Major trauma

Consultation on draft guideline
Stakeholder comments table

07/08/15 to 21/09/15

Comments forms with attachments such as research articles, letters or leaflets cannot be accepted.

ID	Stakeholder	Document	Page No	Line No	Comments Please insert each new comment in a new row	Developer's response Please respond to each comment
1	Association of ambulance chief executives	Short	4	7	We accept that RSI is the gold standard but RSI is not commonly available to most major trauma patients in ambulance services, without specifically trained and tasked medics.	Thank you for your comment. The Major Trauma and Service delivery guideline development groups extensively discussed the available evidence, including the quality, for all of the airway recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 6 of the Major trauma guideline and chapter 17 of the Major Trauma Service delivery guideline). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits

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						and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). The recommendations regarding airway management reflect the guideline development groups desire to drive a change in practice in terms of only diverting to a trauma unit if necessary, as it is widely accepted that major trauma patients should be treated in a major trauma centre. Patients who are identified as requiring RSI should have a team capable of delivering this arrive on scene to perform this (implementation issues aside). This recommendation has been edited and the time is now 45 minutes. If a patent airway cannot be maintained either through failed RSI or more basic methods then the patient would be taken to a trauma unit which would be a journey of less than 60 minutes in the majority of cases. The guideline development group felt that their recommendations, if appropriately implemented, will improve the availability of highly trained individuals who can perform RSI, but also have included enough flexibility within the wording of the recommendations to allow clinicians to use their judgement in individual situations. This recommendation has been edited to make it clear. The only reason to divert to a trauma unit is if a patent airway cannot be maintained. In the linking evidence to recommendation section the resource impact of this

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						recommendation is discussed. The resource impact of this intervention depends on a number of factors including training to improve who is dispatched to a major trauma, other interventions that can be delivered by the team and other patient groups who will benefit from the greater availability of these teams i.e. non-traumatic cardiac arrest. In addition, It is noted that local circumstances will need to be considered. The GDG considered that the benefits of providing RSI at the scene outweighed the resource implications. In addition, the Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
2	Association of ambulance chief executives	Short	5	24	Re. occlusive dressings, can it be made clear whether the dressing should be sealed on all 4 sides and whether the occlusive dressing is meant to be airtight?	Thank you for your comment. The linking evidence to recommendation has been edited to provide more detail.
3	Association of ambulance chief executives	Full	51	13	Re. simple dressing-concerns re. injuries to areas such as neck, groin, with life threatening bleeding as simple pressure dressing are difficult to apply and may not be effective at haemorrhage control, so should there be exception for haemostatic dressings in these cases	Thank you for your comment. The guideline development group confirmed that with correct training it is possible to apply a simple dressing to the neck and groin and that no recommendation could be made on the use of haemostatic dressings in the absence of evidence.
4	Association of ambulance chief executives	Full	51	16	Re. applying pelvic binder-concern re. need for early application, particularly young, fit healthy people, who may not have developed signs of shock but there is a strong suspicion or mechanics suggestive of pelvic injury-we recommend application of pelvic splint based on clinical on scene assessment. It would be detrimental to not apply and then have to apply in transit if the patient then deteriorated.	Thank you for your comment. The recommendation has been edited and states that a pelvic binder should be applied to a patient with suspected active bleeding from a pelvic fracture following blunt high-energy trauma which is consistent with your suggestion. This has been changed to enable a pelvic binder to be applied based

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						on clinical signs or mechanism of injury but only if active bleeding is suspected.
5	Association of ambulance chief executives	Full	53	40	Concern over use of intranasal morphine in children re. absorption rates and dose	Thank you for your comment. This recommendation has been edited and now refers to atomised delivery. The costings for these interventions included an atomisation device for intranasal delivery of analgesia.
6	Barts Health NHS Trust	Full	107	3	Term Ultrasound is used for children as opposed to eFAST for adults. In the considerations section it states: Although US is the equipment that is also used to undertake FAST/eFAST, FAST/eFAST is usually carried out by a member of the trauma team, rather than a sonographer or radiographer who would usually carry out an US. For adults, eFAST, to look for fluid in the chest and abdomen, would be the modality used in the ED by the trauma team. However, for children, the term used in the recommendation is as as in the child population this modality would most likely be undertaken by a sonographer or radiographer. Is the intention/implication that all paediatric chest trauma requiring ultrasound will need sonographers/radiographers available? If so this will require appropriate training and resources. Also in our institution evaluation of paediatric blunt trauma with ultrasound is usually performed by a radiologist (nature of trauma being out of hours etc) which also impacts on resources. Clarification on who does the scan and also more importantly what the blunt paediatric chest trauma ultrasound should involve would be helpful (eg looking for diaphragmatic rupture, haemothorax, pneumothorax,pericardial fluid). Also although it is very important to rationalise use of CT in the paediatric patient, if the CXR is abnormal and the mechanism or clinical parameters of the patient justify the use of CT, then the role of ultrasound is limited.	Thank you for your comment. The guideline development group confirmed that the term ultrasound is correct for children and this is explained in the linking evidence to recommendation section. The guideline development group confirmed that all paediatric chest trauma requiring ultrasound will need a sonographer or radiologist available. We acknowledge that this may have an impact on resources. However trauma in children is particularly rare, and the optimal destination for trauma patients should be a major trauma centre, which operates 24/7 and at minimum have the appropriate staff on call out of hours The evidence review was not on how ultrasound should be performed and therefore no recommendation can be made on this. Drawing on the evidence and their experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. A strong recommendation, for

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						example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see developing NICE guidelines: the manual (2012) (Chapter 9).
7	Barts Health NHS Trust	Full	202		"The radiation dose alone is, therefore, a valid reason to limit the amount of trauma call patients with low ISS scores routinely undergoing CT scans. Furthermore, the radiologist and countersigning radiologist are also given a substantial extra workload examining the CT scans." Not all trauma scans are double reported. In our institution as an MTC, scans will often be initially reported by a trauma trained registrar and countersigned by a Consultant. There is currently no need or justification for all trauma scans to be double reported. Would have major resource implications if that were the case.	Thank you for your comment. This sentence has been removed.
8	Barts Health NHS Trust	Full	221		"In current specifications for MTCs there must be access to surgery within 30 minutes and interventional radiology within 60 minutes. The GDG believe that interventional radiology should also be available within 30 minutes. The patient shouldn't be disadvantaged by the modality of definitive intervention. The GDG recognised that delivering interventional radiology treatment within 30 minutes of identification of the need for treatment would require pre-alert systems for interventional radiology teams in many MTCs. " To achieve this aim of IR being available within 30 minutes would require major resource review. Specifically out of hours there would simply have to be a dedicated on site oncall team for Interventional Radiology to achieve this aim.	Thank you for your comment. The guideline development group extensively discussed the available evidence, including the quality, for all of the recommendations on interventional radiology and their discussions are captured in the 'Linking evidence to recommendation' section11.5.6. The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for interventional radiology and this is reflected

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						in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). This guideline should be read alongside the Major Trauma: service delivery guidance. We have identified this recommendation as having an impact on services (see appendix in the short guideline on major trauma: service delivery) and the The GDG acknowledged that there will be resource implications around this recommendation. And agreed that as the population eligible for interventional radiology is small, it may not be cost effective to have a dedicated team on site and suggested alternatives of a pre-alert system so on call staff could arrive sooner, or other members of staff setting up the interventional radiology suite. The GDG felt that earlier access to interventional radiology would help improve outcomes and therefore the benefit was likely to justify the cost. Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards**.**

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9	Barts Health NHS Trust	Short	7	11	use of Tranexamic acid in children**.** It is included in our PMH protocols at 15mg/kg up to max of 1G. Commonly used in paediatric spinal and neurosurgery	Thank you for your comment.
10	Barts Health NHS Trust	Short	10	4	should it state .....and "change to a protocol, guided by near side (ROTEM) and laboratory coagulation results"	Thank you for your comment. In the absence of evidence the guideline development group made a research recommendation on ROTEM.
11	Barts Health NHS Trust	Short	10	13	be aware that an absence of fluid on fast does not exclude significant haemorrhage in children, particularly the smaller child	Thank you for your comment. The recommendation is for children and adults. We have amended the linking evidence to recommendation section to highlight this is particular an issue in small children.
12	Barts Health NHS Trust	Short	11	1	imaging in children should follow recent RCoR recently updated guidelines (2014)	Thank you for your comment. The guideline development group have made recommendations on imaging in children for the topics identified in the scope and in accordance with the Developing NICE guidelines: the manual (2012).
13	Barts Health NHS Trust	Short	11	27	should there be more emphasis on techniques for minimising heat loss-esp for the non anaesthetist?	Thank you for your comment. The guideline development group confirmed that in the absence of evidence they could not make a recommendation on what techniques should be used to minimise heat loss. A research recommendation has been made on this topic.
14	Barts Health NHS Trust	Short	12	15	note the subtext on intranasal routes of analgesia in children. There are well described protocols on the administration of intranasal diamorphine in children. (Trust protocol available)	Thank you for your comment.
15	Barts Health NHS Trust	Short	14	3	the pre-hospital documentation, inc the recorded pre alert info, should be available to the trauma team **on screen if available** and placed in pt notes. (Adult or Paed)	Thank you for your comment. This has been added to the linking evidence to recommendation section of Major trauma: service delivery.
16	Barts Health NHS Trust	Short	14	13	this should specifically include "a brief theatre handover from transferring ED team" if pts journey has been expedited from ED? (Adult or Paed)	Thank you for your comment. This has been added to the linking evidence to recommendation section.
17	Barts Health NHS Trust	Short	15	19	Ensure safety of environment prior to inviting relatives into the resuscitation roon	Thank you for your comment. This point is covered in the linking evidence to recommendation section.

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18	Barts Health NHS Trust	Full	50	5	Clarify understanding of the term 'rapid sequence induction' as it is about to be removed from new Difficult Airway Society guidelines. The term is open to wide variations of interpretation	Thank you for your comment. The guideline development group confirmed that the term rapid sequence induction is the correct term to use as it is globally used and is common use in the Uk. The term has been defined in the glossary in order to ensure that there is no confusion about what is meant by the term as it used in this guideline.
19	Barts Health NHS Trust	Full	50	8	Prepare early for surgical airway ie kit and expert help	Thank you for your comment. The importance of early identification and the need to prepare early for an intervention has been added into the other considerations section of the linking evidence to recommendation section 6.6 of the full guideline.
20	Barts Health NHS Trust	Full	53	22	Ensure that IR services allow for pelvic embolisation to occur safely	Thank you for your comment. The guideline development group agree and have made a specific recommendation that all staff have the training and skills to deliver the interventions in the NICE trauma guidelines.
21	Barts Health NHS Trust	Full	54	41	Specify the length of time the scribe is committed to the case eg 'until documentation is formally handed over'	Thank you for your comment. This recommendation has been edited and now refers to a dedicated scribe who records findings and interventions contemporaneously.
22	Barts Health NHS Trust	Full	59	2	These drugs are not commonly first choice in this group of patients	Thank you for your comment. This has been amended and now includes Ketamine as the anaesthetic and Rocuronium as the muscle relaxant.
23	Barts Health NHS Trust	Full	63		Attempts to intubate the trachea should be limited in time and number to avoid the potential for hypoxic insult	Thank you for your comment. The evidence review did not include how to perform RSI. There are recommendations in Major trauma: service delivery specifying that people need to be trained and competent to deliver the interventions referred to in the recommendations.

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24	Barts Health NHS Trust	Full	117		Need more clarity as to who would benefit from application of tourniquet	Thank you for your comment. The guideline development group confirmed that the current wording of the recommendation clearly indicates that a tourniquet should be used in people with major limb trauma and life threatening haemorrhage when direct pressure has failed.
25	Barts Health NHS Trust	Full	178	11	We feel this should recommend avoidance of crystalloid. However, to categorically state that crystalloid should NOT be given in hospital at all is impractical. Research quality is low	Thank you for your comment. This recommendation is from the NICE guideline on intravenous fluid therapy in adults in hospital.
25 A	Barts Health NHS Trust	Full	186	12	More emphasis on patient warming	Thank you for your comment. A recommendation has been made to limit heat loss but in the absence of evidence the guideline development group were unable to make any additional recommendations on this topic. A research recommendation has been made on this topic.
25 B	Barts Health NHS Trust	Full	211	11	Anaesthetist of what grade is recommended for damage limitation procedures? Suggest experience is specified	Thank you for your comment. There is a recommendation in the Major Trauma: Service delivery guideline that all staff have the training and skills to deliver, safely and effectively, the interventions specified in the guideline and it outside of our remit to specify the grade of anaesthetist.
25 C	Barts Health NHS Trust	Full	217	28	Ensure that appropriate resuscitation facilities are available in the IR suite	Thank you for your comment. We have added your suggestion to the linking evidence to recommendation section.
25 D	Barts Health NHS Trust	Full	249	5	24/7 dedicated, specialist pain service	Thank you for your comment. The scope of this guideline was the immediate management of trauma and therefore the initial management of pain. We have edited the linking evidence to recommendation section to highlight the important of referring patients for on-going management if appropriate.
26	British Association for Immediate Care (BASICS)	Full	60	7	Point 3: Clinically this is ideal, but will be challenging in practice especially in rural areas and will require significantly increased funding for the expansion of prehospital RSI teams. A competent RSI team (rather than one individual doctor) is required for RSI,	Thank you for your comment. The linking evidence to recommendation section describes what is required to deliver RSI and we have edited it to make it clear that a

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					this should be emphasised and is in accordance with national anaesthesia guidelines (AAGBI).	team is required. In the linking evidence to recommendation section the resource impact of this recommendation is discussed. In summary, the resource impact of this intervention depends on a number of factors including training to improve who is dispatched to a major trauma, other interventions that can be delivered by the team and other patient groups who will benefit from the greater availability of these teams i.e. non-traumatic cardiac arrest. In addition, It is noted that local circumstances will need to be considered. The GDG considered that the benefits of providing RSI at the scene outweighed the resource implications. The Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
27	British Association for Immediate Care (BASICS)	Full	74	6	Point 9: Clarity is needed if this is only an option for a patient on positive pressure ventilation e.g. post-intubation, or if the recommendation is for open thoracostomy then managed as an open pneumothorax in spontaneously breathing patients.	Thank you for your comment. This has been clarified in the recommendation.
28	British Association for Immediate Care (BASICS)	Full	77	19	Standard teaching is to use a vented dressing, in the absence of any evidence; clarity is needed on the rationale for an occlusive dressing.	Thank you for your comment. The guideline development group confirmed that in the absence of evidence they were not able to recommend any particular type of dressing over another and felt that the simplicity and cost effectiveness of using a simple airtight occlusive dressing (whilst anticipating and checking for the development of a tension pneumothorax) would promote rapid movement towards transporting the patient to an appropriate hospital. The linking evidence to recommendation section has been edited to make this point clearer.
29	British Association for	Full	113	14	Recommendation 18: Question: should a stepwise approach be	Thank you for your comment. The guideline

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	Immediate Care (BASICS)				considered for external haemorrhage, where simple dressings with direct pressure fail to control bleeding, haemostatic dressings could be an advanced intervention or used by more specialist teams? Burns from haemostatic dressings are mentioned, but current haemostatic dressings do not have this complication.	development group confirmed that they were unable to make a recommendation on the use of haemostatic dressings in the absence of evidence. We have removed the reference to burns in the LETR.
30	British Association for Immediate Care (BASICS)	Full	123	3	Question: should a pelvic binder be considered in a patient who remains stable, but has a high mechanism of injury with signs of a pelvic fracture and needs significant movement?	Thank you for your comment. The guideline development group confirmed that a pelvic binder should only be applied if there is suspected active bleeding (the recommendation has been edited) from a pelvic fracture following blunt high-energy trauma. The use of the term suspected covers the point you raise that it is not possible accurately confirm active bleeding in the pre-hospital environment. The guideline development group confirmed that the only indication for applying a pelvic binder is in the patient with suspected bleeding and for any other reason. The justification for this recommendation is in the linking evidence to recommendation section.
31	British Association for Immediate Care (BASICS)	Full	135	23	Question: can the degree of bleeding be quantified in relation to the need for tranexamic acid?	Thank you for your comment. The recommendation is for patients with active or suspected bleeding and therefore the degree of bleeding should not be specified.
32	British Association for Immediate Care (BASICS)	Full	167	34	Question: can there be clarity on the use of a central pulse being lost before fluid resuscitation is commenced for both blunt and penetrating trauma cases? Palpability of central pulses can be difficult especially in moving vehicles in the prehospital phase.	Thank you for your comment. The guideline development group confirmed that a central pulse is easier to palpate than a radial pulse. This is discussed in the linking evidence to recommendation section 10.7.6.
33	British Association for Immediate Care (BASICS)	Full	159	32	Question: is there any recommendation on the number of peripheral IV access attempts before IO is used in adults?	Thank you for your comment. The review question did not include the evaluation of evidence to inform a recommendation on the number of attempts that should be made.

