding stent/
31.	angioplasty/ or patch angioplasty/
32.	transjugular intrahepatic portosystemic shunt/
33.	vascular access/
34.	blood clot lysis/

35.	or/28-34
36.	*time/
37.	35 and 36
38.	((therapeutic* or vascular or surgical) adj3 ((radiolog* or radiogra*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))).ti,ab.
39.	(intervention* adj3 (radiolog* or radiogra* or therap* or treatment*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
40.	((emboli?ation* or embolotherap* or stent* or gelfoam or gel foam* or spongstan or plug* or balloon* or amplatzer or mechanic* occlu* or thrombin* or embolic* or coil or coiling or microcoil* or particle*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
41.	((polyvinyl alcohol or pva or microsphere* or tagm or embosphere* or embozene or bead block* or quadra spheres or hydrogel or n-butyl cyanoacrylate or ethylene vinyl alcohol copolymer) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
42.	(gelatin adj2 sponge* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
43.	(percutaneous adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
44.	((catheter* or transcatheter* or microcatheter*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
45.	((minimally invasive or non-invasive or noninvasive) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
46.	((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) adj2 guided adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
47.	(arteriogra* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
48.	(angiogra* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
49.	(endovascular adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
50.	((portasystemic shunt* or tips) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
51.	((thrombolys* or angioplast*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
52.	((venous or vascular or intravascular) adj3 access adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
53.	(endovenous adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
54.	or/37-53
55.	exp *blood transfusion/
56.	*time/
57.	55 and 56
58.	((red blood cell* or rbc or blood or erythrocyte*) adj3 (therap* or transfus*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
59.	57 or 58
60.	*vascular surgery/ or exp *embolectomy/ or exp *thrombectomy/

61.	exp *blood vessel shunt/
62.	*debridement/
63.	or/60-62
64.	*time/
65.	63 and 64
66.	(vascular and ((repair* or intervention* or manage* or surg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))).ti,ab.
67.	((thrombectom* or fasciotom* or fasciectom* or embolectom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
68.	(shunt* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
69.	(debridement* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
70.	or/65-69
71.	21 or 27 or 54 or 59 or 70
72.	20 and 71

Cochrane search terms

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

#25.	MeSH descriptor: [spleen] this term only and with qualifier(s): [injuries - in]
#26.	MeSH descriptor: [liver] this term only and with qualifier(s): [injuries - in]
#27.	MeSH descriptor: [kidney] this term only and with qualifier(s): [injuries - in]
#28.	((abdomen or abdominal or stomach or splen* or spleen* or diaphragm* or gastric* or kidney* or renal or liver* or hepatic or organ*) near/3 (trauma* or injur* or rupture* or tear*)):ti,ab
#29.	{or #24-#28}
#30.	#17 or #23 or #29
#31.	#1 and #30
#32.	((abdom* and (repack* or re-pack* or pack* or clos*)) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#33.	MeSH descriptor: [laparotomy] this term only
#34.	MeSH descriptor: [thoracotomy] this term only
#35.	#33 or #34
#36.	MeSH descriptor: [time factors] this term only
#37.	#35 and #36
#38.	((laparotom* or thoracotom*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#39.	#37 or #38
#40.	MeSH descriptor: [radiology, interventional] this term only
#41.	MeSH descriptor: [embolization, therapeutic] this term only
#42.	MeSH descriptor: [radiography, interventional] this term only
#43.	MeSH descriptor: [stents] this term only
#44.	MeSH descriptor: [catheterization] this term only
#45.	MeSH descriptor: [balloon occlusion] this term only
#46.	MeSH descriptor: [angioplasty] this term only
#47.	MeSH descriptor: [angioplasty, balloon] 3 tree(s) exploded
#48.	MeSH descriptor: [catheterization, central venous] this term only
#49.	MeSH descriptor: [angiography] this term only
#50.	MeSH descriptor: [endovascular procedures] this term only
#51.	MeSH descriptor: [mechanical thrombolysis] this term only
#52.	MeSH descriptor: [portasystemic shunt, transjugular intrahepatic] this term only
#53.	{or #40-#52}
#54.	MeSH descriptor: [time factors] this term only
#55.	#53 and #54
#56.	((therapeutic* or vascular or surgical) and ((radiolog* or radiogra*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#57.	((therapeutic* or vascular or surgical) near/3 ((radiolog* or radiogra*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#58.	((emboli?ation* or embolotherap* or stent* or gelfoam or gel next foam* or spongstan or plug* or balloon* or amplatzer or thrombin* or embolic* or coil or coiling or microcoil* or particle*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#59.	((polyvinyl alcohol or pva or microsphere* or tagm or embosphere* or embozene or bead block* or quadra spheres or hydrogel or n-butyl cyanoacrylate or ethylene vinyl alcohol copolymer) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or

