Complex fractures

Consultation on draft guideline - Stakeholder comments table
07/08/15 to 21/09/15

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97	Association of ambulance chief executives	Full	23	46	We are not convinced of the evidence for pre hospital antibiotics for all open fractures and this would pose difficulties for implementation in ambulance services. Also concerns re. Definition of an open fracture (see below). We would suggest that it could be introduced for advanced/specialist/critical care paramedics that have had additional training in trauma care and management. Administration could delay transport to hospital. Could journey time be added as a consideration or factor in deciding if antibiotics should be administered?	Thank you for your comment. The absence of RCT evidence and the quality of the evidence available was discussed by the GDG. Overall, the prevention of deep infection after an open fracture was considered essential to avoid tragic sequelae, such as amputation or even death. The Guideline Development Group believe the available evidence supports the administration of prophylactic antibiotics within one hour of the injury. An open fracture is defined in the guideline glossary as "A fracture associated with a wound. The skin may be pierced by the bone or by a blow that breaks the skin at the time of the fracture. The bone may or may not be visible in the wound." The guidance states administration should not delay transfer to hospital giving the option of antibiotic administration during transfer. The Guideline Development Group considered that antibiotics could be given once the patient is in the ambulance and therefore not delay the time it takes the patient to get to hospital. This is noted in the discussions in the full guideline. The Guideline Development Group believe it is important that all people with open fractures should be given antibiotics and it should not be dependent on the seniority/experience of the attending paramedic.

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98	Association of ambulance chief executives	Full	4	46	We would like a clearer definition of what an open fracture is, or what the definition of a suspected open fracture is. Our concerns would relate to inappropriate patients being transported further distances to a major trauma centre. This would impact on ambulance resource availability due to longer journey times to hospital.	Thank you for your comment. An open fracture is defined in our glossary as "A fracture associated with a wound. The skin may be pierced by the bone or by a blow that breaks the skin at the time of the fracture. The bone may or may not be visible in the wound." The Guideline Development Group believe that for long bone or hindfoot and midfoot open fractures the most important feature of the optimal destination was that it should provide orthoplastic care, which would usually mean it would be a MTC or a specialist centre for orthoplastic care. The benefits of getting the patient to orthoplastic care where the expertise exists to treat these patients in the timely manner required were believed to outweigh possible harms in terms of greater time in reaching that destination and the delay to starting treatment. This is supported by other evidence and recommendations in this guideline that advise immediate debridement for some open fractures and that all open fractures should be debrided within 24 hours
99	Association of ambulance chief executives	Full	45	18	Would be useful to give clarity to whether taking photos of suspected open fractures and using them for 24/7 clinical decision making is intended for pre hospital care. This would be challenging to implement in ambulance services and new technology, governance and investment would be needed to take and send the photos	Thank you for your comment. The recommendation is written so that it applies to patients when they are in hospital. It could apply to pre-hospital settings but this has not been specifically recommended.
119	Barts Health NHS Trust, The Royal	Full	53	11	Point 1 - Transporting ALL open fractures to MTC is surely overkill. Low energy open fractures (eg puncture wound over open tibia fracture from football injury) do not	Thank you for your comment. The Guideline Development Group believe that all open long bone and hindfoot and midfoot fractures need to be transferred to

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	London Hospital				require ortho-plastic care. Most Trauma Units are entirely capable of dealing with low energy open fractures. The decision to transfer to MTC should be based upon the mechanism of injury, not merely on the fact of it being open vs closed In addition, open humerus, forearm and femur fractures rarely require 'orthoplastics' unless there is clear skin loss or large open wounds that would be evident to a pre-hospital team. My recommendation would be for open fractures of long bones, midfoot and hindfoot to be taken direct to MTC if: a. They arose from a high energy mechanism or b. There is a significant sized wound (bigger than a puncture wound) observed by the pre-hospital team or c. There are multiple injuries	an Orthoplastic centre 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 those as recommended from supporting evidence. There is no evidence to indicate that open upper limb fractures (excluding the wrist and hand) should be managed differently to this. In addition, this recommendation should 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 our guideline.
120	Barts Health NHS Trust, The Royal London Hospital	Full	76	31	Point 4 - This list should include, as an option, Trauma/vascular surgeon. General surgical trauma surgeons with vascular experience are, in some institutions, critical members of the multidisciplinary surgical team and therefore will commonly be part of the limb viability decision-making process. These should be included in the salvage decision, particularly since	Thank you for your comment. The Guideline Development Group recognise the value of vascular surgeon input to the decision but do not believe it always necessary to have vascular input to perform a delayed primary amputation. The recommendation reflects the team members the Guideline Development Group considered as the minimum to involve in the decision.