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34	British Association for Immediate Care (BASICS)	Full	261	29	Question: should there be reordering of recommendations 66-69, as many major trauma patients are haemodynamically unstable (or rewording of recommendation 68 to clarify this), in which case ketamine would be the first line agent e.g. recommendation 66, 69, 68, 67?	Thank you for your comment. The guideline development group were in clear agreement that the evidence supported the use of morphine as a first line agent. All intravenous analgesia should be delivered cautiously in patients who are actively bleeding. The guideline development group did not find evidence supporting the use of analgesic doses of ketamine as first line in this population. The recommendation on hypovolemic shock has been removed. Thank you for your comment. The recommendations on pain were extensively discussed by the Major trauma, spinal injuries and complex fractures guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 14 of the Major trauma guideline). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of different analgesia. Drawing on the evidence and their experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of

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						recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). The guideline development group noted the paucity of evidence in this area and suggested there should be further research on comparing morphine and ketamine as the first line agent in patients with major trauma.
35	British Association for Immediate Care (BASICS)	Full	275	81	Question: Could the GP be informed at the first available time after admission as they may have important information to share with the trauma team and could put additional support for the family in place at an early stage?	Thank you for your comment. This recommendation has been edited to address your point.
36	British Association for Immediate Care (BASICS)	Full	General	General	Comment: there is generally a low or no level of evidence for many prehospital interventions. The Major Trauma Guideline has provided stronger guidance in some area with little evidence e.g. aim for 30 minutes to prehospital RSI than others e.g. pelvic binders or haemorrhage where in some cases the intervention may still be of clinical benefit or could be used by specialist teams.	Thank you for your comment. The guideline development group extensively discussed the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections throughout the guideline. The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual

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						(2012) (Chapter 9).
37	British Association for Immediate Care (BASICS)	Full	General	General	Overall BASICS welcomes this evidence-based approach to progressing major trauma clinical management.	Thank you for your comment.
240	British Association of Paediatric Surgeons (BAPS)	General	General		Thank you for requesting feedback from the British Association of Paediatric Surgeons (BAPS) on these two draft documents commissioned by the National Institute for Health and Care excellence and written by the National Clinical Guideline Centre. The documents cover adults, young people and children who present with a suspected major traumatic injury with a full literature search, critical appraisal and evidence review for a series of questions. Team members represented Paediatric Emergency Medicine, Anaesthetics, Nursing Radiology, Paediatric Intensive Care, Emergency Medicine, Psychiatry, Trauma & Orthopaedics, Neurosurgery, the Ambulance Service and Patients – but it is notable there was no Paediatric Surgical representation. In general the guidelines are to be highly commended and reflect a significant workload. The lay out with a series of questions followed by a dissection of the evidence is clear and very helpful in identifying where current clinical practise has a strong or weak basis.	Thank you for your comment. As noted the composition of the guideline development groups and the project executive team across the five trauma guidelines included many disciplines and within the disciplines different specialities. It is impossible to have the representation of all specialities on a guideline and in the scoping phase the stakeholders identified the specific disciplines and specialities for recruitment to the groups. All the guideline development groups either had members or access to expert clinicians with extensive experience in paediatric trauma and we are confident that the role of the paediatric surgeon and the impact of these recommendations were considered.
241	British Association of Paediatric Surgeons (BAPS)	General	General		*Major trauma: assessment & initial management* In this document 95 recommendations are made of which 11 mention children. No 16. Consider chest X-ray and/or ultrasound for first-line imaging to assess chest trauma in children No 17. Do not routinely use CT for first line imaging to assess chest trauma in children No 22. Consider an improvised pelvic binder in children with haemodynamic instability and suspected pelvic fractures following blunt high energy trauma if they are too small to fit a purpose made pelvic binder No 30. Consult a haematologist immediately for advice on children with major trauma who have active bleeding and may	Thank you for your comment.

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					need reversal of any anticoagulant agent No 35. For circulatory access in children with major trauma, consider intra-osseous access as first line access if peripheral access is anticipated to be difficult No 44. For children use a ratio of 1 part plasma to1 *(need to add a space)* part red blood cells, and base the volume on the child's weight No 45. Hospital trusts should have specific major haemorrhage protocols for adults and children No 54. Do not routinely use whole-body CT to image children. Use clinical judgement to limit CT to the body areas where assessment is needed No 88. For a child or vulnerable adult with major trauma, enable their parents or carers to remain within eyesight if appropriate No 89. Work with family members or carers of children and vulnerable adults to provide information and support. Take into account the age, developmental stage and cognitive function of the child or vulnerable adult No 90. Include siblings of a child with major trauma when offering support to family members or carers Comment We support these recommendations.	
39	British Committee of Standards for Haematology (BCSH)	Full	General	General	The term 'blood products' is used throughout this guideline, but when referring to red cells, platelets, FFP and cryo, the term 'blood components' should be used.	Thank you for your comment. The terms blood products and blood components have been added to the glossary. We have replaced the term blood products with blood components where we refer to a therapeutic component of human blood (red cells, white cells, platelets, plasma and cryoprecipitate).
40	British Committee of Standards for Haematology (BCSH)	Full	51	31	"without waiting for hospital lab results…" same goes for table on pg 142	Thank you for your comment. This has been added to the linking evidence to recommendation section but the guideline development group agreed that the use of the word immediately in the recommendation indicated that it was not necessary to wait for laboratory results.
41	British Committee of	Full	125	Section	There are recommendations for use of tranexamic acid but	Thank you for your comment. The guideline

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	Standards for Haematology (BCSH)			10.3 Haemostatic agents	should there also be a recommendation NOT to use FVIIa Also consider a recommendation that PCC should only to be used to reverse oral anticoagulants as highlighted in 10.4 and PCCs should not be used outside this clinical context unless as part of a research trial	development group confirmed that there was insufficient evidence to make a 'do not; recommendation for FVIIa. The guideline development group confirmed that recommendations on the use of PCC were clear on when they should be used.
42	British Committee of Standards for Haematology (BCSH)	Full	137	10.4 Warfarin reversal	In addition to PCC, protocols should also include the use of of vit K in patients on anticoagulants who are bleeding – PCC effects a transient reversal with vit K needed for a more sustained reversal – important if patient has major haemorrhage	Thank you for your comment. This has been added to the linking evidence to recommendation section.
43	British Committee of Standards for Haematology (BCSH)	Full	182	10.8 and 11 Assessment & management of and control of haemorrhage	The guidance for use of 1:1FFP to RBCs is clear with recommendation that should use an initial fixed ratio and then move to a lab guided protocol; However there is no clear guidance on use of of other components Consider inclusion of guidance also recommending expediting initial issue of red cells with local policies for appropriate use of O neg blood The lab guided protocol should mention having agreed thresholds for further issue of FFP and also fibrinogen replacement and platelets It would be helpful to strongly emphasise good communication and liaison between clinical and laboratory teams since an important cause of delays in transfusion resuscitation Patient safety issues should also be stated including need for accurate patient identification	Thank you for your comment. The specific detail of the protocol was outside of the scope of the review question. The comment regarding good communication has been added to the linking evidence to recommendation section. The NICE guideline on Blood Transfusion (in development) makes a recommendation on this topic.
38	British Orthopaedic Association	Full	General	General	There are some inconsistencies with ATLS. Whilst ATLS is not perfect, the tool does provide consistency.	Thank you for your comment. The guideline is based on the best available evidence and on the experience and opinion of the guideline development group. The recommendations in this guideline are consistent with each other and we are aware that they do differ from the ATLS in some areas.
44	British Pain Society	General	General	General	There is no reference to the requirement for pain teams to be involved. This will follow on from the immediate management and continue through rehabilitation. The standards set out in section 3.6 of Core Standards for Pain Management Services in the UK (2015) published by the Faculty of Pain Medicine of the Royal College of Anaesthetists are appropriate for all hospitals providing management of major	Thank you for your comment. We have edited the linking evidence to recommendation section to incorporate your point. We are unable to signpost to guidance that is not produced or accredited by NICE.

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					trauma.	
45	British Society of Interventional Radiology	Full	General	General	No comments on behalf of BSIR	Thank you for your comment.
230	Chief Fire Officers Association	Short	General	General	We feel that on major trauma, we are currently limited as a Fire and Rescue Service as to the interventions that we could offer. As such, a lot of the elements within this document will fall outside our current scope of practice and guidance at this time.	Thank you for your comment.
231	Chief Fire Officers Association	Short	General	General	Question 1: As a Fire and Rescue Service there are a lot of areas of trauma care, within the pre-hospital setting that we could address and implement at an early stage. Primarily around, initial airway management (non invasive), chest trauma, haemorrhage control, heat loss and information gathering to aid in documentation and patient care.	Thank you for your comment. NICE guidelines make recommendations for the NHS and it is outside of the scope of this guideline to specify who carries out specific tasks. The Major Trauma: service delivery guidance makes a recommendation that all staff should be competent and trained to carry out the interventions they are required to give.
232	Chief Fire Officers Association	Short	General	General	Question 2: Additional awareness and understanding around major trauma and the effects on patients within the pre-hospital setting for firefighters, would go a long way to improving patient outcomes. If firefighters are trained appropriately and more aware of poly trauma patients, their injuries and physiology, then an improved initial care package, that's appropriate to that patients immediate needs, can be implemented at a very early stage. Also, if the Fire and Rescue Service worked more closely with the other pre-hospital providers with gathering initial information and having the skills and equipment to undertake appropriate patient observations, then a more timely care package and appropriate interventions could then be instigated by the on-scene clinician on their arrival.	Thank you for your comment. NICE guidelines make recommendations for the NHS and it is outside of the scope of this guideline to specify who carries out specific tasks. The Major Trauma: service delivery guidance makes a recommendation that all staff should be competent and trained to carry out the interventions they are required to give.
237	Department of Health	General	General		Thank you for the opportunity to comment on the draft for the above clinical guideline. I wish to confirm that the Department of Health has no substantive comments to make, regarding this consultation.	Thank you for your comment.
46	Faculty of Intensive Care Medicine	Full	General	General	There is no mention of Intensive or Critical Care which is clearly an essential support speciality for major trauma. It would be	Thank you for your comment. This document is referred to in the context of the

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					preferable if in the section on multidisciplinary ward care reference to the requirement for critical care compliant with the D16 service specification could be made	Major Trauma: service delivery guideline as it is relevant throughout the entire guideline.
130	Hywel Dda University Health Board	Short	4	15	1.1.3 – RSI within 30mins of 999 is very unlikely to be achievable outside urban systems in remote/rural settings and where there is a necessity for call screening prior to activation of advanced pre-hospital teams to avoid inappropriate tasking.	Thank you for your comment. This recommendation has been edited from 30 to 45 minutes. The Major Trauma and Service delivery guideline development groups extensively discussed the available evidence, including the quality, for all of the airway recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 6 of the Major trauma guideline and chapter 17 of the Major Trauma Service delivery guideline). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). The recommendations regarding airway management reflect the guideline development groups desire to drive a

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						change in practice in terms of only diverting to a trauma unit if necessary, as it is widely accepted that major trauma patients should be treated in a major trauma centre. Patients who are identified as requiring RSI should have a team capable of delivering this arrive on scene to perform this (implementation issues aside). If a patent airway cannot be maintained either through failed RSI or more basic methods then the patient would be taken to a trauma unit which would be a journey of less than 60 minutes in the majority of cases. The guideline development group felt that their recommendations, if appropriately implemented, will improve the availability of highly trained individuals who can perform RSI, but also have included enough flexibility within the wording of the recommendations to allow clinicians to use their judgement in individual situations. This recommendation has been edited to make it clear to divert to a trauma unit if a patent airway cannot be maintained. The issue of resource impact is discussed in the linking evidence to recommendations section. The GDG recognised that there will be resource implications associated with the recommendation on RSI pre-hospital; however felt that the approach recommended would be cost effective. There are many factors to consider when evaluating the cost and cost effectiveness of providing RSI on scene; such as the accuracy of the dispatch triage, the training and competency of the person undertaking the RSI, the other interventions that the RSI team can provide. Most of these are likely to be determined by local circumstance. It is

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						important to note the population requiring RSI is likely to be small as the trauma population is small to begin with. There are, however, other populations that may benefit from RSI resources such as cardiac arrest patients. Therefore, having healthcare professionals trained in RSI may have a positive impact on other populations as well. It is recognised that this may be a challenge in some areas however the GDG felt that their role is to drive a change in practice in terms of avoiding diverting to a TU unless absolutely necessary, as the best place to treat major trauma patients is in a major trauma centre. If RSI cannot be performed at the scene within 45 minutes or a patent airway cannot be maintained then the patient can be diverted to a TU. In summary the GDG felt the benefits would outweigh the resource implications. In addition, the Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
131	Hywel Dda University Health Board	Short	5	16	1.2.4 (&1.3.1) – Seems a little too strongly worded, there may be a danger of not treating a developing pneumothorax. Perhaps better to state developing, or worsening respiratory function? Also potential for intubated and positive pressure ventilated patients to deteriorate is high. A comment regarding lower threshold for earlier decompression in these patients (particularly prior to transport or CT) would be helpful	Thank you for your comment. The guideline development group expects major trauma patients at risk at deterioration are monitored at all times and expects that if a tension pneumothorax develops it would be identified and treated in a timely manner given the current capacities of regional trauma systems. The guideline development group was also concerned about unnecessary placement of thoracostomy and chest tubes in this patient group. The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of chest

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						decompression. Drawing on the evidence and their experience appropriate recommendations were made for this intervention and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9).
132	Hywel Dda University Health Board	Short	6	3	1.3.1 (as above)	Thank you for your comment.
133	Hywel Dda University Health Board	Short	6	6	1.3.2 – There is no comment regarding delaying intercostal drain placement following decompression to expedite CT etc. Understand that this is accepted practice in many centres.	Thank you for your comment. There was no evidence about the time interval between the placement of thoracostomy and insertion of a chest tube and the guideline development group has therefore not made a recommendation on this.
134	Hywel Dda University Health Board	Short	7	1	1.4.3 – Whilst pelvic binders are likely over used, is there evidence for significant harm? A patient may be relatively "stable" but rapidly decompensate if moved without a binder. Signs of haemorrhage may be subtle due to physiological compensation and there is a danger with the wording of this point that it is interpreted as only being relevant to patients with signs of obvious major haemorrhage. (Seems somewhat at odds with recent Faculty of Prehospital Care Consensus Statement regarding pelvic binders)	Thank you for your comment. The guideline development group agrees that pelvic binders are likely to be overused and they confirmed that a pelvic binder should only be applied if there is suspected active bleeding (the recommendation has been edited) from a pelvic fracture following blunt high-energy trauma and not all suspected pelvic fractures. This has been changed to enable a pelvic binder to be applied based on clinical signs or mechanism of injury but only if active bleeding is suspected. The justification for this recommendation is in the linking evidence to recommendation section that explains that the only function of a pelvic binder is to control bleeding and

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						that the over-use of pelvic binders may not cause any harm to the individual patient, but that the NHS would incur the costs of equipment, possible transfer to inappropriate locations or unnecessary investigations with no corresponding benefit in outcome. The linking evidence to recommendation section has been edited to highlight the importance of training to identify the signs of suspected bleeding and to ensure that the correct personnel are dispatched to trauma patients.
135	Hywel Dda University Health Board	Short	8	10	1.4.15 – A little vague. Appreciate that evidence for use of lactate (or base deficit) is not established but there is also evidence to suggest that use of classic signs of bleeding (ATLS shock classification, hypotension, tachycardia) are not sensitive. Could this be acknowledged to avoid false reassurance.	Thank you for your comment. This recommendation was made due to the lack of evidence for the use of risk prediction tools. The guideline development group confirmed that the recommendation to use physiological criteria and response to volume resuscitation offered the clearest guidance.
136	Hywel Dda University Health Board	Short	12	1-19	1.6 – No mention of the use of fentanyl, which is much more titratable. (note the recommendation for research, perhaps fentanyl should also be included?)	Thank you for your comment. Fentanyl was not recommended as no evidence was identified and it can only be administered by a physician which severely limits its use. To enable paramedics to administer fentanyl would require a change to the Misuse of Drugs Act. The linking evidence to recommendation section has been edited. The recommendations on pain were extensively discussed by the Major trauma, spinal injuries and complex fractures guideline development groups. The **guideline** development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation'

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						sections (chapter 14 of the Major trauma guideline). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of different analgesia, these included fentanyl and ketamine. Drawing on the evidence and their experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9).
137	Intercollegiate board for training in pre-hospital emergency medicine	Full	General		A 30 minute target from incident call to drug assisted tracheal intubation will be challenging to achieve in practice. What is important for patients is that they receive oxygenation with high quality simple airway techniques and that their airway is secured by drug assisted tracheal intubation as soon as possible, preferably within the pre-hospital phase.	Thank you for your comment. This recommendation has been edited from 30 to 45 minutes.
138	Intercollegiate board for training in pre-hospital emergency medicine	Full	General		Patients receiving pre-hospital thoracostomy – thoracostomies carried out in a positive pressure ventilated patient can remain as thoracostomies. Thoracostomies carried out on a spontaneously breathing patient will require insertion of chest drains .	Thank you for your comment. This recommendation has been edited to recommend that spontaneously breathing patients will then require chest drain insertion via the thoracostomy.
139	Intercollegiate board for training in pre-hospital emergency medicine	Full	General		Thiopentone and suxamethonium are not commonly used for pre-hospital drug assisted tracheal intubation and therefore costs worked out using these drugs are not indicative. Ketamine and rocuronium are more commonly used agents	Thank you for your comment. This has been amended and now includes Ketamine as the anaesthetic and Rocuronium as the muscle relaxant.