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

#92.	(vascular and (repair* or intervention* or manage* or surg*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#93.	((thrombectom* or fasciotom* or fasciectom* or embolectom*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#94.	(shunt* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#95.	(debridement* near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab
#96.	{or #91-#95}
#97.	#32 or #39 or #72 or #81 or #96
#98.	#31 and #97

CRD search terms

#1.	<i>standard major trauma population (see A.2.1)</i>
#2.	MeSH descriptor hemorrhage
#3.	MeSH descriptor exsanguination
#4.	MeSH descriptor shock
#5.	MeSH descriptor shock, hemorrhagic
#6.	MeSH descriptor shock, traumatic
#7.	MeSH descriptor hypovolemia
#8.	((hypovol?em* or shock or exsanguin* or olig?em* or h?emorrhag* or bleed* or hypoperfus*))
#9.	((coagulopath* or hyperfibrinolysis))
#10.	((abnormal* near2 coagulation))
#11.	((bleed* or bloodloss*))
#12.	((blood* near3 loss*))
#13.	(#2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12)
#14.	MeSH descriptor pelvic bones
#15.	MeSH descriptor fractures, bone
#16.	(#14 and #15)
#17.	((((pelvic or pelvis) near3 (trauma* or injur* or rupture* or tear*)))
#18.	((((pelvi* or ilium or ischium or pubis or pubic or hip bone or sacrum or coccyx or innominate or coxal or duverney or iliac wing or acetabul* or cotyloid) near3 (fracture* or break or breaks or broken or crack* or frx)))
#19.	((#16 or #17 or #18))
#20.	MeSH descriptor abdominal injuries
#21.	MeSH descriptor spleen with qualifier in
#22.	MeSH descriptor liver with qualifier in
#23.	MeSH descriptor kidney with qualifier in
#24.	((((abdomen or abdominal or stomach or splen* or diaphragm* or gastric*) near3 (trauma* or injur* or rupture* or tear*)))
#25.	((((spleen* or kidney* or renal or liver* or hepatic or organ*) near3 (trauma* or injur* or rupture* or tear*)))
#26.	((#20 or #21 or #22 or #23 or #24 or #25))
#27.	(#1 and (#13 or #19 or #26))
#28.	((((abdom*) and (repack* or re-pack* or pack* or clos*) near10 (delay* or time* or timing* or

	hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)))
#29.	MeSH descriptor laparotomy
#30.	MeSH descriptor thoracotomy
#31.	MeSH descriptor time factors
#32.	(#31 and (#29 or #30))
#33.	((laparotom* or thoracotom*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)))
#34.	((#32 or #33))
#35.	MeSH descriptor radiology, interventional
#36.	MeSH descriptor embolization, therapeutic
#37.	MeSH descriptor radiography, interventional
#38.	MeSH descriptor stents
#39.	MeSH descriptor catheterization
#40.	MeSH descriptor balloon occlusion
#41.	MeSH descriptor catheterization, central venous
#42.	MeSH descriptor angiography
#43.	MeSH descriptor endovascular procedures
#44.	MeSH descriptor angioplasty
#45.	MeSH descriptor angioplasty, balloon explode all trees
#46.	MeSH descriptor mechanical thrombolysis
#47.	MeSH descriptor portasystemic shunt, transjugular intrahepatic
#48.	MeSH descriptor time factors
#49.	(#48 and (#35 or #36 or #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45 or #46 or #47))
#50.	((((therapeutic* or vascular or surgical) and (radiolog* or radiogra*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#51.	((((intervention*) near3 (radiolog* or radiogra* or therap* or treatment*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#52.	((((embolization* or embolotherapy or stent* or gelfoam or gel foam* or spongstan or plug* or balloon* or amplatzer or mechanic* occlu* or thrombin* or embolic* or coil or coiling or microcoil* or particle*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#53.	((((polyvinyl alcohol or pva or microsphere* or tagm or embosphere* or embozene or bead block* or quadra spheres or hydrogel or n-butyl cyanoacrylate or ethylene vinyl alcohol copolymer) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#54.	((((gelatin near2 sponge*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#55.	((((percutaneous) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#56.	((((catheter* or transcatheter* or microcatheter*) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#57.	((((minimally invasive or non-invasive or noninvasive) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))
#58.	(((((ct or ultrasound* or image or tomography or mdct or us or fluoroscop*) near2 (guided) near10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*))))))