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					vascular insufficiency may be part of the reason for questionable viability. The vascular surgeon may well be the one who re-vascularises a limb – they should therefore be involved in any secondary amputation discussion, if appropriate.	We have added to the section on 'Recommendations and link to evidence' of the full version of the guideline to state this.
121	Barts Health NHS Trust, The Royal London Hospital	Full	86	1	Point 10 - It does not make sense to push further gross contamination into open fractures wounds. If an open femur fracture comes into ED with the bone end exposed and clearly covered in bits of grass and dirt, it is surely reasonable to briefly irrigate it with saline prior to applying traction to reduce the fracture. Irrigating open fractures in the ED is highly unlikely to cause harm and may well reduce some of the contamination load that goes back into the wound as reduction happens. Given that fractures may wait up to 24 hours to formal debridement, it seems reasonable for ED teams to have the option of using their discretion to perform brief irrigation if it seems indicated to them, although I agree that irrigation should not be routine, since it's usually not necessary.	Thank you for your comment. Outside of the theatre environment where surgical exposure of the injury can be achieved, lavage has the potential to drive contamination deeper into the tissue. The Guideline Development Group believe lavage of wounds with gross contamination in the ED or pre-hospital setting has not been shown to improve outcomes. These open fractures are described in the guidelines as those requiring emergency access to theatre for assessment, debridement followed by lavage.
122	Barts Health NHS Trust, The Royal London Hospital	Full	125	13	Point 13 - Grade I and II open fractures surely do not require plastic surgical input. There are a large volume of lesser open fractures (from low-energy mechanisms), which require simple wound debridement, primary closure and fracture stabilization. These do not require 'orthoplastics', surely?	Thank you for your comment. 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.

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						The economic evidence showed that it may be less costly than other theatre strategies to perform debridement and definitive fixation in one theatre session followed by definitive cover in a later session. However the Guideline Development Group believed having metal work exposed following invasive definitive fixation will increase the risk of deep infection and subsequent amputation. They believed that the costs saved overall would be lower than those shown in this analysis and agreed that this surgical strategy was not likely to be a cost effective strategy.
123	Barts Health NHS Trust, The Royal London Hospital	Full	125	13	Point 14 - 12 hours is too short for severe open fractures. If BOAST-4 has taught us anything, it is that carrying out surgery WELL is much more important than doing it QUICKLY. This means that a well-rested orthopaedic AND plastic surgeon are required during daylight hours for this operation to be done optimally. If a patient sustains a severe open fracture at 14.00 pm, they make it to the ED by 16.00 and are starved for theatre by 18.00 – the on-call team are then committed (under these guidelines) to carry out surgery outside of normal working hours (indeed with other emergencies, it's likely to be in the early hrs of the morning). This will result in patients being taken to theatre by teams other than the 'A-team', which would be a return to the 'bad old days' of surgeons feeling they have to operate on severe open fractures at night, when really what is best for the patient is to have them done in an almost semi-elective setting the following day. A 12-hour recommendation would, in reality, be a	Thank you for your comment. The Guideline Development Group believe that on the evidence available it was appropriate to stratify the severity of the injuries. For those severe open fractures it was appropriate to recommend the initial treatment was performed both well and quickly. 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 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.

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					step backwards in care, even though it seems like a worthy idea on the surface.	Other recommendations relating to the transport of patients to the appropriate centres should make this feasible. 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	Barts Health NHS Trust, The Royal London Hospital	Full	142	10	Point 19 - This oversimplifies the condition for many trauma units that have long transport times to their MTC. For many TUs, immediate transfer may well be the correct decision. However, if a TU is remote from its MTC (eg Norfolk and Norwich from Addenbrookes) then it would make more sense for the TU to commence their first-line haemorrhage management PRIOR to the patient going in an ambulance, particularly if they have a massive haemorrhage protocol already in place. The Guideline should acknowledge the varying capabilities of different TUs, they should emphasise the importance of early liaison with MTC and they should be worded to leave some freedom for variation in local solutions. The current version is way too simplistic. Immediate transfer may kill some patients in the ambulance who might have survived in a well-organised TU that is in close liaison with their MTC.	Thank you for your comment. The Guideline Development Group strongly feel 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 most effective haemorrhage control care is provided at MTCs and the outcomes of care are very sensitive to delays. Therefore, the Guideline Development Group considered that such patients should be transferred immediately. The link to evidence (LETR) section of the full version of the guideline acknowledges there is a potential risk of death in transferring a patient who is severely haemodynamically unstable and that a judgement must be made by the clinician. Our service delivery guideline also recommends • Spend only enough time to give life-saving interventions at the trauma unit before transferring patients for definitive treatment. • Be aware that the major trauma centre is the ultimate destination for definitive treatment.
125	Barts Health NHS Trust, The Royal	Full	147	15	Point 21 - This cannot be sensible, pragmatic advice. Pelvic binders are widely agreed not to cause additional harm, provided they are not left on for too long after	Thank you for your comment. The Guideline Development Group believed that pelvic binders are likely to be overused and they confirmed that a pelvic

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	London Hospital				application. They are safe in all fracture types and situations. They are harmless even when there is NO pelvic fracture! This has led to pre-hospital teams feeling empowered to put them on by the roadside, which has a positive impact on patients that DO have pelvic fractures because their pelvis is stabilised and clot is forming from very early in their course; often BEFORE they become coagulopathic and cold. Recommending that they are ONLY put on to shocked patients will have the effect of making pre-hospital teams think twice about putting them on and this will be a detriment to the patients. Also, there will be some patients with pelvic fractures that ARE bleeding but which do not appear to be so, when assessed by the pre-hospital team – so (under this recommendation) no binder goes on. The patient then arrives in the ED, shocked from their blood loss but without a binder. The recommendation should read – a binder should be considered for all patients suspected of having a pelvic fracture, particularly those exhibiting signs of shock.	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 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 justification for this recommendation is in the linking evidence to recommendation section
126	Barts Health NHS Trust, The Royal London	Full	151	14	Point 24 - This is poor advice. Binders are haemostatic devices, not orthopaedic ones. Removal of pelvic binders has nothing to do with 'the stability of the pelvic fracture'. Binders are applied to stop bleeding, not to address x-ray	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.