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140	Intercollegiate board for training in pre-hospital emergency medicine	Full	General		Specific training of pre-hospital clinicians in the management of injured children is required to improve national pre-hospital trauma care for children.	Thank you for your comment. The guideline on Major Trauma: service delivery contains recommendations on training and skills including for children.
141	Intercollegiate board for training in pre-hospital emergency medicine	Full	General		The NICE guidance is of high quality and pre-hospital elements to the guidance are warmly welcomed.	Thank you for your comment.
142	Kent, Surrey & Sussex Air Ambulance Trust	Full	50	11	Kent, Surrey & Sussex Air Ambulance Trust (KSSAAT) is concerned that the recommendation to perform RSI within 30-minutes of the incident is not realistic outside select urban centres. The recommendation has significant implications but lacks an evidence base. It is not practical to widely deliver this recommendation. Pre-hospital RSI is regularly, safely delivered (>200 per year) by KSSAAT. In suburban and rural locations, it is rarely possible to deliver RSI within 30-minutes of the incident. KSSAAT has detailed data on pre-hospital RSI and would be willing to discuss this with NICE. Ambulance response to Category A calls have a target of 8-minutes. Preparing and delivering safe pre-hospital anaesthesia takes a minimum of 15-minutes, which leaves only 8-minutes for scene risk assessment, patient extrication and clinical examination. These time expectations are unrealistic. We feel a more practical, meaningful guideline, applicable to all UK trauma patients would be to have a pre-hospital Enhanced Care Team (RSI capable) with the patient <30 minutes from incident time. An informed decision on whether to RSI at scene or transport the patient to hospital could then occur. If RSI at scene is not possible, consideration should be given to transporting the patient to a Trauma Unit for RSI or to rendezvous with an Enhanced Care Team for RSI and/or expeditious rapid transport to an MTC. This model allows rapid RSI and transport to definitive care in an MTC from geographically remote locations. We feel the value of such a rendezvous model, particularly in areas with long (>60 minutes) transport times to MTCs, should be included in the guideline.	Thank you for your comment. This recommendation has been edited from 30 to 45 minutes. The guideline development group confirmed that the recommendation should state the time within which RSI should be performed and not the time of arrival of an enhanced care team. The former provides clearer guidance and is auditable. Focusing the recommendation on when RSI should be delivered also emphasises the importance of the early identification of the need for this intervention and to ensure an enhanced care team is alerted. The recommendations state that if the journey time to the major trauma centre is longer than 60 minutes then divert to a trauma unit. We have edited this recommendation to make it clearer that the only reason to divert to a trauma unit is if a patent airway cannot be maintained.

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143	Kent, Surrey & Sussex Air Ambulance Trust	Full	50	18	If RSI cannot be performed at scene, recommending transport to an MTC within 60-minutes is incongruous with line 11. Line 11 recommends RSI within 30-minutes of an incident. A rapid ambulance response (<8 minutes), scene time (<20 minutes), transport to hospital (guideline states <60 minutes), rapid delivery of anaesthesia in the Emergency Department (<10 minutes) is a minimum of ~100 minutes. This is more than three times longer than the 'within 30-minutes' recommendation. We feel a more practical, meaningful guideline applicable to all UK trauma patients would be to have a pre-hospital enhanced care team (RSI capable) with the patient <30 minutes from incident time.	Thank you for your comment. This recommendation has been edited from 30 to 45 minutes. The guideline development group confirmed that the recommendation should state the time within which RSI should be performed and not the time of arrival of an enhanced care team. The former provides clearer guidance and is auditable. Focusing the recommendation on when RSI should be delivered also emphasises the importance of the early identification of the need for this intervention and to ensure an enhanced care team is alerted. The recommendations state that if the journey time to the major trauma centre is longer than 60 minutes then divert to a trauma unit. We have edited this recommendation to make it clearer that the only reason to delivery to a trauma unit if a patent airway cannot be maintained.
144	Kent, Surrey & Sussex Air Ambulance Trust	Full	50	32	Open thoracostomy should be performed (when indicated) in 1) a patient undergoing positive pressure ventilation 2) in cardiac arrest of presumed traumatic origin.	Thank you for your comment. The guideline development group confirmed that the recommendation includes these indications.
145	Kent, Surrey & Sussex Air Ambulance Trust	Full	51	1	In patients undergoing RSI and thoracostomy; current, standard UK practice is to leave the thoracostomies open in the pre-hospital phase and not insert a chest drain.	Thank you for your comment. The LETR states that a chest drain does not need to be inserted in ventilated patients prior to arrival at hospital.
146	Kent, Surrey & Sussex Air Ambulance Trust	Full	176	22	Lyophilised plasma is now routinely used by KSSAAT	Thank you for your comment. This has been amended to make it clearer that it is not as commonly used as fresh frozen plasma.
147	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	60	7	The commendable guidance recommending RSI at the scene within 30 minutes represents a huge challenge for many areas of the country and will require significant investment in training and recognition that achieving this standard will take some years to achieve, even with investment.	Thank you for your comment. These recommendations were extensively discussed by the Major trauma and the Major trauma service delivery guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their

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						discussions are captured in the 'Linking evidence to recommendation' sections (chapter 6 of the Major trauma guideline and chapter 17 Major Trauma: Service delivery guideline.). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (Chapter 9). In the linking evidence to recommendation section the resource impact of this recommendation is discussed. In summary, the resource impact of this intervention depends on a number of factors including training to improve who is dispatched to a major trauma, other interventions that can be delivered by the team and other patient groups who will benefit from the greater availability of these teams i.e. non-traumatic cardiac arrest. In addition, It is noted that local circumstances will need to be considered. The GDG considered that the

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						benefits of providing RSI at the scene outweighed the resource implications. The Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
148	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	60	7	We would recommend that it is made explicit that patients with significant compromise of ventilation and or oxygenation should be taken to the nearest Trauma Unit if the transfer time to the major trauma centre will lead to a significant delay in securing a protected and effective airway.	Thank you for your comment. This recommendation has been edited and now makes it explicit that diverting to a trauma unit is required if a patent airway cannot be maintained.
149	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	74	6	Finger thoracostomy - ensure that it is explicit that when performed in a spontaneously breathing patient this must be immediately followed by chest drain insertion	Thank you for your comment. This has been clarified in the recommendation.
150	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	79	8	As above: the need for immediate chest drain in a spontaneously ventilated patient requiring a finger (open) thoracostomy must be more clearly emphasised.	Thank you for your comment. This recommendation has been edited and now states '... followed by a chest drain via the thoracostomy in patients who are breathing spontaneously.
151	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	167	34	Intravenous fluid titration to a carotid pulse - we would recommend de-emphasis of the use of carotid pulse and emphasis instead the use of conscious level and / or femoral pulse, particularly in the elderly.	Thank you for your comment. The guideline development group disagree and are clear that a central pulse (carotid or femoral) should be used. This is explained in the linking evidence to recommendation section 10.7.6. The GDG discussed the various indicators of shock, but felt that a simple assessment tool, such as assessment of central pulse (carotid or femoral), would be more reliable for the pre-hospital clinician and allow patients to be transported quicker for definitive care. The GDG also discussed the measurement of radial pulse, but felt a central indicator of pulse matched the blood pressure targets used in the clinical studies

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						(pre and hospital). The central pulse is also easier to palpate than a radial pulse. The guideline development group were in clear agreement that although the evidence was not strong, the direction of the effect favoured maintaining blood pressures in the region of MAP of 50 which equates to a maintaining a palpable central pulse rather than previous recommendations for supporting higher blood pressure targets during active bleeding. The guideline development group understands hypoperfusion is undesirable but recognised that attempting to maintain higher blood pressures during active haemorrhage results in worse outcomes.
152	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	261	29	The role of ketamine as a first line analgesic in patients with hypotension should be emphasised	Thank you for your comment. The recommendations on pain were extensively discussed by the Major trauma, spinal injuries and complex fractures guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 14 of the Major trauma guideline). The guideline development group have noted in the LETR that care should be taken when administering morphine in patients with hypotension. The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of different analgesia. Drawing on the evidence and their

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						experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9).
153	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	General	General	A number of areas of the guidance refer to 'active bleeding'. We feel that the difficulty of clinically identifying a patient with 'active bleeding' should be emphasised within the guidance.	Thank you for your comment. An evidence review was conducted on prediction tools for haemorrhage (chapter 10). The guideline development group agreed that making decisions based on physiology at a single time point is not accurate and the recommendations therefore emphasise the use of dynamic responses to initial resuscitation as central to the recognition of active bleeding (see linking evidence to recommendation section). There is a research recommendation on the use of lactate as a measure for shock.
154	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	16	6-9	Estimates of cost should include a reference to the year of estimate and would ideally be contextualised as a percentage of a reference baseline (eg NHS budget, GDP)	Thank you for your comment. This data is from The National Audit Office (2010). The date has been added but the additional information you suggest is not stated in the report.
155	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	123	3	We would recommend that the use of pelvic binders should not be restricted to those with suspected active bleeding or haemodynamic compromise because of the difficulty of accurate clinical assessment of 'active bleeding'. Consideration should be given to the type of decision support tool developed by the Faculty of Pre-hospital care. http://conovers.org/ftp/BMJ-Pelvic-	Thank you for your comment. The guideline development group confirmed that a pelvic binder should only be applied if there is suspected active bleeding (the recommendation has been edited) from a pelvic fracture following blunt high-energy

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					Binders.pdf .	trauma. The use of the term suspected covers the point you raise that it is not possible accurately confirm active bleeding in the pre-hospital environment. The guideline development group confirmed that the only indication for applying a pelvic binder is in the patient with suspected bleeding The justification for this recommendation is in the linking evidence to recommendation section.
156	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	194	9	Whilst understanding the de-emphasis of USS prior to CT we would highlight that this will present difficulties in skill maintenance and acquisition. Clearly USS must not be allowed to delay definitive imaging but we would ask that the guidance is not written in such a way as to preclude routine USS being a usual component of an effective trauma team.	Thank you for your comment. The recommendation was made based on the evidence on the diagnostic accuracy of CT compared to US in this clinical situation. The recommendation to avoid the use of ultrasound prior to CT is only for those patients having an immediate CT. In patients whose haemodynamic status is not normal and it may be dangerous to take them to CT, other more easily accessible forms of imaging can still be used.
157	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	55	8	The desire to improve written communication is laudable but the wording of the guidance is unclear as is the requirement to formulate a discharge summary prior to discharge.	Thank you for your comment. This recommendation has been edited to make it clearer when this should be sent to the GP.
158	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	55	26-28	Facilitating the presence of a friend or relative in the resus room should not be allowed to interfere with the speed and efficiency of primary survey and acquisition of initial diagnostics.	Thank you for your comment. A recommendation has been added and the linking evidence to recommendation section has been edited to incorporate your point.
159	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	55	32	The guidance for involvement of the mental health team should be rephrased to avoid a catch all 'as soon as possible'. Wording along the lines of 'as soon as the patient's ongoing care needs and clinical state allow for an effective interaction with a mental health professional'	Thank you for your comment. The guideline development group confirmed that the mental health team should be contacted as soon as possible so that the relevant health professionals can start to formulate a care plan. In some patients is important that this process occurs before an effective interaction can occur to avoid any delay in providing psychological support. This has

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						been clarified in the linking evidence to recommendations section.
47	National Bereavement Alliance/Childhood Bereavement Network	Full	20	21	The guidelines specifically excludes 'any management after definitive life-saving intervention'. We are not clear whether this means the guideline excludes any management if the patient dies from the trauma. If it does exclude this, then this should be made explicit and alternative guidance covering this must be signposted. If it does not exclude that eventuality, then the guideline needs significant additions in relation to the provision of information and support to bereaved relatives.	Thank you for your comment. We have added cross-references to the NICE guidelines on 'Care of the dying adult' (due to be published December 2015), 'End of life care for infants, children and young people' (due to be published 2016) and Improving supportive and palliative care in adults (update) (due to be published January 2018) to the 'other considerations' of the linking evidence to recommendations section on information and support.
48	National Bereavement Alliance/Childhood Bereavement Network	Full	278		[p278-291] The section on information and support to families and carers does not include guidance on the sort of support that will be needed if the patient dies. If this is a deliberate exclusion, then it would be helpful to make this explicit, and state somewhere in the guidance which alternative NICE guidance covers this. If this is not deliberate, then the guidance will need to be expanded to include this.	Thank you for your comment. We have added a cross-references to the NICE guidelines on 'Care of the dying adult' (due to be published December 2015), 'End of life care for infants, children and young people' (due to be published 2016) and Improving supportive and palliative care in adults (update) (due to be published January 2018) In the 'other considerations' section of the linking evidence to recommendations.
52	NHS Blood & Transplant	Full	General	General	[Section 15 (documentation) starting page 264] Documentation section: Although not directly related to the review question used, a patient safety issue not covered in this guidance is patient identification and how to manage ID numbering systems (e.g. emergency number – risks of using sequential numbers).	Thank you for your comment. This was not identified by stakeholders at the scoping stage as important area for inclusion. NICE guideline scopes particularly address areas where there is uncertainty or national variation in practice, and it is rarely feasible to cover all areas. Please refer to the NICE guidelines manual (2012) (section 2.3.2) for further details. The NICE guideline on Blood Transfusion (in development) makes a recommendation on this topic.
53	NHS Blood & Transplant	Full	General	General	[Section 11 (Haemorrhage) starting page 182] This guideline refers to 'blood products'. Red cells, platelets, FFP and cryoprecipitate are (as defined by the Blood Safety and Quality Regulations 2005) blood components, and not blood products.	Thank you for your comment. The terms blood products and blood components have been added to the glossary. We have replaced the term blood products with blood components where we refer to a therapeutic