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

#90.	((#28 or #34 or #67 or #75 or #89))
#91.	(#27 and #90)

HEED search terms

1.	<i>standard major trauma population (see A.2.1)</i>
2.	AX=delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*
3.	CS=1 and 2
4.	AX=vascular
5.	AX=repair* or intervention* or manage* or surg*
6.	CS=4 and 5
7.	AX=therapeutic* or vascular or surgical
8.	AX=radiolog* or radiogra*
9.	CS=7 and 8
10.	AX=intervention*
11.	AX=radiolog* or radiogra* or therap* or treatment*
12.	CS=10 and 11
13.	AX='minimally invasive'
14.	AX= 'non invasive'
15.	AX=noninvasive or endovascular
16.	CS=13 or 14 or 15
17.	AX=thrombectom* or fasciotom* or fasciectom* or embolectom* or shunt* or debridement
18.	AX=blood and transfusion
19.	AX=Laparotom* or Thoracotom*
20.	CS=6 or 9 or 12 or 16 or 17 or 18 or 19
21.	CS=3 and 20

A.4.12 Access to services – timing of neurosurgery

- What is the optimal timing of neurosurgery?

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

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Head injuries	Delay to neurosurgery	n/a	No filters were added for the clinical searches. The same search was run for the health economics using the following filters in Medline and Embase only: HE, MOD	See Search strategies used for major trauma services guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012.1 Final searches

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
				<p>were run up between 19th March and 31 March 2015 (see individual questions for exact date). Any studies added to the databases after this date (even if they were published prior to this date) were not included unless specifically stated in the text. We do not routinely search for electronic, ahead of print or 'online early' publications. Where possible searches were limited to retrieve material published in English.</p> <p>Table 1 HEED Inception – 05/11/2014 Date of last search: 19/12/2014 (C) 31/03/2015 (HE) English only Exclusion filter applied in Medline and Embase</p>

Medline search terms

1.	craniocerebral trauma/ or exp brain injuries/ or exp head injuries, closed/ or head injuries, penetrating/ or exp skull fractures/
2.	exp intracranial hemorrhage, traumatic/
3.	((head or brain) adj3 (injur* or trauma)).ti,ab.
4.	(skull adj3 fracture*).ti,ab.
5.	or/1-4
6.	neurosurgery/

7.	critical care/
8.	intensive care/
9.	exp decompression, surgical/ or decompressive craniectomy/
10.	exp neurosurgical procedures/
11.	or/6-10
12.	craniocerebral trauma/su [surgery]
13.	exp brain injuries/su [surgery]
14.	exp head injuries, closed/su [surgery]
15.	head injuries, penetrating/su [surgery]
16.	exp intracranial hemorrhage, traumatic/su [surgery]
17.	exp skull fractures/su [surgery]
18.	or/12-17
19.	time factors/
20.	(11 or 18) and 19
21.	(((((tertiary or specialist* or trauma or neuro-intensive or neurocritical or neuro-critical) adj (centre or centres or service* or care)) or neurosurg* or intensive care or icu or critical care) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
22.	(cerebrospinal fluid adj3 (diversion or drain* or surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
23.	((neuromonitor* or neuro-monitor*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
24.	(decompress* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
25.	((craniectom* or craniotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
26.	(intracranial pressure adj4 (surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
27.	((hematoma* or haematoma* or surg* or neurosurg*) adj4 (evacuat* or drain*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)).ti,ab.
28.	or/21-27
29.	5 and (20 or 28)