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	Hospital				appearances. One does not need a pelvic surgeon to decide whether to take a binder off or not – this should be a team leader decision and should be based upon whether the trauma team feel that the patients is either still bleeding (binder stays on) or Haemodynamically stabilised (binder can come off but be re-applied if they subsequently decompensate) 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. The recommendation about 'agreeing with a pelvic surgeon before removing binder…' should be removed. The removal of binder is a haemodynamic decision. The definitive treatment of the pelvic fracture is a pelvic surgeon decision and the two are not logically linked. Pelvic fracture decision making is independent of the binder. The recommendation should read – An early opinion from the orthopaedic pelvic specialist regarding definitive fracture management should be obtained but this should not delay removal of the binder if the patient is haemodynamically stable on serial assessments.	The pelvic fracture should be both skeletally and haemodynamically stable before removing the binder. The recommendation about discussing with the pelvic surgeon is to determine how to manage an unstable pelvic fracture, not whether to remove the binder or not. The wording has been amended to highlight removing the binder if the patient is no longer bleeding and has normal coagulation. Further detail about the justification for this recommendation is in the section on 'Recommendation and link to evidence' in the full version of the guideline. 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	Barts Health NHS Trust, The Royal	Full	161	1	Point 26 - This is too strong and too didactic. Many centres obtain routine plain xrays of pelvis and chest prior to CT and there is no evidence to suggest that this is bad	Thank you for your comment. No evidence was identified to support obtaining an x-ray before a CT. As CT would be indicated to diagnose the pelvic fracture,

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	London Hospital				practice, since they provide information very quickly to the trauma team. Although this is not the culture in every MTC, it is unnecessarily didactic. Also, vertical translation seen in vertical shear fractures is NOT well visualised on CT, Plain xray shows it much more clearly, so plain films are useful to the pelvic team for early decision making. I would leave this recommendation out all together.	obtaining an x-ray before the CT would not add benefit and would only add extra time and cost onto the pathway. The Guideline Development Group note that this recommendation relates to multidetector CT with multiplanar formatting and that vertical shear fractures would be visualised on these.
128	Barts Health NHS Trust, The Royal London Hospital	Full	161	1	Point 27 - We have excellent evidence in adults to show that a full body CT (or at least head to upper thigh) saves lives and picks up missed injuries. Kids generally are more challenging to assess than adults. We cannot recommend that we only scan select areas of the body that we think might be affected. High energy blunt trauma = scan everything, surely? We don't want to return to a system whereby we have to justify to a radiologist every part of an anatomical scan. This will inevitably lead to missed injuries and potentially very serious ones. Why have a different protocol for kids as for adults, when kids are harder to assess clinically? 'Clinical assessment' in the setting of blunt trauma is notoriously inaccurate.	Thank you for your comment. For children, the Guideline Development Group felt that the radiation risks precluded a stronger recommendation to use first-line CT, and so 'consider' was used rather than 'use', together with a recommendation to use clinical judgement in limiting exposure to as small part of the body as possible. However, for children due to undergo CT for other injuries (such as abdominal injuries), the Guideline Development Group felt a stronger recommendation was appropriate, as pelvic CT would not lead to much greater radiation than would be received anyway. Furthermore, in relation to both adults and children, the Guideline Development Group also discussed how the use of CT as the first-line investigation of suspected pelvic fractures may result in reduced exposure to radiation due to not using additional X-rays amongst patients with high energy abdominal/pelvic trauma who would require CT imaging anyway.

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129	Barts Health NHS Trust, The Royal London Hospital	Full	174	17	Point 28 - I think this is too strong, too didactic. We do not yet have good evidence to differentiate the benefit between packing and embolisation, which means that it is reasonable to allow some institutional variation. It's not helpful to be so didactic on this, since there is so much surgeon variability, both in terms of what they ARE ABLE to do and what they BELIEVE works 'in their hands'; In the absence of good evidence to guide, it seems like overly strong advice to say when one or other should be used. These decisions are therefore best left to the local trauma team rather than central dictat. Different institutions do angio well and others do packing well – why interfere with this without evidence to justify it? I suggest softening the advice as below. Recommendation should read: For first line invasive treatment of active arterial pelvic haemorrhage, consider using interventional radiology…..	Thank you for your comment. 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' section'.. 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. 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 The Major Trauma: service delivery guideline) and 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.
130	Barts Health NHS Trust, The Royal London	Full	179	7	Point 29 - This assumes that all pilon fractures NEED some sort of surgery within 24 hours. This ignores the Type-b pilon fractures that are displaced but are either axially stable or can be controlled in a cast and so don't	Thank you for your comment. The method of temporary stabilisation was not defined in the recommendation but achieving greater fracture control with spanning external fixation was agreed to be a better solution. Displaced