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						component of human blood (red cells, white cells, platelets, plasma and cryoprecipitate).
E	NHS England	Short	12	12	Splinting of fractures has not been mentioned but provides better pain relief than all the modalities described	Thank you for your comment. The guideline development group prioritised the pharmacological management of pain and reviewed this evidence. The recommendations do not exclude the use of splinting of fractures and it would be expected that this would be undertaken alongside the pharmacological management. We have added a cross reference to the relevant fracture recommendation on splinting
160	NHS England	Short	5	1	It would help to clarify what to do if RSI not possible and basic airway procedures are failing to maintain an adequate airway. As I read the guide, thwe team could still by-pass a TU and go 60 mins to a MTC. Shouldn't they pit stop at the TU for RSI?	Thank you for your comment. A reference to second generation devices has been made in the linking evidence to recommendation section. In the airway recommendations the guideline development group has clarified that if a patent airway cannot be maintained then divert to a trauma unit. This does not infer that a team should bypass trauma unit and should indeed pit stop at the trauma unit for RSI.
161	NHS England	Short	6	13	Please reconsider the wording. Haemodynamically normal could be interpreted as "no CT for anyone with tachycardia"! This would be a huge setback. The evidence is good that early CT is effective and that the sicker you are, the more you benefit. Restricting CT to those with normal vital signs is not right. Doing a CT on a non-responder is often the most important action the Trauma Team Leader can take. See below.	Thank you for your comment. The guideline development group confirmed that immediate CT is appropriate for who are responding to resuscitation as well as patients who are haemodynamically normal.
162	NHS England	Short	7	1	This statement needs some clarification. Suspected on mechanism? Suspected on history? Suspected on clinical findings? How an earth do you suspect active bleeding in a dark field in the middle of the night? This statement is likely to cause a huge amount of confusion.	Thank you for your comment. The guideline development group confirmed that pelvic binders should only be applied if there is suspected bleeding (this has been edited). This has been changed to enable a pelvic binder to be applied based on clinical signs or mechanism of injury but only if active

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						bleeding is suspected. The linking evidence to recommendation section has been edited to highlight the importance of training to identify the signs of suspected bleeding and to ensure that the correct personnel are dispatched to trauma patients. The recommendation does not prevent a clinician using their judgement of a situation and applying a pelvic binder if it is difficult to assess the patient but bleeding is suspected based on other factors.
163	NHS England	Short	7	3	Why only high-energy trauma? Older patients with low energy pelvic fractures can also exsanguinate. Haemodynamic instability is a very difficult term. Please consider saying, "suspected pelvic fracture with changes in vital signs such as tachycardia (PR > 100) or hypotension".	Thank you for your comment. This recommendation has been edited and now refers to suspected bleeding. The guideline development group decided not to recommend a list of measures that may indicate haemodynamic instability to avoid the possibility the list would be seen as a definitive list and to ensure a holistic overview is taken by the clinician. The recognition of active bleeding is in chapter 7 on risk prediction tools. While the guideline development group recognise that low energy fractures can lead to haemorrhage, the fracture pattern of these injuries is very unlikely to be appropriate for a pelvic binder.
164	NHS England	Short	7	5	Consider adding a line to say, "The pelvic binder must be applied correctly, around the greater trochanters, and those who apply binders should receive training in their application".	Thank you for your comment. There is a recommendation in the Major Trauma: Service delivery guideline that all staff have the training and skills to deliver, safely and effectively, the interventions specified in the guideline.
165	NHS England	Short	9	9	Should you make it more clear that "restrictive approach to fluid resuscitation" must be time limited. Can you put a limit? I am asking the question but don't have the answer. The pragmatic answer in the military is one hour.	Thank you for your comment. The guideline development group confirmed that they were unable to specify a time limit as it would vary from patient and to patient and would be subject to the clinician's decision based on the situation.

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166	NHS England	Short	9	20	Consider reference to point 1.4.21	Thank you for your comment. The recommendations are very close together and as such is implicit in recommendation 1.4.23 that in a pre-hospital setting that a palpable central pulse should be maintained. A reference to this recommendation here might appear as unnecessary duplication.
167	NHS England	Short	10	15	Again, please reconsider the wording – see point 2 above. The non-responder is an incredibly difficult situation in blunt trauma, FAST, CXR and PXR are not sensitive enough and the implication is that the non-responder needs a surgical intervention to establish and control the point of bleeding. In my experience, negative laparotomy in the non-responder is usually fatal. The last thing the patient in extremis needs is an unnecessary and traumatic operation. So, in many cases, the minimum investigation needed is a CT	Thank you for your comment The guideline development group confirmed that there are definitely situations where FAST, CKR and PXR provide enough information to proceed directly to laparotomy. In this case CT would delay and potentially lead to an adverse outcome for the patients.
168	NHS England	Short	10	22	I remain to be convinced that the evidence for a scanogram head to toes rather than head to mid-thigh is helpful. This approach will potentially cause delays and prolonged time in CT and often result in poorly performed limb CT. Most MTCs do the trauma CT and then go back to resus. A focused CT of limb injuries can then be performed as a planned investigation minutes, hours or days later and usually gives better quality images.	Thank you for your comment. The guideline development group confirmed that the benefits of performing a scanogram and that the time taken will not impact on patient outcomes. The scanogram would happen at the time the patient was being imaged for their trauma. If the patient is already having a CT scan for other injuries then continuing this to look for suspected lower limb injuries is likely to be less costly and less time consuming than undertaking an additional image specifically for the lower limbs at a later point. It was also noted that the ease of scanning the limbs during the same session depends upon the size of the scanner, as the patient may need to be turned around to scan the limbs, which could add delays; however this

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						is generally the case with older scanners which are becoming less common. For the reason of delay, the GDG felt that patients should not be repositioned to undertake the scanogram.
170	NHS England	Short	13	23	It should not be the responsibility of the paramedics to determine the level of response at the TU or MTC. The situation is different if there is a pre-hospital doctor in attendance. All MTCs and TUs within a Major Trauma Network should have agreed written guidelines for the activation of the Trauma Team.	Thank you for your comment. This has been removed from the recommendation.
171	NHS England	Short	13	28	"……determine the response in the Emergency Department *according to agreed and written local guidelines".* If you do not include this extra statement, you loose resilience in the system, leaving it to individuals to judge the level of response and greatly increasing the variation. "Why didn't you call the trauma team?" "Because I didn't think it was needed, today".	Thank you for your comment. Your suggestion has been added to the recommendation.
172	NHS England	Short	14	1	Please consider an extra point, "The Trauma Team Leader should brief the trauma team before arrival of the patient, discussing pre-hospital information, assigning tasks, checking equipment and anticipating problems".	Thank you for your comment. This has been added to the linking evidence to recommendation section of Major trauma: service delivery.
173	NHS England	Short	14	8	This needs clarification. A member of the team needs to be delegated to record observations and team actions. The Trauma Team Leader has a responsibility to ensure that team members make an entry in the medical records and they also have an obligation to do this – GMC good practice. I'm not sure that this task (writing medical records) can be delegated to one team member (and I am pretty sure that the GMC would not accept it as acceptable practice). As it reads, the guideline is suggesting that the orthopaedic surgeon could be delegated to write up the anaesthetic record.	Thank you for your comment. We have edited the recommendation and now specify a scribe is required to record contemporaneous findings and interventions. We had edited the linking evidence to recommendation section to make it clearer that clinicians are responsible for writing their own medical records.
174	NHS England	Short	14	10	Completely agree - see above	Thank you for your comment.
175	NHS England	Short	14	16	Most images are now transferred electronically between hospitals and do not go with the patient. However, there can be problems. A statement like, "Major Trauma Networks should ensure that immediate electronic transfer of images is possible between all Trauma Units and the regional MTC. Clinical teams at the MTC must be able to access these images.	Thank you for your comment. The guideline development groups agree and have discussed this extensively. They considered that the final wording implicitly includes electronic images. While the images may not 'go' with the patient the underlying principle applies, any patient documentation should be immediately available to the receiving clinicians.

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176	NHS England	Short	14	22	Thank you. This is excellent practice and a copy of a typed admission summary for the clinical records and to the GP is essential. It should be sent to the GP on day 1, not on discharge: The GP is often faced with an upset family member and the background information is incredibly helpful to them (I have had more letters of thanks from GPs for sending them an admission note than anything else in my career and I've never been thanked once in 30 years for a discharge summary!) Given the complexity of polytrauma, I do not believe it is easy to produce a report in plain English for the patient / relatives / family that is also helpful for the medical staff treating the patient. Ideally, two admission records would be produced. A further issue is patient confidentiality so a plain English clinical note for the patient is perfectly acceptable. However, giving this to the relatives etc. without the patient's consent (they are often unconscious) is not acceptable. In my experience, the family dynamics is often complex with estranged relatives etc. and a very stressful situation. Working through these dynamics requires skill and empathy and the simple question of which relative should have access to such a note could result in a number of unintended problems.	Thank you for your comment. This recommendation has been edited to make it clearer when the summary should be written and who it is aimed at. The importance of patient confidentiality has been added to the linking evidence to recommendation section.
54	North Devon District Hospital	Full	80	14	I am concerned that there are apparent contradictions between the guidance and common trauma training programmes (eg ATLS), in this case regarding needle thoracocentesis/ chest drains but there are other examples in the document. This has potential to cause confusion in situations where a common approach is extremely important.	Thank you for your comment. The guideline is based on the best available evidence and on the experience and opinion of the guideline development group. The recommendations in this guideline are consistent with each other and we are aware that they do differ from the ATLS in some areas.
55	North Devon District Hospital	Full	144	8 (10.4.6)	The comment about novel anti-coagulants seems lost in the "other considerations". Clinical staff would appreciate guidance about treating patients using these agents.	Thank you for your comment. The guideline development group confirmed that the recommendation captures the point made in the other considerations section, to consult a haematologist for advice when using novel anticoagulants.
56	North Devon District Hospital	Full	221	8 (11.5.6)	Comments include acknowledgement that trauma units do not necessarily have access to interventional radiology but the	Thank you for your comment.

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					recommendations do not take into account that patients with arterial bleeding may be taken to a trauma unit initially and it may not be possible to safely transfer them to an MTC.	This guideline should be read alongside the Major Trauma: service delivery guidance and the guideline development group are clear that the optimal destination for trauma patients should be a major trauma centre and a patient should only be diverted to a trauma unit for a lifesaving intervention and then transferred to a major trauma centre. The guideline development group acknowledge that interventional radiology may not be available in trauma units and that surgery may be the only option. The recommendation is aimed at major trauma centres.
57	North West Ambulance Service NHS Trust	Full	Airway Management section	all	We note that whilst RSI is a key indication of gold standard management in pre-hospital trauma, the pre-hospital availability of trained and experienced RSI practitioners is variable. In this situation alternative strategies can potentially save lives. The PALM technique involves the sedation and placement of a supraglottic airway device (SAD) to manage a difficult airway in the hypoxaemic patient. We would suggest the inclusion of the PALM technique in the guidance where RSI is not immediately available and where without adequate airway control there is a high probability of adverse outcome or where the only option available would be a surgical airway procedure. A recent consensus statement recommended that PALM in limited circumstances and in the hands of suitably qualified practitioners would have patient benefit. [7] The goal of management of the severely injured patient is to identify and treat life threatening conditions. This is not always possible due to the confusion and restlessness often demonstrated by patients due to hypoxia, hypovolaemia, or head injury, making effective assessment difficult if not impossible. [1] As far back as 1977, it was recognised that failure to manage the	Thank you for your comment. No evidence was identified for PALM and the guideline development group confirmed that the benefits and harms of this intervention are unclear and no recommendation could be made on its use (chapter 6 of the Major trauma guideline). Evidence was identified in the Major Trauma: Service delivery guideline to support the recommendation for RSI in the pre-hospital environment and the justification for this recommendation is contained in chapter 17. The airway recommendations have been combined to make it clearer what to do if RSI is not available and to indicate the use of a supraglottic device or basic airway manoeuvres when appropriate. The Major Trauma and Service delivery guideline development groups extensively discussed the available evidence, including the quality, for the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections as mentioned above. The guideline development groups were in clear

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					trauma victim airway lead to preventable death [2]. Airway soiling, primarily with blood rather than gastric contents [3] is common in severe trauma and airway management is frequently required particularly when there is associated neurological injury. The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report describes airway management of the trauma patent as challenging, and advocates that the pre-hospital response should include "someone with the skill to secure the airway and maintain adequate ventilation, highlighting that "13.7% of major trauma patients arriving by ambulance did so with a partly or completely obstructed airway" adding that in these patents at least 28.6% could or should have had intubation attempted. [4] However, non medicine assisted intubation pre-hospitally has been shown to carry an extremely dismal prognosis [5]. The PALM technique involves the sedation of the patient with subsequent insertion of a supraglottic airway device (SAD)(the technique specifically cites the intubating laryngeal mask as the SAD used). This technique is of particular benefit where effective oxygenation and ventilation is otherwise difficult or impossible due to a number of contributing factors which would include those commonly found in multiple trauma or severely head injured trauma patients. Delays in effective airway management and ventilation can have devastating effects and are a common cause of preventable death [6]. Hypoxic secondary brain injury has been shown to be a major contributor to increased morbidity and mortality in the trauma victim. Thus the most likely setting for the use of the PALM technique would be in the trauma setting where all other attempts to maintain the patients oxygenation have either failed or been exhausted, a trained RSI (Rapid Sequence Induction) practitioner is not immediately available and where a surgical airway would be the next or only other consideration [7]. Studies have shown the prevalence of trauma patients requiring	agreement about the benefits, harms and cost-effectiveness. Drawing on the evidence and their experience appropriate recommendations were made for these interventions and this is reflected in the strength of the recommendations. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (Chapter 9). None of the references cited could be included in the evidence review which was a comparison of different airway management techniques.

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					intubation to be between 4% and 28% [8][9].It is therefore reasonable to suggest that there would be a similar number who would be candidates for PALM in the absence of an experienced RSI practitioner. One further aspect of PALM not yet considered is where an RSI capable practitioner is on route but the patient needs immediate management of their airway and oxygenation. Delayed Sequence Intubation (DSI) [10] is a technique employed to treat the sequelae of hypoxaemia or hypercapnia which can make conventional pre oxygenation or reoxygenation prior to intubation safer and more effective. RSI is not without risk and a number of studies have questioned its risk to benefit pre-hospitally [11].Transport delay[12], hypoxaemia, aspiration, bradycardia,[13]increased Inter-cranial pressure, systolic cardiac arrest and airway trauma as well as failed intubation are all well known complications [14]. We feel that PALM in the hands of suitably skilled practitioners represents an alternative strategy to manage what could otherwise be a potentially fatal situation. References. [1] Deo. S., Knottenbelt. J.D (1994) The Use of Midazolam in Trauma Resuscitation. European Journal of Emergency Medicine 1994. (1): pp 111-114 [2] Yates. D.W. (1977) Airway Patency in Fatal Accidents. BMJ 1977. (2):pp1249-1251 [3] Lockey. D.J., Coats. T., Parr. M.J.A. (1999) Aspiration in Severe Trauma: a Prospective Study. Anaesthesia. 54(11):pp 1097–1098 [4] Trauma:Who Cares. (2007) NCEPOD. London	

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					[5] Paul. A. M., Young. N.H., Price. G.C. (2012) Emergency Tracheal Intubation without Drugs: Outcome and One-year Survival of Medical Patients not in Cardiac Arrest. Scottish Medical Journal. 2012 (57);pp 84-87 [6] Mayglothling. J.,, Duane. T.M., Gibbs. M., McCunn. M., Legome. E., Eastman. A.L., Whelan. J., Shah. K.H. (2012) Emergency Tracheal Intubation Immediately Following Traumatic Injury. J Trauma Acute Care Surg. 2012 Nov. 73(5):pp333-40 [7] Moss. R., Porter. K., Greaves. I, (2013}Pharmacologically Assisted Laryngeal Mask Insertion; A Consensus Statement. Emerg Med J. Dec 2013 (30):p12 [8]Rotondo. M.F., McGonigal. M.D., Schwab. C.W., Kauder. D.R., Hanson. C.W. (1993) Urgent paralysis and intubation of trauma patients: is it safe? J Trauma. 1993 Feb;34(2):pp242-6. [9] Eastern Association for the Surgery of Trauma (EAST) (2002) Guidelines for Emergency tracheal Intubation Immediately following Traumatic Injury [10] Weingart S.D. (2010) Preoxygenation, Reoxygenation and Delayed Sequence Intubation in the Emergency Department. J Emerg Med. 2011. 40 (6);pp661-667 [11] Nolan. J.D. (2001) Prehospital and Resuscitative Airway Care: Should the Gold Standard be Reassessed. Current Opinion in Critical Care. 2001. Dec 7(6):pp 413-421 [12] Evans . C.C.D., Brison. R.J., Howes. D. (2012) Pre-Hospital Non-Drug Assisted Intubation for Adult Trauma Patients with a Glasgow Coma Score less than 9. Emerg med J. 2013(30): pp935-941 [13] Langeron. O., Birenbaum. A., Amour. J. (2009) Airway Management in Trauma. Minerva Anestesiol 2009. (75):pp307-311 [14] Lockey. D., Porter. (2007) Pre-Hospital Anaesthesia in the Uk: A Position statement on behalf of the Faculty of Pre-hospital	