Embase search terms

1.	head injury/ or exp brain injury/
2.	skull injury/ or exp skull fracture/
3.	((head or brain) adj3 (injur* or trauma)).ti,ab.
4.	(skull adj3 fracture*).ti,ab.
5.	or/1-4
6.	neurosurgery/
7.	exp neurosurgery/
8.	neurosurgeon/
9.	intensive care/
10.	or/6-9
11.	head injury/su [surgery]
12.	exp brain injury/su [surgery]

13.	exp skull injury/su [surgery]
14.	exp skull fracture/su [surgery]
15.	or/11-14
16.	time/
17.	(10 or 15) and 16
18.	(((tertiary or specialist* or trauma or neuro-intensive or neurocritical or neuro-critical) adj (centre or centres or service* or care)) or neurosurg* or intensive care or icu or critical care) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
19.	(cerebrospinal fluid adj3 (diversion or drain* or surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
20.	((neuromonitor* or neuro-monitor*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
21.	(decompress* adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
22.	((craniectom* or craniotom*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
23.	(intracranial pressure adj4 (surg* or neurosurg*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
24.	((hematoma* or haematoma* or surg* or neurosurg*) adj4 (evacuat* or drain*) adj10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)):ti,ab.
25.	or/ 18-24
26.	5 and (17 or 25)

Cochrane search terms

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

#20.	((decompress* next (craniectom* or craniotom* or surg* or neuro*)) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)) .ti,ab.
#21.	((cerebrospinal fluid near/3 (diversion or drain* or surg* or neurosurg*)) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)) .ti,ab.
#22.	((intracranial pressure near/4 surg*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)) .ti,ab.
#23.	((hematoma* or haematoma*) near/4 evacuat*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)) .ti,ab.
#24.	((neuromonitor* or neuro-monitor*) near/10 (delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)) .ti,ab.
#25.	{or #19-#24}
#26.	#9 and (#18 or #25)

CRD search terms

#1.	MeSH descriptor craniocerebral trauma
#2.	MeSH descriptor brain injuries explode all trees
#3.	MeSH descriptor head injuries, closed explode all trees
#4.	MeSH descriptor head injuries, penetrating
#5.	MeSH descriptor skull fractures explode all trees
#6.	MeSH descriptor intracranial hemorrhage, traumatic explode all trees
#7.	((head or brain) adj3 (injur* or trauma))
#8.	(skull adj3 fracture*)
#9.	(#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8)
#10.	MeSH descriptor neurosurgery
#11.	MeSH descriptor critical care
#12.	MeSH descriptor intensive care
#13.	MeSH descriptor decompression, surgical explode all trees
#14.	MeSH descriptor decompressive craniectomy
#15.	MeSH descriptor neurosurgical procedures explode all trees
#16.	(#10 or #11 or #12 or #13 or #14 or #15)
#17.	MeSH descriptor craniocerebral trauma with qualifier su
#18.	MeSH descriptor brain injuries explode all trees with qualifier su
#19.	MeSH descriptor head injuries, closed explode all trees with qualifier su
#20.	MeSH descriptor head injuries, penetrating explode all trees with qualifier su
#21.	MeSH descriptor intracranial hemorrhage, traumatic explode all trees with qualifier su
#22.	MeSH descriptor skull fractures explode all trees with qualifier su
#23.	(#17 or #18 or #19 or #20 or #21 or #22)
#24.	MeSH descriptor time factors
#25.	(#16 or #23)
#26.	(#24 and #25)
#27.	((tertiary or specialist* or trauma or neuro-intensive or neurocritical or neuro-critical) adj (centre or centres or service* or care))
#28.	(neurosurg* or intensive care or icu or critical care)
#29.	(neuromonitor* or neuro-monitor*)

#30.	(craniectom* or craniotom*)
#31.	((intracranial pressure) adj4 (surg* or neurosurg*))
#32.	((hematoma* or haematoma* or surg* or neurosurg*) adj4 (evacuat* or drain*))
#33.	(decompress*)
#34.	((cerebrospinal fluid) adj3 (diversion or drain* or surg* or neurosurg*))
#35.	(#27 or #28 or #29 or #30 or #31 or #32 or #33 or #34)
#36.	(delay* or time* or timing* or hour* or minute* or early or earliest or earlier or immediat* or prompt or rapid or late*)
#37.	#35 and #36
#38.	#26 or #37
#39.	#9 and #38

HEED search terms

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

A.5 Health economics search

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

A.6 References

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