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	Hospital				necessarily need temporizing fixation prior to definitive fixation once swelling is down. The group of injuries cant be divided into just two groups – needs temporizing fix within 24hrs vs needs definitive fix within 24hrs Many pilon fractures don't need any surgery until 7-10 days. Recommendations should reflect that. Recommendation should read: Create a definitive management plan and perform initial surgery, if required (whether temporary or definitive), within 24 hrs……	pilon injuries, even of the type B variety, are subject to soft tissue compromises from the injury and after-effects. If stabilisation is needed to achieve fracture and soft tissue control, this being done sooner (within 24 hours) offers benefits. A definitive management plan is to be decided upon within 24 hours for all patients and if initial surgery is required it should be undertaken in that time. Definitive surgery is undertaken when soft tissue conditions allow and should be part of the decision plan which is made in the first 24 hours. The Guideline Development Group do not agree that many displaced pilon fractures do not need surgery until 7 to 10 days. The Guideline Development Group believe that delayed initial treatment of these fractures increases the risk of complications and therefore they need to be treated within 24 hours of injury.
131	Barts Health NHS Trust, The Royal London Hospital	Full	203	22	Point 37 - Now that CT and CTA are so available and indeed quick to carry out, why be so rigid on this? Pilon fractures are not the same as knee dislocations, where the typical site of vascular injury is highly predictable. These injuries often happen in limbs that had vascular disease prior to the injury and so CTA may be extremely helpful in planning which vessel to take a reconstruction from/to and it may also help with viability planning too. I would amend the recommendation to say that CTA is	Thank you for your comment. The Guideline Development Group are not recommending against CTA. However, a clear recommendation is made stating that angiography should not delay revascularisation. The Guideline Development Group felt that the time delay could, on occasions, lead to the loss of a limb or even life, and felt that by omitting recommendations for angiography they would be able to emphasise the importance of focussing on getting a patient with suspected vascular compromise into surgery

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					reasonable if it does not introduce a significant delay	immediately. The Guideline Development Group did, however, discuss certain caveats for the use of angiography, and although these have not been made into recommendation for the reasons discussed above, they are outlined in the linking evidence to recommendations section of the full version of the guideline.
132	Barts Health NHS Trust, The Royal London Hospital	Full	215	32	The evidence for pressure monitoring has not been reproduced outside of a very limited number of centres and, as a proxy for consensus, is only routinely practiced in a real minority of hospitals in the UK and indeed around the world. Not many places use routine pressure monitoring, with the implication being that surgeons do not really 'believe in it'.	Thank you for your comment. While the Guideline Development Group acknowledged there was no evidence to recommend compartment pressure monitoring for all patients they believed it had a role in the obtunded patient and all other cases where clinical signs cannot be reliably identified. This lack of evidence was reflected in the weaker recommendation made by the Guideline Development Group which states 'consider continuous compartment pressure monitoring'.
140	British Infection Association	Full	General	General	Although it states antibiotic must be given immediately it does not make any reference as to how long antibiotics should be given for. Some of us use the BAPRAS guidance of giving prophylaxis until there is definitive closure or a maximum of 72 hours, whichever is shorter. An issue we frequently have with our orthopaedic colleagues is that they are reluctant to stop antibiotics even if there is no evidence of infection at an open fracture site leading to inappropriate antibiotic use (and all the associated risks). We think the NICE guidance needs to make an explicit statement about the duration of antibiotic prophylaxis.	Thank you for your comment. The duration of antibiotics was not prioritised as a review question and therefore there is no recommendation for this in the guideline.

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141	British Infection Association	Full	General	General	There is no mention of complex open #s needing antibiotics. We think that this should be in the policy on management of complex fractures	Thank you for your comment. There is a section and recommendation on use of antibiotics in all patients with open fractures. Intravenous antibiotics are recommended within 1 hour of injury in the prehospital settings and immediately in the emergency department if they have not already been given.
101	British Orthopaedic Association	Full	46	23-25	Question 1: Is there no additional evidence to guide antibiotic choice e.g. just one broad spectrum antibiotic or a combination with one to cover anaerobic organisms? From the evidence presented it seems unlikely a firm conclusion can be drawn regarding the benefit of single versus combination use but I think it would be helpful to qualify this recommendation with a statement about antibiotic choice.	Thank you for your comment. The choice of antibiotics was not prioritised as a review question and therefore there is no recommendation for this in the guideline.
102	British Orthopaedic Association	Full	46	40-42	This as an ideal but it may not be achievable in some centres particularly if there is geographic separation between orthopaedic and plastic surgical units. Furthermore, the on-call plastic surgeon may be dealing with other emergency cases and may not be available to be present at the time of initial debridement and fixation. The BOA would take the view that in this situation the orthopaedic surgeon should not delay initial debridement and fixation.	Thank you for your comment. Only the most clinically and cost effective option is recommended. The economic analysis showed that the earlier that debridement takes place, the lower the cost of complications. Earlier debridement was overall a cost saving scenario as the staffing costs from the presence of a plastic surgeon were outweighed by the savings from the reduced complications. The Guideline Development Group believed that doing it well with the right people and also doing it quickly is the optimal approach to managing the open fracture and would achieve the best outcomes. The Guideline Development Group recognised the implementation issues of having access to plastic surgeons in theatre for debridement and that there may be a requirement for an increase in