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					Care. Emerg Med J. 2007. (24):pp437-438	
58	Prometheus Medical Limited	Full	50	37	Using a fully occlusive dressing in patients who have a potential lung injury presents a significant and dangerous risk of tension pneumothorax. The operator needs to be constantly aware of this risk and the occlusive dressing periodically removed/opened to allow venting of any tensioned air. Failure to do so could result in patient harm and death. The use of a vented chest seal minimises this risk. A vented chest seal does not require continuous close monitoring and frequent removal/opening. Despite absence of conclusive evidence to support either technique, a pragmatic approach with patient safety as paramount would recommend the use of a vented seal. Several national bodies (e.g. Tactical Combat Casualty Care, USA) recommend the use of vented chest seals.	Thank you for your comment. The guideline development group confirmed that in the absence of evidence they were not able to recommend any particular type of dressing over another and felt that the simplicity and cost effectiveness of using a simple airtight occlusive dressing (whilst anticipating and checking for the development of a tension pneumothorax) would promote rapid movement towards transporting the patient to an appropriate hospital. The linking evidence to recommendation section has been edited to make this point clearer.
59	Prometheus Medical Limited	Full	51	20	The [redacted] will fit children and babies down to 14inch hip so no need to improvise in children.	Thank you for your comment. We have added a sentence to the linking evidence to recommendations indicating that binders are available for large adults and small children but in the absence of evidence a recommendation to use a specific binder could not be made.
60	Prometheus Medical Limited	Full	73	8	Specific devices for needle chest decompression are now commercially available and need to be considered. Such specific needle chest decompression devices are now being used routinely by ambulance services and should be mentioned in the guideline	Thank you for your comment. We edited the linking evidence to recommendation section and now refer to devices and not cannulas. The costs of some purpose made devices for needle decompression have been added into tables 17 and 21 as an illustration of these costs.
61	Prometheus Medical Limited	Full	74	6	The use of an intravenous cannula for needle chest compression can be dangerous (sharp needle causing bleeding and/or lung injury) and ineffective (cannula too short, narrow and can kink/block). Devices such as the Russell Pneumofix have been specifically designed and engineered using best evidence to 1) be long enough to reach the pleural space 2) have the safety of a Veress needle to prevent lung injury and/or bleeding 3) have a kink-proof catheter 4) have a visible and audible indicator to alert the user that the cannula is correctly sited 5) have a one-way release valve to prevent air re-entering the pleural space. Such specific needle chest decompression devices are now	Thank you for your comment. We have edited the linking evidence to recommendation section and now refer to devices and not cannulas. The costs of some purpose made devices for needle decompression have been added into tables 17 and 21 as an illustration of these costs.

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					being used routinely by ambulance services and should be mentioned in the guideline	
62	Prometheus Medical Limited	Full	77	8	[redacted]	Thank you for your comment. It is stated in the footnote of table 19 that SP services is a supplier used by at an ambulance service, not the manufacturer. It is also acknowledged in the footnote that this price may vary due to locally negotiated discounts; however it is not appropriate to include the discounted price which would vary across the country, in a national guideline. The cost you refer to may be a discounted cost.
63	Prometheus Medical Limited	Full	77	8	[redacted]	Thank you for your comment. It is stated in the footnote of table 19 that SP services is a supplier used by at an ambulance service, not the manufacturer. It is also acknowledged in the footnote that this price may vary due to locally negotiated discounts; however it is not appropriate to include the discounted price which would vary across the country, in a national guideline. The cost you refer to may be a discounted cost.
64	Prometheus Medical Limited	Full	77	19	Using a fully occlusive dressing in patients who have a potential lung injury presents a significant and dangerous risk of tension pneumothorax. The operator needs to be constantly aware of this risk and the occlusive dressing periodically removed/opened to allow venting of any tensioned air. Failure to do so could result in patient harm and death. The use of a vented chest seal minimises this risk. A vented chest seal does not require continuous close monitoring and frequent removal/opening. Despite absence of conclusive evidence to support either technique, a pragmatic approach with patient safety as paramount would recommend the use of a vented seal. Several national bodies (e.g. Tactical Combat Casualty Care, USA) recommend the use of vented chest seals.	Thank you for your comment. The guideline development group confirmed that in the absence of evidence they were not able to recommend any particular type of dressing over another and felt that the simplicity and cost effectiveness of using a simple airtight occlusive dressing (whilst anticipating and checking for the development of a tension pneumothorax) would promote rapid movement towards transporting the patient to an appropriate hospital. The linking evidence to recommendation section has been edited to make this point clearer.
65	Prometheus Medical Limited	Full	112	7	[redacted]	Thank you for your comment. There are many haemostatic agents available and table 41 is merely an illustration of the costs

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						of some of these products.
66	Prometheus Medical Limited	Full	115	9	[redacted]	Thank you for your comment. It is stated in a footnote that SP services is a supplier used by at an ambulance service. It is also acknowledged in the footnote that this price may vary due to locally negotiated discounts; however it is not appropriate to include the discounted price which would vary across the country, in a national guideline. The cost you refer to may be a discounted cost.
67	Prometheus Medical Limited	Full	122	15	[redacted]	Thank you for your comment. This cost was correct at the time it was sourced (2014). The source of the cost has been amended. Your product has the lowest cost of the three presented in table 48.
68	Prometheus Medical Limited	Full	123	3	As the [redacted] can be used in as small a hip size of 14inches there is no need to improvise in children.	Thank you for your comment. We have added a sentence to the linking evidence to recommendations indicating that binders are available for large adults and small children but in the absence of evidence a recommendation to use a specific binder could not be made.
121	Queens Medical Centre, University Hospital, Nottingham	Full	53	11	This is in clear contradiction of many network transfer policies. This recommendation is not evidence based. In the majority of networks there are units other than the MTC that can offer Ortho-Plastic care. This recommendation should be changed. It runs the risk of destabilising the larger MTCs such as NUH. There is no requirement to transfer all open fractures to the MTC. **This statement must be changed – it is incorrect.**	Thank you for your comment. This refers to the Complex Fractures Guideline. The recommendation does not state that an MTC is the only destination. The guideline development group believe that all open long bone and hindfoot and midfoot fractures need to be transported to an MTC OR a specialist centre for orthoplastic care as severity of injury can only be assessed fully after surgical exploration by Consultant Orthopaedic and Plastic Surgical teams. If a decision is made to class an open fracture as 'minor' before full assessment and this is done erroneously, then standards of care for that injury would not be met, including

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						those as recommended from supporting evidence. The guideline development group also believe the numbers involved are not that large. A figure of 105 per year per major trauma centre is used in the model on open fractures (see appendix L of the full version of the guideline).
122	Queens Medical Centre, University Hospital, Nottingham	Full	125	13	This should be clarified. The statement should refer only to open fractures of the lower limb. Open fractures of the upper limb, skull and axial skeleton are managed differently. Statement 16 is without evidence. There are a number of cases where internal fixation will be used without definitive soft tissue coverage. For example in the open calcaneus. This statement should be removed.	Thank you for your comment. This refers to the Complex Fractures Guideline. We have now defined this as "open fractures of the long bone, hindfoot or midfoot" The clinical evidence showed a clinical benefit for definitive fixation and immediate cover for open fractures in terms of deep infection, flap failure, further unplanned surgery, and return to normal weight bearing activity.
123	Queens Medical Centre, University Hospital, Nottingham	Full	125	13	There is no requirement for points 2 and 3 in clause 14. The BOAST guidance is clear, and based on evidence. There is ongoing audit of the results via TARN. The next available list is correct for all bar contaminated fractures. Putting time targets in is pointless. The spirit of current practice is 'as soon as possible with best practice care'.	Thank you for your comment. This refers to the Complex Fractures Guideline. Thank you for your comment. The guideline development group agree that the spirit of current practice is 'as soon as possible with best practice care' and would emphasise that this is of greater importance with more severe injuries. The recommendations from the evidence review supported a similar position to the recommendations in the BOAST guideline. However, the guideline development group believe it was important for high energy open fractures to be treated on the first available in hours operating list. Creating a time limit of 12 hours supported the practice of injuries occurring in the day being operated on the same day of injury

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						and injuries occurring at night being operated on the next day. The guideline development group also believe this reflects the trend and practice across the UK, where the next available list is utilised and this is often achieved on the same day as the injury. The economic analysis showed that the earlier debridement takes place, the lower the cost of complications and therefore earlier debridement was a cost saving scenario, even with the presence of a plastic surgeon. The recommendations made for treating open fractures were based on the clinical evidence, the economic evidence, and also an understanding of current practice and the prevalence of open fractures. The economic analyses, which looked at different parts of the treatment pathway, found that undertaking procedures earlier is more cost effective because of reduced complications. However taking into account the low prevalence of open fractures, having 7 day theatre lists would not be cost effective and the recommendation of undertaking soft tissue cover within 72 hours therefore reflects both the clinical evidence and the economic evidence. undertaking soft tissue cover within 72 hours would mean having 3 dedicated theatre lists a week, Therefore this was felt to be an appropriate compromise because some patients that come in could be operated on within the same day or at a maximum of two theatre sessions if debrided early (with temporary fixation) and then definitive fixation and cover in a second session. Debridement within 12 hours or within 24 for less severe

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						fractures would mean it would be possible for most patients to be seen during the same day or the next day and not out of hours.
124	Queens Medical Centre, University Hospital, Nottingham	Full	142	10	This statement again fails to recognise the differing geography of the country. Statement 19. should state immediately activate the network policy for haemodynamically unstable multiply injured patients ensuring appropriate pelvic expertise is involved. I am unsure why point 20 has been included. Although this would be Ideal NICE is supposed to evaluate the evidence. 24 is not an evidential transfer time for pelvic or acetabular fractures just a figure plucked from the air.	Thank you for your comment. This refers to the Complex Fractures Guideline. This guideline also needs to be read in conjunction with the service delivery guideline which recommends: where the optimal destination for patients with major trauma is usually a major trauma centre. Specific geographic or patient characteristics may require intermediate care in a trauma unit within the context of a regional trauma network. We have cross referred to this recommendation in the section on 'Recommendations and link to evidence' in the full version of the guideline. The guideline development group believe that the patient should not be disadvantaged by the location in which their injury occurs. They recognise that implementation of the guidelines will need to be performed locally with considerations of geographical restrictions. The 24 hours transfer time was a consensus decision. The guideline development group believed patients undergoing delayed pelvic reconstruction experience significantly worse outcomes in terms of pain, thromboembolic events and mobility than patients undergoing early reconstruction. To enable preoperative planning and scheduling of a specialist pelvic reconstruction operating list, the guideline development group believed

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						transfer should be achieved within 24 hours of injury.
125	Queens Medical Centre, University Hospital, Nottingham	Full	125	15	Point 21. The recommendation should read – A binder should be applied for all patients suspected of having a pelvic fracture. **As stands this advice is incorrect.**	Thank you for your comment. This refers to the Complex Fractures Guideline. The guideline development group disagrees that a pelvic binder should be applied for all patients suspected of having a pelvic fracture. The guideline development group confirmed that a pelvic binder should only be applied if there is suspected active bleeding (the recommendation has been edited) from a pelvic fracture following blunt high-energy trauma and not all suspected pelvic fractures. This has been changed to enable a pelvic binder to be applied based on clinical signs or mechanism of injury but only if active bleeding is suspected. The justification for this recommendation is in the linking evidence to recommendation section that explains that the only function of a pelvic binder is to control bleeding and that the over-use of pelvic binders may not cause any harm to the individual patient, but that the NHS would incur the costs of equipment, possible transfer to inappropriate locations or unnecessary investigations with no corresponding benefit in outcome.
126	Queens Medical Centre, University Hospital, Nottingham	Full	151	14	Point 24 - This is poor advice. Binders are haemostatic devices and removal of pelvic binders has nothing to do with 'the stability of the pelvic fracture'. A pelvic surgeon does not need to decide whether to take a binder off or not this should be based on haemodynamics. Recommendation should read – "Remove pelvic binder if there is no pelvic fracture or if the patient is judged by the trauma team to be haemodynamically stable between serial assessments. Following removal further imaging should be obtained to exclude an occult fracture.".	This refers to the Complex Fractures Guideline. Thank you for your comment. The guideline development group agree that pelvic binders are haemostatic devices but it is not easy to establish whether there is haemodynamic instability in a patient. The pelvic fracture should be both skeletally and haemodynamically stable before removing the binder. The recommendation has been

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					The final recommendation should read "Patients in whom a binder is kept on should have regular skin observations and be managed according to their network policy for pelvic binders due to the risk of skin necrosis." It is essential that networks have protocols for management of pelvic injuries and NICE should recognise that the needs of different populations are varied, and should refer to Major Trauma Network protocols as a generic.	amended to advise removing the binder as soon as possible provided the patient meets certain characteristics including that they are no longer bleeding and have normal coagulation. The guideline development group note the current practice of regular checks of the binder in the section on 'Research and link to evidence' of the full version of the guideline. However, the guideline development group did not feel there was sufficient evidence for this level of detail to add it to the recommendation.
127	Queens Medical Centre, University Hospital, Nottingham	Full	174	17	This is hotly contested topic and the recommendations here are next to useless. It should recommend following regional policy and that both interventional radiology both selective and non-selective should be considered along with pelvic packing. Pelvic packing ***DOES NOT*** necessarily need to be undertaken just because a trauma laparotomy is occurring. The surgical approaches are different, and packing a pelvis in a contaminated field is most definitely an Intervention with significant morbidity. This advice as stands is unhelpful and needs clarification.	This refers to the Complex Fractures Guideline. The guideline development group extensively discussed the available evidence, including the quality, for all of the recommendations on interventional radiology and their discussions are captured in the section on 'Recommendations and link to evidence' 'of the full version of the complex fracture guideline. The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for interventional radiology and this is reflected in the strength of the recommendations. This recommendation applies to patients once they are in hospital.
128	Queens Medical Centre, University Hospital, Nottingham	Full	179	7	**Point 29** is incorrect. Not all pilon fractures require initial surgery. Many can be managed in plaster. Not all fractures can have a definitive management plan constructed until it is clear If the soft tissues will allow a plate, or if a circular fixator will be required. I	This refers to the Complex Fractures Guideline. Point 29. The recommendation only applies

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					find it bemusing that this has been added as It stands. **Point 31** this is confusing. Why should children not also be transferred? Is the suggestion that pilon fractures not requiring plastics but who have been operated elsewhere with a complication should be transferred to a neighbouring unit? I fail to see where the evidence for this approach is? A better statement if one wished simply add a sensible comment about pilons with poor skin would be "Pilon fractures with critical or unsafe skin should be managed in an orthoplastic unit with a full range of capabilities including circular frame fixation to minimise complications."	to displaced pilon fractures and not undisplaced. The guideline development group believe that delays in initiating management in patients with displaced pilon fractures can reduce benefits and increase harms, and that patients should have a clear treatment plan within 24 hours. If a centre is unable to make this decision then the patient should be transferred to a centre where they can. Point 31. The recommendation related to adults implies that surgery will or may be done in the ED. However, should wound complications occur during or after surgery then the patient needs to be managed in an orthoplastic centre. The recommendation for children makes no statement about performing initial surgery and therefore has no recommendation about transfer if wound complications occur. The guideline development group agree with your comment that pilon fractures with critical or unsafe skin should be managed in an orthoplastic unit.
129	Queens Medical Centre, University Hospital, Nottingham	Full	203	22	Point 38 should be clarified. It should read "For humeral supracondylar fractures with a vascular injury management should be undertaken in a paediatric unit with experience in management of these injuries and access to vascular surgery. Not all cases require vascular intervention and decision making should be joint with input from consultant orthopaedic and vascular surgeons"	Thank you for your comment. This refers to the Complex Fractures Guideline. The recommendations in this section provide guidance on identifying vascular injury in the emergency department. For most patients and fractures the guideline development group believed there should be no delay in surgical intervention if vascular injury is suspected. However, the Guideline Development Group also believed that children with humeral supracondylar fractures would be an exception to that rule and felt there was a need to provide some