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						on-site staff or changes to on-call rotas. The Guideline Development Group believed that the recommendation fits within the requirements of a Major Trauma Centre service specification to provide plastic surgery and to have consultants available on-site when required within 30 minutes, which is well within the time frame that these recommendations require. Therefore the Guideline Development Group believed that these guidelines merely emphasise the practice that current services should already be providing or should at least be working towards.
103	British Orthopaedic Association	Full	47	16-18	There is no published evidence quoted in the guideline to support this statement. Patients with major unstable pelvic and acetabular fractures should be taken to a major trauma centre. This recommendation needs qualification since if taken at face value then patients with major pelvic injuries with life-threatening injuries may be taken to an inappropriate destination.	Thank you for your comment. We have amended the recommendation to state Transport people with suspected pelvic fractures: - to the nearest hospital if suspected pelvic fracture is the only pre-hospital triage indication - directly to a major trauma centre if they also have other pre-hospital triage indications for major trauma The Guideline Development Group believe that patients with a suspected pelvic fracture that is not in the context of a major trauma would not benefit from care at a major trauma centre. People with major pelvic injuries and life threatening injuries would be indicated to be taken to a major trauma centre, either through mechanism of injury or physiological signs or other factors that imply the patient has suffered a major trauma. We agree a major trauma centre is the appropriate destination for these

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						patients; however an isolated pelvic fracture alone that does not trigger any other pre-hospital indications for transfer to a major trauma centre can be appropriately managed at a local hospital.
104	British Orthopaedic Association	Full	47	19-21	Haemodynamic instability may not be apparent, particularly in younger patients at an early stage after injury.	Thank you for your comment. The Guideline Development Group agree that haemodynamic instability is not always apparent. The recommendation is written to advise what to do if haemodynamic instability is identified.
105	British Orthopaedic Association	Full	48	10-13	The evidence for this is weak. Interventional radiology is really only appropriate for a specific subset of these patients: those with no evidence of blood loss elsewhere who have a pelvic binder on but who are transient responders to fluid resuscitation but are judged stable enough to be transferred for angiography and interventional radiology. This is a very small proportion of these patients. For patients with life-threatening hypotension the angiography suite is not the place to send them. Blood loss is predominantly venous in these cases and the accepted emergency treatment is pelvic binder, major transfusion protocol and pelvic packing.	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 'Recommendation and link to evidence' section of the full version of 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 interventional radiology and this is reflected in the strength of the recommendations. The Guideline Development Group were clear in their opinion that if laparotomy is not required then interventional radiology is recommended. The Guideline Development Group noted in the guideline that only interventional radiology is likely to be a definitive

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						procedure if successful. In surgery fixation, clamps and packing are temporary measures of haemorrhage control and likely to involve subsequent operations to definitively control the haemorrhage. The Guideline Development Group agree that pelvic binders and transfusion protocols are important interventions in the management of group in addition to the procedures to resolve the bleeding recommended here.
106	British Orthopaedic Association	Full	48	13	Pelvic packing alone and some form of emergency stabilisation of the pelvic even if laparotomy is not required	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 'Recommendations and link to evidence' section of the full version of the guideline. If laparotomy is not required then interventional radiology is recommended. The Guideline Development Group noted in the guideline that only interventional radiology is likely to be a definitive procedure if successful. In surgery fixation, clamps and packing are temporary measures of haemorrhage control and likely to involve subsequent operations to definitively control the haemorrhage. 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

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						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.
107	British Orthopaedic Association	Full	48	40-44	I would suggest qualifying this by stating that compartment pressure measurements should be made in any patient where there is diagnostic doubt.	Thank you for your comment. The Guideline Development Group considered the evidence was unreliable and thus felt unable to recommend compartment pressure monitoring for all patients. However, they believed it had a role in the obtunded patient and all other cases where clinical signs cannot be reliably identified.
108	British Orthopaedic Association	Full	139	14	This will be mis-interpreted by all and should state that all patients who sustain a high energy injury with a suspected pelvic fracture should be transported to a major trauma centre. The worst case scenario is that of a bleeding pelvis in a trauma unit, which this recommendation could lead to.	Thank you for your comment. The Guideline Development Group agree and the recommendation was written with this intention. It has now been edited to make it clearer. The recommendation now reads: Transport people with suspected pelvic fractures: - to the nearest hospital if suspected pelvic fracture is the only pre-hospital triage indication - directly to a major trauma centre if they also have other pre-hospital triage indications for major trauma
109	British Orthopaedic Association	Full	147	15	It is better to apply a binder if there is any evidence of a pelvic fracture and there are no early complications associated with it. Young patients often do not have initial haemodynamic instability but then decompensate. We put C spine collars and use spinal boards without evidence, yet they are the cheapest and safest device , which could control life threatening haemorrhage as well	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

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					as prevent secondary injury Skin breakdown with the use of the binder has never been documented with 6 hours and to state their use is increasing unnecessary is anecdotal. Please change this to binders should be used on suspicion of Pelvic Injury. Please remove of the haemodynamic instability content as it is not based on evidence.	for applying a pelvic binder is in the patient with suspected bleeding and not for any other reason. 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.
110	British Orthopaedic Association	Full	151	14	For those patients who have either negative CT scans or undisplaced fractures on the CT scan, and either pain around the pelvis or distracting injury, which could include lose of consciousness, then an AP radiograph with the binder off is mandatory, as it is recognised the binder can reduce ligament injuries of the pelvis as well. It should be noted that a binder-off view of Potentially unstable pelvic injuries chan1ges diagnosis in 13% and management in 7% of cases based on data presented at 2015 BOA Meeting.	Thank you for your comment. We did not consider a review about the consequence of wearing or not wearing a pelvic binder when being imaged so no recommendation for this has been made.
111	British Orthopaedic Association	Full	161	1	There is sometimes a need for additional radiographs for the use of an emergency CT Scans. CT Scans can miss transverse fractures in the plain of the CT, also the CT is acquired with the binder on, which can either hide or change the diagnosis in up to 7% of pelvic injuries. A binder off view should be mandatory and additional views obtained according to the treating pelvic surgeon.	Thank you for your comment. The recommendation is for first choice imaging only and does not make any statement on getting a second x-ray where required. A review question was not prioritised on whether a scan should be with a binder off or on so no recommendation has been made on this.

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112	British Orthopaedic Association	Full	168	33	There was a recent meeting form all the lead urologists and pelvic surgeons from the MTCs. They have written a consensus statement. This should be the consensus statement for NICE as you cannot get greater consensus.	Thank you for the information. The Guideline Development Group drafted the question for the guideline 18 months ago and reviewed the evidence. The Guideline Development Group believe it is still worth asking a research question for this topic. Only a research recommendation has been made and it is left to clinicians to decide on whether to use cystourethrogram.
113	British Orthopaedic Association	Full	174	17	Please review this recommendation. It is not in line with most major trauma centres around the world. Interventional radiology rarely picks up arterial bleeding vessels (only 10% are arterial bleeds) and as a consequence there is usually a random embolistion attempts occurring. The consequences of excessive and unnecessary embolistion are well documented. Unselective embolisation should not occur. Embolisation has many reported risks and is not supported in many units.. Only 10% of bleeding is from named arterial bleeders. The incidence of displaced high-energy pelvic ring fractures is approx 40 per MTC, of which 4% then will have named arterial bleeding, as such the experience for a rota of interventionalists would be extremely limited. Practically it is the blush around the superior gluteal artery which does not stop with binder, clotting and blood products, is probably the only indication for highly selective embolization.	Thank you for your comment. 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' section. 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. For more information on the wording of recommendations see Developing NICE guidelines: the manual (2012), chapter 9. We agree that the population that can benefit from interventional radiology is small. The capability to undertake interventional radiology should be in place in major trauma centres and due to the small population it

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						may not be cost effective to have a full time rota for staff in house, and having a pre-alert system with staff on call might be one alternative. This discussion is captured in the Major Trauma Services LETR on the timing of interventional radiology. 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 The Major Trauma: service delivery guideline) and 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.
114	British Orthopaedic Association	Full	215	32	Continuous compartment monitoring should not be recommended. There is no commercial device which delivers it and no evidence that continuous monitoring is any different from clinical suspicion. 48 hours appears to be a random figure and BOA BOASTs provide guidance. If monitoring is recommended the guidelineshould state what figures should lead to an intervention.	Thank you for your comment. The Guideline Development Group are aware that there are devices that can measure compartment syndrome but only recommend considering using a device. The duration of assessment and monitoring was considered by the Guideline Development Group and they believed that compartment syndrome was more likely to occur after the first 24 hours and reached a consensus that awareness should be maintained for 48 hours after fracture fixation or diagnosis if fixation is not performed. After this time tissue damage would be considered irreversible and surgical intervention would have a high incidence of complications.

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115	British Orthopaedic Association	Short	5	19-21	Will it be up to local networks to decide on which antibiotics and who should administer?	Thank you for your comment. The choice of antibiotics was not prioritised as a review question and therefore there is no recommendation for this in the guideline.
116	British Orthopaedic Association	Short	6	2-9	This will lead to a change in trauma triage tools around the country and a substantial increase in workload for MTCs, especially in low energy open #s in the elderly.	Thank you for your comment. The Guideline Development Group 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) 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 (i.e. MTC is not the only destination) 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 those as recommended from supporting evidence.
117	British Orthopaedic Association	Short	8	4-6	Is the failed reduction in the ED or theatre?	Thank you for your comment. Failed reduction relates to wherever the hospital attempted the procedure and is not dependent on location
118	British Orthopaedic Association	Short	7	22-23	Is the inference of this that definitive management may occur in ED with regional anaesthesia?	Thank you for your comment. Yes the inference is that some pelvic fractures can be managed in the emergency department. The Guideline Development Group felt that a large group of people with pelvic fractures will not develop haemodynamic instability or the need for specialist reconstructive surgery, and so do not require