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						guidance. A question on transfer of paediatric supracondylar fractures to paediatric units was not asked within the development of the guideline so no recommendation has been made relating to this. The recommendation has been reworded to "For humeral supracondylar fractures in children (under 16s) without a vascular injury palpable radial pulse but with a well-perfused hand, consider observation rather than immediate vascular intervention".
95	Resuscitation Council (UK)	Short	4	17	We are concerned about the potential for delay with significant airway compromise in the circumstances if RSI cannot be performed at scene. It is unlikely that a patient with airway compromise to this extent would survive a journey of up to 60 minutes. It would be better to recommend that adequate resources should be available on scene, either by improving training or ensuring that appropriately trained individuals respond to major trauma.	Thank you for your comment. The Major Trauma and Service delivery guideline development groups extensively discussed the available evidence, including the quality, for all of the airway recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 6 of the Major trauma guideline and chapter 17 of the Major Trauma Service delivery guideline). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits

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						and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). The recommendations regarding airway management reflect the guideline development groups desire to drive a change in practice in terms of only diverting to a trauma unit if necessary, as it is widely accepted that major trauma patients should be treated in a major trauma centre. Patients who are identified as requiring RSI should have a team capable of delivering this arrive on scene to perform this (implementation issues aside). If a patent airway cannot be maintained either through failed RSI or more basic methods then the patient would be taken to a trauma unit which would be a journey of less than 60 minutes in the majority of cases. The guideline development group felt that their recommendations, if appropriately implemented, will improve the availability of highly trained individuals who can perform RSI, but also have included enough flexibility within the wording of the recommendations to allow clinicians to use their judgement in individual situations. This recommendation has been edited to make it clear to divert to a trauma unit if a patent airway cannot be maintained. The issue of resource impact is discussed in the linking evidence to recommendations section. The GDG recognised that there will be resource implications associated with the recommendation on RSI pre-hospital;

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						however felt that the approach recommended would be cost effective. There are many factors to consider when evaluating the cost and cost effectiveness of providing RSI on scene; such as the accuracy of the dispatch triage, the training and competency of the person undertaking the RSI, the other interventions that the RSI team can provide. Most of these are likely to be determined by local circumstance. It is important to note the population requiring RSI is likely to be small as the trauma population is small to begin with. There are, however, other populations that may benefit from RSI resources such as cardiac arrest patients. Therefore, having healthcare professionals trained in RSI may have a positive impact on other populations as well. It is recognised that this may be a challenge in some areas however the GDG felt that their role is to drive a change in practice in terms of avoiding diverting to a TU unless absolutely necessary, as the best place to treat major trauma patients is in a major trauma centre. If RSI cannot be performed at the scene within 45 minutes or a patent airway cannot be maintained then the patient can be diverted to a TU. In summary the GDG felt the benefits would outweigh the resource implications. In addition, the Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
96	Resuscitation Council (UK)	Short	5	16	Only performing a thoracostomy in the circumstances described is worrying. Patients with severe chest trauma who are intubated and ventilated are at a very high risk of developing a tension pneumothorax in transit, which may be difficult to identify and	Thank you for your comment. The scope and review question did not look at the benefits and harms of performing a prophylactic thoracostomy and the guideline

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					treat. In these patients, a prophylactic thoracostomy must be considered.	development group were unable to make any recommendations on this.
97	Resuscitation Council (UK)	Short	5	19	Even if the expertise is available, a thoracostomy is only suitable for intubated, ventilated patients.	Thank you for your comment. This recommendation has been edited.
98	Resuscitation Council (UK)	Short	5	23	Covering an open pneumothorax with an occlusive dressing WILL cause a tension pneumothorax. These patients need tracheal intubation and ventilation.	Thank you for your comment. In the absence of evidence the guideline development group were not able to recommend any particular type of dressing over another and felt that the simplicity and cost effectiveness of using a simple airtight occlusive dressing (whilst anticipating and checking for the development of a tension pneumothorax) would promote rapid movement towards transporting the patient to an appropriate hospital. The linking evidence to recommendation has been edited to make this point clearer.
99	Resuscitation Council (UK)	Short	6	23	In addition to direct pressure, where possible, elevation should also be used.	Thank you for your comment. The guideline development group confirmed that the recommendation should include and highlight direct pressure as this is more effective than elevation.
100	Resuscitation Council (UK)	Short	7	3	A pelvic binder should be applied to try and reduce the risk of haemodynamic instability occurring, rather than only when there is haemodynamic instability. At this point it may be too late. This section needs careful reconsideration.	Thank you for your comment. The guideline development group confirmed that pelvic binders should only be applied if there is suspected bleeding (this has been edited). This has been changed to enable a pelvic binder to be applied based on clinical signs or mechanism of injury but only if active bleeding is suspected. The linking evidence to recommendation section has been edited to highlight the importance of training to identify the signs of suspected bleeding and to ensure that the correct personnel are dispatched to trauma patients. The justification for this question is in the linking evidence to recommendations section.
101	Resuscitation Council (UK)	Short	7	6	Why not use a paediatric pelvic binder? Improvised devices are likely to be ineffective and potentially dangerous.	Thank you for your comment. In the linking evidence to recommendation section we

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						have acknowledged that pelvic binders are made for children. The recommendation has been edited but the guideline development group confirmed that if a binder is not available for small children or large adults an improvised binder should be used.
102	Resuscitation Council (UK)	Short	8	16	This could be made much simpler and clearer, as in effect the same practice is being advocated for adults and children.	Thank you for your comment. The guideline development group discussed this at some length and acknowledged that while IO is also a possibility for adults it doesn't provide the same level of access as a large bore peripheral or central access. In the case of children it was more important to highlight the need for rapid access and avoid delay and so an initial decision for IO might be appropriate. The discussion is documented in the LETR in chapter 10.
103	Resuscitation Council (UK)	Short	9	20	What is the evidence to support the recommendation to only use crystalloids for active bleeding in the pre-hospital setting?	Thank you for your comment. This recommendation is a consensus based recommendation based on the experience and opinion of the guideline development group (see linking evidence to recommendation section).
104	Resuscitation Council (UK)	Short	12	12	The first recommendation is to use 'IV morphine as the first line analgesic for major trauma'. Point 1.6.7 states that IV morphine should be used with caution in people with hypovolaemic shock (and older people). Most major trauma patients will be hypovolaemic therefore it would seem sensible to avoid it. There are other suitable alternatives that are not mentioned e.g. IV fentanyl. Ketamine should also be considered a first line analgesic in major trauma to avoid the risk of worsening hypotension in this group of patients.	Thank you for your comment. The recommendations on pain were extensively discussed by the Major trauma, spinal injuries and complex fractures guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 14 of the Major trauma guideline). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of different analgesia, these included fentanyl and

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						ketamine. Drawing on the evidence and their experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). The guideline development group noted the paucity of evidence in this area and suggested there should be further research on comparing morphine and ketamine as the first line agent in patients with major trauma. The recommendation on using morphine with caution has been deleted- The LETR has been edited to note the importance of titrating morphine to effect particularly in patients with active bleeding.
105	Resuscitation Council (UK)	Short	13	7	What is meant by spinal pain?	Thank you for your comment. This has been removed from the guideline.
106	Resuscitation Council (UK)	Short	16	1	Who should remain in eyesight of whom? Does this refer to the victim or staff? The carer should where possible remain within verbal contact.	Thank you for your comment. This has been clarified in the linking evidence to recommendation section.
107	Resuscitation Council (UK)	Short	General	General	The document should take the opportunity to encourage the sharing of trauma date and clinical outcomes with the ambulance service to improve teaching and learning.	Thank you for your comment. A recommendation on the submission of data to a national audit database is made in the Major Trauma: Service delivery guidance.
108	Resuscitation Council (UK)	Short	Genera	General	There is inconsistency in the use of the terms hypovolaemic	Thank you for your comment. We have

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			l		shock and haemorrhagic shock. We would suggest using only one term.	edited to document and now only refer to haemorrhagic shock.
109	Resuscitation Council (UK)	Short	General	General	The document quite rightly focuses on injury severity scores following trauma. However, patients admitted to wards within a hospital will have their on-going management directed by an early warning score, such as NEWS. It would therefore appear sensible for a recommendation to be made that patients who are admitted have a baseline NEWS (or other EWS) value documented before transfer from the Emergency Department to the ward.	Thank you for your comment. We have added this to the linking evidence to recommendation section of the Major Trauma: service delivery guideline which made this recommendation.
78	Royal College of Anaesthetists	Short	4	7-10	Section 1.1.1 – standard indications for RSI included are rightly included here – but there is no mention of expectant clinical course or as part of resuscitation strategy.	Thank you for your comment. The guideline development group reviewed the most clinically and cost effective way of managing the airway and compared different types of interventions, the review did support making recommendations on the expectant clinical course or as part of resuscitation strategy.
79	Royal College of Anaesthetists	Short	4	15-16	Section 1.1.3 – if RSI not possible then patient should be taken to MTC if within 60mins BUT should include if adequate oxygenation and ventilation can be maintained (concerned that ambulance service in absence of pre-hospital enhanced care will transfer head injured patients without protected airway over longer distance rather than pit stop at a TU – clearly not an issue if enhanced care present).	Thank you for your comment. This recommendation has been edited to make it clear to divert to a trauma unit if a patent airway cannot be maintained.
80	Royal College of Anaesthetists	Short	5	10-13	Section 1.2.2 – should mention that eFAST of chest best carried out pre-intubation to pre-empt decision to decompress chest.	Thank you for your comment. The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of performing pre-hospital eFAST. Drawing on the evidence and their experience appropriate recommendations were made for eFAST and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits

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						and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9).
81	Royal College of Anaesthetists	Short	5	23-26	Section 1.2.7 – surely a three way occlusive dressing or better still a dedicated chest seal would be better for an open pneumothorax?	Thank you for your comment. In the absence of evidence the guideline development group were not able to recommend any particular type of dressing over another and felt that the simplicity and cost effectiveness of using a simple airtight occlusive dressing (whilst anticipating and checking for the development of a tension pneumothorax) would promote rapid movement towards transporting the patient to an appropriate hospital. The linking evidence to recommendation has been edited to make this point clearer.
82	Royal College of Anaesthetists	Short	7	1-2	Section 1.4.3 – we understand that concern has been raised about the overuse of the pelvic binder, but decision should be made on mechanism only as physiology may not be significantly deranged and we don't examine for a pelvic fracture – noting that in patients with an altered mental status that will be difficult. Whilst we understand the potential complications of the device, none of these are in the life saving initial 2 hours. if properly applied and the pelvis appropriately imaged with binder released, then the pelvis can be 'cleared quickly without pressure sores developing etc. The danger of being too restrictive in the indication will mean that the device will not be applied when it is indicated, when instead it could be a life saver.	Thank you for your comment. The guideline development group confirmed that a pelvic binder should only be applied if there is suspected active bleeding (the recommendation has been edited) from a pelvic fracture following blunt high-energy trauma and not all suspected pelvic fractures. This has been changed to enable a pelvic binder to be applied based on clinical signs or mechanism of injury but only if active bleeding is suspected. The justification for this recommendation is in the linking evidence to recommendation section that explains that the only function of a pelvic binder is to control bleeding and that the over-use of pelvic binders may not cause any harm to the individual patient, but that the NHS would incur the costs of equipment, possible transfer to inappropriate locations or unnecessary investigations with no corresponding benefit

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						in outcome.
83	Royal College of Anaesthetists	Short	7	11-12	Section 1.4.6 – Administration of TXA should be stressed in suspected bleeding as it is this group that often gets missed as not obviously bleeding.	Thank you for your comment. The recommendation specifies suspected bleeding and the linking evidence to recommendation section has been edited to incorporate your point.
84	Royal College of Anaesthetists	Short	9	7-8	1.4.21 – our respondents feel that this is a real shift as to date it is common practice to maintain a radial pulse not central in blunt trauma, with concerns that any less than this may cause hypo perfusion of the brain, heart and kidneys. If hypotension is still bad and the patient is transported for up to 60mins to an MTC that's a long time in the absence of blood products.	Thank you for your comment. The guideline development group disagree and are clear that a central pulse (carotid or femoral) should be used. This is explained in the linking evidence to recommendation section 10.7.6. The guideline development group were in clear agreement that. although the evidence not strong it favoured maintaining blood pressures in the region of MAP of 50 which equates to a maintaining a palpable central pulse rather than previous recommendations for supporting higher blood pressure targets during active bleeding. The guideline development group understands hypoperfusion is undesirable but recognised that attempting to maintain higher blood pressures during active haemorrhage results in worse outcomes.
85	Royal College of Anaesthetists	Short	12	12-14	1.6.4 – our respondents suggest Fentanyl if available for analgesia and qualified staff available to deliver it. Ketamine preferred if patient requires a procedure (e.g. extrication, fracture manipulation).	Thank you for your comment. The recommendations on pain were extensively discussed by the Major trauma, spinal injuries and complex fractures guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 14 of the Major trauma guideline). The guideline development group were in

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						clear agreement about the benefits, harms and cost-effectiveness of different analgesia, these included fentanyl and ketamine. Drawing on the evidence and their experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). The guideline development group noted the paucity of evidence in this area and suggested there should be further research on comparing morphine and ketamine as the first line agent in patients with major trauma.
86	Royal College of Anaesthetists	Short	General	General	The guideline is comprehensive and offers some good advice. Some further general points were offered: • The key to understanding and delivering good trauma care is the Lethal triad of trauma and Coagulopathy of Trauma. These must be mentioned. • Although this is a clinical guideline, it should cover trauma networks having consultant led enhanced care teams 24/7. • Question on Lactates (page 20) – our respondents do not believe that these are a good marker as lots of variables can put the lactate up – Base deficit offers the same result and is more responsive. Lactates are more	Thank you for your comment. The importance of recognising, diagnosis and treating coagulopathy is mentioned in all of the relevant introductions and is reflected in the scope of the guideline and the subsequent recommendations. The linking evidence to recommendations section also highlights this issue. The guideline on major trauma service delivery makes recommendations on the organisation of trauma services including consultant led care 24/7.

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					suitable for daily orthopaedic ward rounds. • Our respondents suggest that crystalloids should be avoided as they are acidotic, hypo-thermic, can raise the pressure, worsen the clot and increase mortality; plasma-lyte would be a better option if no blood is available. • In presence of hypovolaemia our respondents suggest avoiding vasopressors and use blood products instead. Empiric use of calcium after each 4Us of blood product (need a reference for this).	Research recommendations are based on the scope topic and review question for the guideline and it is therefore centred on the clinical and cost effectiveness of lactate. Plasma-lyte is a crystalloid and is therefore an option. The avoidance of vasopressors was outside of the scope of this guideline.
87	Royal College of Anaesthetists	Full	62	Table 6.6	**Our clinical respondents have serious reservations about paramedics performing RSI; paramedic RSI is not undertaken in the UK. RSI is clearly a very high risk procedure and there is considerable observational data suggesting that there are safety concerns with paramedics doing Prehospital RSI. We would suggest that the authors of the guideline reconsider this proposal.** They also disagree on the 30min window for performing RSI at the scene. This will make it very difficult for the enhanced care teams who are currently providing this care and to a very high level.	Thank you for your comment. The linking evidence to recommendation section describes current UK practice and has been amended where it was implied that paramedics can currently undertake RSI. We have not made any recommendations about who should undertake this procedure in the future. The guideline development group agreed that 30 minutes could be initially difficult to achieve in some parts of the country and the recommendation has been edited and the time increased to 45 minutes.
177	Royal College of Emergency Medicine	Full	60	7	The commendable guidance recommending RSI at the scene within 30 minutes represents a huge challenge for many areas of the country and will require significant investment in training and recognition that achieving this standard will take some years to achieve, even with investment.	Thank you for your comment. This recommendation has been edited from 30 to 45 minutes. These recommendations were extensively discussed by the Major trauma and the Major trauma service delivery guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 6 of the Major trauma guideline and chapter 17 Major Trauma:

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						Service delivery guideline.). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (Chapter 9). In the linking evidence to recommendation section the resource impact of this recommendation is discussed. In summary, the resource impact of this intervention depends on a number of factors including training to improve who is dispatched to a major trauma, other interventions that can be delivered by the team and other patient groups who will benefit from the greater availability of these teams i.e. non-traumatic cardiac arrest. In addition, It is noted that local circumstances will need to be considered. The GDG considered that the benefits of providing RSI at the scene outweighed the resource implications. The Resource Impact Assessment team at

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						NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
178	Royal College of Emergency Medicine	Full	60	7	We would recommend that it is made explicit that patients with significant compromise of ventilation and or oxygenation should be taken to the nearest Trauma Unit if the transfer time to the major trauma centre will lead to a significant delay in securing a protected and effective airway.	Thank you for your comment this recommendation has been edited and now makes it explicit that a diverting to a trauma unit is required if a patent airway cannot be maintained.
179	Royal College of Emergency Medicine	Full	74	6	Finger thoracostomy - ensure that it is explicit that when performed in a spontaneously breathing patient this must be immediately followed by chest drain insertion	Thank you for your comment. This has been clarified in the recommendation.
180	Royal College of Emergency Medicine	Full	79	8	As above: the need for immediate chest drain in a spontaneously ventilated patient requiring a finger (open) thoracostomy must be more clearly emphasised.	Thank you for your comment. This recommendation has been edited.
181	Royal College of Emergency Medicine	Full	167	34	Intravenous fluid titration to a carotid pulse - we would recommend de-emphasis of the use of carotid pulse and emphasis instead the use of conscious level and / or femoral pulse, particularly in the elderly.	Thank you for your comment. The guideline development group disagree and are clear that a central pulse (carotid or femoral) should be used. This is explained in the linking evidence to recommendation section 10.7.6. The guideline development group were in clear agreement that. although evidence not strong it favoured maintaining blood pressures in the region of MAP of 50 which equates to a maintaining a palpable central pulse rather than previous recommendations for supporting higher blood pressure targets during active bleeding. The guideline development group understands hypoperfusion is undesirable but recognised that attempting to maintain higher blood pressures during active haemorrhage results in worse outcomes.
182	Royal College of Emergency Medicine	Full	261	29	The role of ketamine as a first line analgesic in patients with hypotension should be emphasised	Thank you for your comment. The recommendations on pain were extensively

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						discussed by the Major trauma, spinal injuries and complex fractures guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 14 of the Major trauma guideline). The guideline development group have noted in the LETR that care should be taken when administering morphine in patients with hypotension. The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of different analgesia. Drawing on the evidence and their experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9). The guideline development group noted the paucity of evidence in this area and suggested there should be further research on comparing morphine and ketamine as the first line agent in patients with major

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						trauma.
183	Royal College of Emergency Medicine	Full	General	General	A number of areas of the guidance refer to 'active bleeding'. We feel that the difficulty of clinically identifying a patient with 'active bleeding' should be emphasised within the guidance.	Thank you for your comment. An evidence review was conducted on prediction tools for haemorrhage (chapter 10). The guideline development group agreed that making decisions based on physiology at a single time point is not accurate and the recommendations therefore emphasise the use of dynamic responses to initial resuscitation as central to the recognition of active bleeding (see linking evidence to recommendation section). There is a research recommendation on the use of lactate as a measure for shock.
184	Royal College of Emergency Medicine	Full	16	6-9	Estimates of cost should include a reference to the year of estimate and would ideally be contextualised as a percentage of a reference baseline (eg NHS budget, GDP)	Thank you for your comment. This data is from The National Audit Office (2010). The date has been added but the additional information you suggest is not stated in the report.
185	Royal College of Emergency Medicine	Full	123	3	We would recommend that the use of pelvic binders should not be restricted to those with suspected active bleeding or haemodynamic compromise because of the difficulty of accurate clinical assessment of 'active bleeding'. Consideration should be given to the type of decision support tool developed by the Faculty of Pre-hospital care. http://conovers.org/ftp/BMJ-Pelvic-Binders.pdf .	Thank you for your comment. The guideline development group confirmed that a pelvic binder should only be applied if there is suspected active bleeding (the recommendation has been edited) from a pelvic fracture following blunt high-energy trauma. The use of the term suspected covers the point you raise that it is not possible accurately confirm active bleeding in the pre-hospital environment. The justification for this recommendation is in the linking evidence to recommendation section.
186	Royal College of Emergency Medicine	Full	194	9	Whilst understanding the de-emphasis of USS prior to CT we would highlight that this will present difficulties in skill maintenance and acquisition. Clearly USS must not be allowed to delay definitive imaging but we would ask that the guidance is not written in such a way as to preclude routine USS being a usual component of an effective trauma team.	Thank you for your comment. The recommendation was made based on the evidence on the diagnostic accuracy of CT compared to US in this clinical situation. The recommendation to avoid the use of ultrasound prior to CT is only for those patients having an immediate CT. In patients whose haemodynamic status is not

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						normal and it may be dangerous to take them to CT, other more easily accessible forms of imaging can still be used.
187	Royal College of Emergency Medicine	Full	55	8	The desire to improve written communication is laudable but the wording of the guidance is unclear as is the requirement to formulate a discharge summary prior to discharge.	Thank you for your comment. This recommendation has been edited to make it clearer when this should be sent to the GP.
188	Royal College of Emergency Medicine	Full	55	26-28	Facilitating the presence of a friend or relative in the resus room should not be allowed to interfere with the speed and efficiency of primary survey and acquisition of initial diagnostics.	Thank you for your comment. A recommendation has been added and the linking evidence to recommendation section has been edited to incorporate your point.
189	Royal College of Emergency Medicine	Full	55	32	The guidance for involvement of the mental health team should be rephrased to avoid a catch all 'as soon as possible'. Wording along the lines of 'as soon as the patient's ongoing care needs and clinical state allow for an effective interaction with a mental health professional'	Thank you for your comment. The guideline development group confirmed that the mental health team should be contacted as soon as possible so that the relevant health professionals can start to formulate a care plan. In some patients is important that this process occurs before an effective interaction can occur to avoid any delay in providing psychological support. This has been clarified in the linking evidence to recommendations section.
76	Royal College of Nursing	General	General	General	The Royal College (RCN) welcomes proposals to develop this guideline. The RCN invited members who work in the trauma and orthopaedic settings to review the consultation document. The comments below reflect the views of our members.	Thank you for your comment.
77	Royal College of Nursing	Short	18	22	Access to relevant services and healthcare professionals is important. 7 day working for all staff including pathology laboratories and radiology has been raised and more resources would be needed to ensure services runs smoothly especially when there is more than one major trauma patient being cared for at the same time.	Thank you for your comment. The NICE guideline on major trauma service delivery makes recommendations on the organisation of trauma services including consultant led care 24/7 and multidisciplinary trauma wards.
88	Royal College of Paediatrics and Child Health	Short	8	1.4.17	Intra osseous access should be obtained if intravenous access cannot be obtained within 5 minutes Citation : Advanced Paediatric Life Support: The Practical Approach (APLS) 5th Edition, ISBN : 978-1-4443-3059-5	Thank you for your comment. The guideline development group are unable to recommend the number of attempts or time frame before trying IO access as this would vary from patient to patient but the recommendation implies that in children IO should be considered first line if peripheral access is anticipated to be difficult.
89	Royal College of Paediatrics	Short	11	1.5.1	Particular care must be taken in children due to rapid heat loss	Thank you for your comment. The LETR in

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	and Child Health				secondary to their large surface area to weight ratio.	the full guideline has been edited in accordance with your suggestion.
90	Royal College of Paediatrics and Child Health	Short	4	1.1.4	Maybe should read – 'onward transfer to a major trauma centre'.	Thank you for your comment. The guideline development group confirmed that the wording of recommendations is clear and have not edited the recommendation.
91	Royal College of Paediatrics and Child Health	Short	8	1.4.17	Intra osseous access should be obtained if intravenous access cannot be obtained within 5 minutes Citation : Advanced Paediatric Life Support: The Practical Approach (APLS) 5th Edition, ISBN : 978-1-4443-3059-5	Thank you for your comment. The guideline development group are unable to recommend the number of attempts or time frame before trying IO access as this would vary from patient to patient but the recommendation implies that in children IO should be considered first line if peripheral access is anticipated to be difficult.
236	Royal College of Physicians	General	General		The RCP is grateful for the opportunity to respond to the NICE draft guideline consultation on major trauma. We would like to formally endorse the British Society of Rehabilitation Medicine's response on this consultation.	Thank you for your comment.
242	Royal College of Surgeons of England	Full	General	General	The Royal College of Surgeons of England is about to publish a document outlining a framework for the development of training and job plans for surgeons delivering initial haemorrhage control surgery for major trauma patients. This work will offer an opportunity for facilitating the implementation of these proposed guidelines by ensuring that the appropriate skills are available at each level of the Major Trauma Service.	Thank you for your comment. We look forward to the publication of your work.
243	Royal College of Surgeons of England	Short	15	19	This statement does not clarify when this guidance should apply, although the subsequent guideline does reference the resuscitation room it is not clear whether this is the limit to which this applies.	Thank you for your comment. This point is covered in the linking evidence to recommendation section.
244	Royal College of Surgeons of England	Short	15	21	This is worded as an absolute, i.e. always do this, however, circumstances may counter indicate this if patient or hospital staff safety might be compromised. Would 'consider inviting their family member… if viewed to be clinically appropriate…' be a more appropriate wording?	Thank you for your comment. It is not possible to capture all of the points in the recommendation but they are discussed fully in the linking evidence to recommendation section.
245	Royal College of Surgeons of England	Short	15	12	The phrase 'and avoid being overly optimistic or pessimistic' is vague and is not actionable. With this removed the guidance would be clearer.	Thank you for your comment. The guideline development group confirmed that this was an important point and it should remain in the recommendations. This is discussed in the linking evidence to recommendation

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						section.
246	Royal College of Surgeons of England	Short	14	24	This bullet is not compatible with the first on line 22 (aimed at the patients GP) as if the paper is aimed at the GP the patient may not understand it. Line 23 (written in plain English) covers the level to which the document needs to be understandable but the level of understanding of the patient/relative etc. will vary on a case by case basis so is not possible to action this, e.g. if the patient were a young child or did not speak any English. To address this it may be advisable to omit this bullet.	Thank you for your comment. This recommendation has been edited to make it clearer when the summary should be written and who it is aimed at.
247	Royal College of Surgeons of England	Short	17	19	The guidelines on training would be strengthened by reference to the healthcare professional being able to 'demonstrate competence' in the relevant knowledge and skills to deliver the interventions required.	Thank you for your comment. There is a recommendation in the Major Trauma: Service delivery guideline that all staff have the training and skills to deliver, safely and effectively, the interventions specified in the guideline.
248	Royal College of Surgeons of England	Short	18	1	This guideline would be strengthened by reference to the healthcare professional being able to demonstrate competence in the interventions required.	Thank you for your comment. There is a recommendation in the Major Trauma: Service delivery guideline that all staff have the training and skills to deliver, safely and effectively, the interventions specified in the guideline.
238	Sheffield Teaching Hospitals NHS Foundation Trust	Short	7	1	(line 1-5) The ED team support this as we feel binders are being overused at present	Thank you for this comment.
239	Sheffield Teaching Hospitals NHS Foundation Trust	Short	14	19	(lines 19-27) It is not clear to us why if this information is aimed at the patient's GP, why it is to be sent to them on discharge, when the summary should be done at 24h. There is already a lot of paperwork (eg tertiary survey, rehab advice note) to be done early in the patient's stay and this will be challenging to implement due to staffing resource.	Thank you for your comment. This recommendation has been edited to make it clearer when the summary should be written and who it is aimed at.
110	South Western Ambulance Service NHS Foundation Trust	General	General		Thank you for the opportunity to comment on the guideline. These comments are in addition to the comments to be received from the Association of Ambulance Chief Executives (AACE)	Thank you for your comment.
111	South Western Ambulance Service NHS Foundation Trust	Short	4	17	This should specify a 2nd generation supraglottic device to minimise aspiration risk (e.g. iGel, LMA Supreme). Additionally, this section goes on to recommend transport to an MTC for RSI if the travel time is within 60mins. This is too long with an unprotected airway and suboptimal ventilation, particularly in the context of brain injury. It is also not compatible with the earlier recommendation that RSI should be undertaken within 30minutes	Thank you for your comment. A reference to second generation devices has been made in the linking evidence to recommendation section. The airway recommendations have been edited to within 45 minutes and it has been clarified that if a patent airway cannot be maintained then divert to a trauma unit.

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					of the 999 call. The current recommendation to travel to a TU for airway security should stand. Recommendations should focus on strategies for minimising subsequent delays before onward transfer to an MTC e.g. RSI only with no CT at the TU.	The evidence reviews did not examine different strategies and the guideline development group were unable to make recommendations for this.
112	Stockport NHS Foundation Trust	Short	4	15	Is this recommending that paramedics perform this at the scene and if so what training do they get	Thank you for your comment. The linking evidence to recommendation section describes current UK practice and we have not made any recommendations about who should undertake this procedure in the future.
113	Stockport NHS Foundation Trust	Short	5	15	Do they not need radiography to establish a true pneumothorax before decompression	Thank you for your comment. This recommendation is pre-hospital where radiography is not available. See section of chest imaging in hospitals where this is made clear.
114	Stockport NHS Foundation Trust	Short	16	20	What about access to priest or minister as required and if necessary	Thank you for your comment. We have added a cross-references to the NICE guidelines on 'Care of the dying adult' (due to be published December 2015), 'End of life care for infants, children and young people' (due to be published 2016) and Improving supportive and palliative care in adults (update) (due to be published January 2018) in the 'other considerations' section of the linking evidence to recommendations.
115	Stockport NHS Foundation Trust	Short	18	22	7 day working for all staff including path labs and radiology more resources would be needed to ensure service runs smoothly especially when there is more than one major trauma at once	Thank you for your comment. The NICE guideline on major trauma service delivery makes recommendations on the organisation of trauma services including consultant led care 24/7 and multidisciplinary trauma wards.
116	Stockport NHS Foundation Trust	Short	22		There is no recommendations for a pregnant casualty	Thank you for your comment. While the guideline development group recognise this an important population to consider this was not identified by stakeholders at the scoping stage as important area for inclusion. NICE guideline scopes particularly address areas where there is uncertainty or national

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						variation in practice, and it is rarely feasible to cover all areas.
49	The Newcastle upon Tyne Hospital NHS Foundation Trust	Full	51	16	20. Do not apply a pelvic binder unless active bleeding from a pelvic fracture is suspected. At this stage it will be of limited effect, please see earlier form – complex fractures	Thank you for your comment. The recommendation has been edited to make it clearer that a pelvic binder should be applied to a patient with suspected bleeding from a pelvic fracture following blunt high-energy trauma. This has been changed to enable a pelvic binder to be applied based on clinical signs or mechanism of injury but only if active bleeding is suspected. The guideline development group confirmed that the only indication for applying a pelvic binder is in the patient with suspected bleeding and for any other reason.
50	The Newcastle upon Tyne Hospital NHS Foundation Trust	Full	53	14	55. Use damage control surgery in patients with haemodynamic instability who are not responding to volume resuscitation. 56. Consider definitive surgery in patients with haemodynamic instability who are responding to volume resuscitation. 57. Use definitive surgery in patients whose haemodynamic status is normal. Can this be altered to highlight resuscitation status and response to treatment – not just BP/HR but temp/lactate/coag/ongoing fluid and product requirements etc…..(more of a global/holistic overview)	Thank you for your comment. The guideline development group confirmed that the wording of the recommendation is clear and the words 'not responding to resuscitation' capture the indications you have suggested. The guideline development group decided not to recommend a list of measures to avoid the possibility the list would be seen as a definitive list and to ensure a holistic overview is taken by the clinician.
51	The Newcastle upon Tyne Hospital NHS Foundation Trust	Full	240	1	12.3.6 Research recommendation: Is lactate monitoring in patients with major trauma clinically and cost effective? Needs to be taken in conjunction with other parameters and not in isolation – see above	Thank you for your comment. Research recommendations are based on key uncertainties identified through the evidence review that are likely to inform decision making but the GDG did not identify this as an area for such a recommendation
69	The Royal College of General Practitioners	Full	58	1	The proposal to make RSI more widely available to trauma patient pre-hospital is generally to be welcomed, but some realism is needed to understand that this will never be available to the majority of trauma patients. Distinction is made between intubation with drugs (sedation and	Thank you for your comment. No evidence was identified for PALM and the guideline development group confirmed that the benefits and harms of this intervention are unclear and no recommendation could be