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						later transfer to a MTC or specialist unit as the hospital/TU should be able to cater for their clinical needs.
90	British Pain Society	General	general	general	The BPS welcomes the recognition and treatment of acute pain associated with fracture injury in these guidelines However, there is no reference to the pain management needs of patients with complex fractures other than in the immediate post injury period after which unmanaged pain is likely to cause major morbidity and increased length of hospital stay. Hospitals that manage these injuries should have a pain team with clinical expertise to manage difficult to treat pain and pain in patients with substance abuse problems, who will be overrepresented in this population.	Thank you for your comment. The Guideline Development Group agree that a complete pain management pathway is important. However, only initial pain management was listed in the scope so only this area has been addressed in the guideline.
26	British Society of Interventional Radiology	Full	141	1	7.2 Timing of transfer of patients with pelvic fractures In patients who are haemodynamically unstable and are being transferred for haemorrhage control, should insertion of an aortic occlusion balloon be considered if there is concern that the patient may not survive the transfer?	Thank you for your comment. A question investigating aortic occlusion balloons was not prioritised in the guideline so there is no recommendation on this.
60	Department of Health	Full	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
100	Hywel Dda	Short	5	5	1.1.6 – Is there evidence for harm if PB applied in	Thank you for your comment. The Guideline

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	University Health Board				suspected pelvic fracture with no overt signs of haemorrhage? Isn't there a risk of destabilising clot upon moving a patient with a pelvic fracture and causing bleeding where no current or overt haemodynamic compromise. The use of pelvic binder seems to be overly down-played.	Development Group believed 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 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 justification for this recommendation is in the linking evidence to recommendation section
44	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	44	4	Open fractures to the MTC: To avoid overwhelming orthoplastic services and Emergency Departments clearer guidance on what constitutes a significant open fracture is required(eg 'visible bone or significant flap laceration')	Thank you for your comment. An open fracture is defined in our glossary as "A fracture associated with a wound. The skin may be pierced by the bone or by a blow that breaks the skin at the time of the fracture. The bone may or may not be visible in the wound." The Guideline Development Group believe that for long bone or hindfoot and midfoot open fractures the most important feature of the optimal destination was that it should provide orthoplastic care, which would usually mean it would be a MTC or a specialist centre for orthoplastic care. The benefits of getting the patient to orthoplastic care where the expertise exists to treat

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						these patients in the timely manner required were believed to outweigh possible harms in terms of greater time in reaching that destination and the delay to starting treatment. This is supported by other evidence and recommendations in this guideline that advise immediate debridement for some open fractures and that all open fractures should be debrided within 24 hours 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)
45	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	44	23	Pre-hospital antibiotics within 1 hour: The evidence for this is scanty and it is imperative that such an intervention is not allowed to delay transfer - ie should only occur once transfer is under way.	Thank you for your comment. The absence of RCT evidence and the quality of the evidence available was discussed by the GDG. Overall, the prevention of deep infection after an open fracture was considered essential to avoid tragic sequelae, such as amputation or even death. The Guideline Development Group believe the available evidence supports the administration of prophylactic antibiotics within one hour of the injury. The guidance states administration should not delay transfer to hospital giving the option of antibiotic administration during transfer. The Guideline Development Group considered that antibiotics could be given once the patient is in the ambulance and therefore not delay the time it takes the patient to get to hospital. This is noted in the discussions in the full guideline.

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46	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	47	16	Suspected pelvic fracture to the nearest hospital: This contradicts many triage tools which include 'suspected pelvic fracture' as a step 2 indication for bypass to the MTC. The caveat is that such a suspected fracture should be in the context of significant energy transfer i.e. not just a simple fall from standing in a frail elderly patient	Thank you for your comment. The Guideline Development Group agree and the recommendation was written with this intention. It has now been edited to make it clearer. The recommendation now reads: Transport people with suspected pelvic fractures: - to the nearest hospital if suspected pelvic fracture is the only pre-hospital triage indication - directly to a major trauma centre if they also have other pre-hospital triage indications for major trauma
47	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	47	25	The guidance recommends only applying a pelvic binder if active bleeding from a pelvic fracture is suspected. Given the difficulty of recognising active bleeding in the early stages of assessment this seems an unnecessarily risky approach given the negligible risk of pelvic binder application. The Faculty of Pre Hospital Care has a protocol which is recommended 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 to 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.
48	Leeds Teaching Hospital NHS Trust (Leeds	Full	49	11	Whole-body CT scanogram: The guidance recommends performing a whole body (head to toe) pass through the CT scanner to obtain a scanogram in blunt trauma patients with suspected limb injury. Obtaining such CTs	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

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	Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)				can be technically difficult and may delay obtaining images of life threatening head and torso images.	happen at the time the patient was being imaged for their trauma. Undertaking a scanogram to identify which areas of the body might need more focused higher resolution imaging would enable quicker treatment and avoid delays associated with further imaging later if an injury is missed initially and the patient deteriorates. 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 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. A note has been added to the Recommendations and link to evidence section of the full guideline.
49	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	49	11	The guidance must not lead to a situation where imaging is taking priority over care of a potentially seriously injured patient. The focus of recent years has been on the rapid acquisition of imaging capable of identifying life-threatening injuries - acquisition of non-time critical images must not take priority over this.	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. Undertaking a scanogram to identify which areas of the body might need more focused higher resolution imaging would enable quicker treatment and avoid delays associated with further imaging later if an injury is missed initially and the patient deteriorates. It was also noted that the ease of scanning the limbs