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					neuromuscular blocking) and intubation without drugs. No such distinction is made with supraglottic airways. PALM (Pharmacologically Assisted Laryngeal Mask Insertion) is an established technique that provides some of the benefits of RSI in a variety of situations where RSI is impossible, impractical or more dangerous than alternatives. It is the subject of a consensus statement by the Faculty of Pre-Hospital Care. http://bit.ly/1MEaT4S Its role should be considered as part of the guidance. Much pre-hospital care, particularly in rural environments, is carried out by general practitioners with extended skills. These doctors are very rarely able to acquire and maintain the skill of RSI, but can learn PALM as a rescue technique to be used when simple airway adjuncts prove inadequate.	made on its use (chapter 6 of the Major trauma guideline). Evidence was identified in the Major Trauma: Service delivery guideline to support the recommendation for RSI in the pre-hospital environment and the justification for this recommendation is contained in chapter 17. The Major Trauma and Service delivery guideline development groups extensively discussed the available evidence, including the quality, for the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections as mentioned above. The guideline development groups were in clear agreement about the benefits, harms and cost-effectiveness. Drawing on the evidence and their experience appropriate recommendations were made for these interventions and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9).
70	The Royal College of General Practitioners	Full	59	1	The induction drug in the costing is thiopentone. This will very rarely be used in trauma, particularly in the pre-hospital environment. Ketamine would be the more usual drug.	Thank you for your comment. This has been amended and now includes Ketamine as the anaesthetic and Rocuronium as the muscle relaxant.
71	The Royal College of General Practitioners	Full	60	70	In the pre-hospital environment it is fine to "aim" to perform RSI at the scene. The guidance should however make quite clear that transport of the patient to hospital should NOT be delayed to wait	Thank you for your comment. The GDG confirmed that RSI should be delivered in the pre-hospital environment unless it

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					for a practitioner competent to perform RSI to arrive and set up his/her equipment.	cannot be delivered within 45 minutes (edited from 30 minutes). It has been made clearer in the LETR that it is not implied a patient ready to be transported to hospital should wait for an RSI. This is a judgement that must be made taking into account local factors and proximity to MTC. These recommendations were extensively discussed by the Major trauma and the Major trauma service delivery guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 6 of the Major trauma guideline and chapter 17 Major Trauma: Service delivery guideline.). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (Chapter 9).

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						The Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
72	The Royal College of General Practitioners	Full	74	6	Thoracostomy is better than needle decompression if the patient is ventilated. Although it is best practice to ventilate patients with severe chest injuries, there are time when this is not possible. The guidance should be clear about what is the best procedure then. Mention should be made of the ThoraQuik device that is designed for this purpose and has expert recommendation. http://emj.bmj.com/content/28/9/750.abstract	Thank you for your comment. The recommendation has been edited. The guideline development group were in clear agreement about the benefits, harms and costs of thoracostomy. We have edited the linking evidence to recommendation section and now refer to devices and not cannulas. The costs of some purpose made devices for needle decompression have been added into tables 17 and 21 as an illustration of these costs.
73	The Royal College of General Practitioners	Full	262		Fentanyl is discounted as having no pharmacodynamic benefit over morphine. This is probably true for practical purposes. It does however have the pharmacokinetic benefit of being faster acting and shorter lived. It is therefore possible to achieve adequate analgesia faster with fentanyl than with morphine and so reduce on-scene times. It also makes a good intranasal analgesic (particularly for children) and an adjunct to RSI. Whilst it should not currently become a drug carried on ambulances, it is a preferred opiate by many experienced pre-hospital doctors. This should probably be reflected in the guidance. Ketamine is a useful drug as the draft guidance suggests. Its use is however not hazard free. Like fentanyl, it has a quick onset and quite short duration. Unlike either fentanyl or morphine, the speed with which it is given determines how dangerous it is. Mention should be made that practitioners need specific training to use this drug which is only licensed for use by anaesthetists (except in emergencies).	Thank you for your comment. The recommendations on pain were extensively discussed by the Major trauma, spinal injuries and complex fractures guideline development groups. The guideline development groups took into account the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections (chapter 14 of the Major trauma guideline). The guideline development group were in clear agreement about the benefits, harms and cost-effectiveness of different analgesia, these included fentanyl and ketamine. Drawing on the evidence and

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					There is an important research question to be answered about the use of very short acting analgesics (ketamine, alfentanyl and remifentanil) administered by either volumetric or TCA pump.	their experience appropriate recommendations were made for in the guideline and this is reflected in the wording and the strength of the recommendations. A strong recommendation, for example to offer an intervention, is made if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. If there is a closer balance between benefits and harms a weaker recommendation is made, for example to consider an intervention. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012) (chapter 9).
74	The Royal College of General Practitioners	Full	General	General	Which areas will have the biggest impact on practice and be challenging to implement? Please say for whom and why. Bringing RSI to the scene will be hugely problematic due to the scarcity of trained practitioners and the difficult of both obtaining initial training and maintaining skills.	Thank you for your comment. In the short guideline on major trauma service delivery the appendix identifies the recommendations that may have particular implications for service delivery. In addition, the Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards. This recommendation has been edited from 30 to 45 minutes. The GDG recognised that there will be resource implications associated with the recommendation on RSI pre-hospital; however felt that the approach recommended would be cost effective. There are many factors to consider when evaluating the cost and cost effectiveness of providing RSI on scene; such as the accuracy of the dispatch triage, the training and competency of the person undertaking the RSI, the other interventions that the RSI team can provide. Most of these are likely to

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						be determined by local circumstance. It is important to note the population requiring RSI is likely to be small as the trauma population is small to begin with. There are, however, other populations that may benefit from RSI resources such as cardiac arrest patients. Therefore, having healthcare professionals trained in RSI may have a positive impact on other populations as well. It is recognised that this may be a challenge in some areas however the GDG felt that their role is to drive a change in practice in terms of avoiding diverting to a TU unless absolutely necessary, as the best place to treat major trauma patients is in a major trauma centre. If RSI cannot be performed at the scene within 45 minutes or a patent airway cannot be maintained then the patient can be diverted to a TU. In summary the GDG felt the benefits would outweigh the resource implications.
75	The Royal College of General Practitioners	Full	General	General	What would help users overcome any challenges? (For example, existing practical resources or national initiatives, or examples of good practice.) Having a tiered approach with "Generalist pre-hospital doctors" (e.g. BASICS GPs) dispersed throughout the country having intermediate level skills such as PALM AND "Specialist pre-hospital doctors" (such as those trained in the PHEM programme" available for large geographical areas using helimed during the day and dedicated land vehicles by night.	Thank you for your comment. The NICE implementation team are working with the guideline development group to identify examples of good practice and other initiatives to support the implementation of the guideline.
92	The Royal College of Radiologists	Full	202		"The GDG also identified lifetime radiation risk to be a clinical harm of whole-body CT. The GDG also noted that whole-body CT may lead to unnecessary follow-up appointments for injuries that are not clinically important. In particular, the GDG noted that a whole-body CT scan will give them a radiation dose of more than 20 millisievert. This is twice the level required to give an adult aged 40 years a 1 in 1000 chance of future cancer, as defined by the National Academy of Science's Seventh Assembly of the	Thank you for your comment. This sentence has been removed.

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					Committee on Biologic Effects of Ionizing Radiation (ref). The radiation dose alone is, therefore, a valid reason to limit the amount of trauma call patients with low ISS scores routinely undergoing CT scans. Furthermore, the radiologist and countersigning radiologist are also given a substantial extra workload examining the CT scans." This latter statement carries the implication that all Whole Body CT trauma scans are double reported. Double reporting of whole body CT in a timeframe relevant to the critical status of these patients is undeliverable. **References:** i) New RCR survey finds patients still waiting too long for test results **https://www.rcr.ac.uk/posts/new-rcr-survey-finds-patients-still-waiting-too-long-test-results** ii) RCR and BSIR respond to shortfall in interventional radiology provision **https://www.rcr.ac.uk/posts/rcr-and-bsir-respond-shortfall-interventional-radiology-provision** iii) RCR Workforce Census 2014: https://www.rcr.ac.uk/sites/default/files/publication/bfcr153_census_20082015.pdf	
93	The Royal College of Radiologists	General	General		Costs are based on NHS reference costs – an out of hours CT scan with a consultant radiologist reporting it may be considerably more expensive. If scanning capacity is already full, then any expansion of scanning as a consequence of implementation of NICE guidance would require additional scanners, radiographers to run them and radiologists to report the output - we suspect this has not been factored into the NHS reference costs the economic calculations have been based upon. Reference: Clinical Imaging Board Report on *CT Equipment, Operations,*	Thank you for your comment. You are correct that if additional scanners and resources are needed this is an implementation issue and would not have been factored into the cost from NHS reference costs. Economic costs of providing an intervention in clinical guidelines are based on a per person cost. The Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur, for the country as a whole, as a result of

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					Capacity and Planning in the NHS	commissioning and implementing services in line with NICE guidance and quality standards. However after the initial implementation costs, the additional cost per unit of CT scan performed should be the same as the NHS Reference cost, which would also take into account out of hours provision as this is an average cost of the hospitals that submitted data and included all staff and consumables needed to perform a scan. No model was undertaken for this guideline so judgements about cost effectiveness have been made based on weighing up the costs and benefits in an informal way. The GDG felt that where they have recommended imaging, this is likely to be cost effective because; it allows the appropriate management to take place, CT is also considered the gold standard for the major trauma population in question therefore minimising false positives and false negatives compared to other modalities. Overall the costs were felt to justify the benefits, and any short term implementation costs to achieve the recommendations were also felt to be worthwhile and will be cost effective in the long term.
94	The Royal College of Radiologists	General	General		In contrast with the spinal injury guidance, at no point in this document does the suggestion "discuss ….. findings with a consultant radiologist" or "interpreted immediately by a radiologist" appear, despite the implied double reporting alluded to above.	Thank you for your comment. The recommendation,' Imaging should be performed urgently, and the images should be interpreted immediately by a healthcare professional with training and skills in this area' has been added to address your point and the sentence about double reporting has now been removed from the text.
117	The Society and College of Radiographers	full	53	7	This recommendation may be a challenge where the CT scanner has insufficient capability to perform this length of scanogram,	Thank you for your comment. A recommendation has been added to specify

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					requiring the patient to be manually repositioned to allow the full survey to be performed. This has implications for the radiation dose to the patient and the increased manual handling for staff.	that a patient should not be repositioned and further detail has been added to the linking evidence to recommendation section. This makes it clear that the ease of scanning the limbs during the same session depends upon the size of the scanner, as the patient may need to be turned around to scan the limbs, which could add delays; however this is generally the case with older scanners which are becoming less common. For the reason of delay, the guideline development group felt that patients should not be repositioned to undertake the scanogram.
118	The Society and College of Radiographers	Full	53	10	The role of projection radiography should be considered here, not all limb fractures are best diagnosed/assessed by CT scanning and this increases radiation dose to the patient	Thank you for your comment. The recommendation is for patients undergoing a whole body CT with blunt trauma and suspected multiple injuries.
119	The Society and College of Radiographers	Full	53	7	The Society and College of Radiographers are concerned that the justification for whole body CT and the radiation dose received is inadequately defined.	Thank you for your comment. The guideline development group reviewed the linking evidence to recommendation section for this recommendation (section 11.3.6) and agreed that the justification for whole body CT is clear and that the radiation dose is stated.
120	The Society and College of Radiographers	Full	53	7	The Society and College of Radiographers are concerned that no reference is made to the reporting of the CT images by a suitably trained and experienced radiologist or reporting radiographer. Appropriate and high quality Image acquisition is only one element of the imaging diagnostic pathway, accurate interpretation of images by an expert is essential in a timely manner.	Thank you for your comment. We have added a recommendation in the sections on chest imaging and haemorrhage imaging that To specify that the images need to be interpreted immediately.
233	University Hospitals of North Midlands NHS Trust	Full	167	34	37. Our experience at UHNM and that discussed in the International resuscitation community is one of *relatively* liberal blood product resuscitation, titrated with the concurrent use of sympatholytics such as fentanyl or anaesthetic agents, to gradually fill the intravascular space whilst maintaining a hypotensive state. This approach maximises peripheral perfusion and reduces the acute coagulopathy of trauma. The evidence base for this technique isn't strong and is slowly	Thank you for your comment. The guideline development group agree this is an interesting question but research recommendations are based on key uncertainties identified through the evidence review that are likely to inform decision making but the GDG did not identify this as a topic for such a recommendation.

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					building, so perhaps this could be cited as a research question if you can't make it a recommendation? Reference: Br J Anaes 2012;109(s1):i39 - particularly page i44	
234	University Hospitals of North Midlands NHS Trust	Full	167	34	38. Again, our experience at UHNM and that discussed in the international resuscitation community are currently practicing targeted resuscitation to a systolic BP of 80– 90mmHg, in blunt trauma. In the 2000 BMJ paper which challenges ATLS guidelines as to the correlation between palpability of peripheral and central pulses to a specific blood pressure, it was seen that 83% of patients lost their radial pulse below 80mmHg, and no patient had a blood pressure of greater than or equal to 60 systolic when they lost their carotid pulse. The recommendation to target to a central pulse would result in excessive hypotension during the resuscitation phase. It is the current recommendation of the faculty of prehospital care to target resuscitation to the presence of a radial pulse. References: BMJ. 2000 Sep 16; 321(7262): 673–674 J R Army Med Corps 2004; 150: 96-101 (also listed on fphc.co.uk resources)	Thank you for your comment. The guideline development group disagree and are clear that a central pulse (carotid or femoral) should be used. This is explained in the linking evidence to recommendation section 10.7.6. The guideline development group were in clear agreement that although the evidence was not strong, it favoured maintaining blood pressures in the region of MAP of 50 which equates to a maintaining a palpable central pulse. . The guideline development group understands hypoperfusion is undesirable but recognised that attempting to maintain higher blood pressures during active haemorrhage results in worse outcomes.
235	University Hospitals of North Midlands NHS Trust	Full	General		**Other recommendations** All the others in the major trauma section are in line with our current practice, and I welcome the reassurance regarding management of a tension pneumothorax, particularly advocating thoracostomy over needle based techniques at this time.	Thank you for your comment.
249	West Midlands Ambulance Service Foundation Trust	Full	50	8	There should be a recommendation that a device specifically designed for tension pneumothorax is used rather than a cannula, we are evaluation several such devices in the West Midlands	Thank you for your comment. The guideline development group was unable to find evidence recommending one device over another but recognised the limitations of intravenous cannula and this has been removed.
250	West Midlands Ambulance Service Foundation Trust	Full	112	14	The Faculty of Pre Hospital Care consensus statement on control of external haemorrhage should be considered when available-	Thank you for your comment. The guideline provides recommendation on the control of

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						external haemorrhage for the topics outlined in the scope. NICE guidelines do not signpost to guidance with is not produced or accredited by NICE.
251	West Midlands Ambulance Service Foundation Trust	Full	178	General	Comment from staff member - My name is [redacted], I am a HART paramedic currently finishing my CCP course [redacted]. As part of study [redacted] I have done a literature review on the use of Freeze Dried (Lyophilised) Plasma (FDP) as an alternative to Fresh Frozen Plasma (FFP) in prehospital blood transfusions. FDP provides many logistical advantages over FFP such as room temperature storage, no cold chain, a very short reconstitution time etc. Currently it is manufactured in France and Germany and is not licensed for use in the UK. However, it is currently being used by various UK HEMS services such as KSS (Kent, Sussex, Surrey), Wales, London and soon to be Midlands Air Ambulance, all off-licence. I also think it has potential for use as a plasma only resuscitation product. The NICE guidelines only reference to FDP is that 'it is not commonly used in practice'. I think that this product has significant promise and could be investigated further.	Thank you for your comment. We are unable to make recommendations on products which are not licenced in the UK and we have noted in chapter 10 that FDP is not as commonly used as fresh frozen plasma.

Registered stakeholders