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						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. A note has been added to the Recommendations and link to evidence section of the full guideline.
50	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	49	14	Specific guidance on which fractures merit / require CT imaging should be included if this route is to be followed.	Thank you for your comment. The recommendation is for patients undergoing a whole body CT with blunt trauma and suspected multiple injuries. These patients would already be indicated for CT. The findings will determine what further imaging, if any, is required. This is described in the Recommendations and link to evidence section of the full version of the guideline. We have labelled the recommendation as "Whole body CT for suspected multiple injuries" to make this clear in the short version.
51	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire	Full	General		Case reports have highlighted that the (entirely appropriate) use of pelvic splints can prevent the identification of significant fractures on imaging that become apparent when the splint is removed. We would recommend	Thank you for your comment. Unfortunately we cannot respond to your comment as it is incomplete

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	Major Trauma Network (WYMTN)					
61	NHS England	Short	5	5	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 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.
62	NHS England	Short	5	7	Why only high energy trauma? Older patients with low energy pelvic fractures can also exsanguinate. Haemodynamic instability is a very difficult term. Please consider….. 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

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						very unlikely to be appropriate for a pelvic binder
63	NHS England	Short	5	9	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.
64	NHS England	Short	5	19	There is no level-1 evidence for administration of antibiotics in the pre-hospital setting. It should be changed to, "Consider the administration….."	Thank you for your comment. The absence of RCT evidence and the quality of the evidence available was discussed by the GDG. Overall, the prevention of deep infection after an open fracture was considered essential to avoid tragic sequelae, such as amputation or even death. Thus, a stronger recommendation was made. The Guideline Development Group felt that prophylactic antibiotics should ideally be provided immediately in the pre-hospital setting. However, they decided to recommend that they were given within one hour rather than 'immediately' to prevent pre-hospital providers opting not to give them once the 'immediate' point had already passed (as in emergency situations where threats to life had been immediately paramount). The Guideline Development Group also felt that recommending they were used 'as soon as possible' was not ideal, as it would give providers the option to delay their administration beyond an hour if practical (but not insurmountable) constraints made it seem not 'possible'.
65	NHS England	Short	6	3	This recommendation takes no account of geography. It will work well in London but in other regions you are	Thank you for your comment.

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					committing the pre-hospital team to a long transfer time, up to 4 hours in some cases and even longer in children. Helimed transport is not possible in bad weather. The system must be resilient and work 24/7. It will also transport patients with a false positive triage a long distance from home. In addition, is it safe? How does the pre-hospital team know that the patient doesn't have other injuries precluding long transport time. Are you going to accept that associated dislocations go unreduced for many hours? It would make much more sense to integrate the management of these open fractures into the current network structure (open tibia fracture has an ISS of 9 and already is) and so add the other severe open fractures covered by the guide. Please consider, "Major trauma networks should take responsibility for the management of severe open fractures covered by this guide. They should have network-wide guidelines in place that allow the rapid secondary transfer of patients with these injuries from a Trauma Unit or a Local Emergency Hospital once they have been identified within the Emergency Department and received essential emergency treatment. Networks should have agreed guidelines in place for this essential emergency treatment. Care of isolated open fractures should take place in a designated Major Trauma Centre or regional Orthoplastics unit. Transfer to this unit should take place without delay and usually be directly from the Emergency Department. Patients with polytrauma that	We have included a recommendation from the service delivery guideline that recommends that while the optimum destination is usually a major trauma centre or specialist centre for orthoplastic care. In some locations or circumstances, intermediate care in a trauma unit might be needed for urgent treatment The Guideline Development Group believe that all open long bone and hindfoot and midfoot fractures need to be transferred to an Orthoplastic centre 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 those as recommended from supporting evidence. The Guideline Development Group 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)

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					includes a severe open fracture should be transferred to the regional Major Trauma Centre".	
66	NHS England	Short	6	6	See point 5 above	Thank you for your comment. We believe your comment relates to your previous comment listed immediately above this related to the issue of geography and the immediate destination of people with open fractures. 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 our guideline. The Guideline Development Group believe that all open long bone and hindfoot and midfoot fractures need to be transferred to an Orthoplastic centre 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 those as recommended from supporting evidence. The Guideline Development Group believe the numbers involved are not that large. A figure of 105 per year per

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						major trauma centre is used in the model on open fractures. (see appendix L of the full version of the guideline)
67	NHS England	Short	6	10	Do you mean nearest Trauma Unit rather than hospital?	Thank you for your comment. Someone falling from standing height may or may not have fractured pelvis. Their local hospital will be able to do the x-ray. The term 'hospital' would cover all centres that could assess these patients.
68	NHS England	Short	7	7	Consider putting "regularly assessing and recording"	Thank you for your suggestion. We have added this to the recommendation.
69	NHS England	Short	7	10	Surprised to see no mention of nerve blocks or patient controlled analgesia. This could be addressed by adding to line 7, "….signs in hospital and taking into account the analgesia the patient has received"	Thank you for your suggestion. We have amended this bullet point to state " considering continuous compartment pressure monitoring in hospital when clinical symptoms and signs cannot be readily identified (e.g. unconscious patient or following nerve block)"
70	NHS England	Short	7	14	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

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						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.
71	NHS England	Short	7	17	See above	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 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.
72	NHS England	Short	7	24	Taken at face value, patients in extremis could be put in an ambulance for a 3 hour transfer. Please consider, "Patients with pelvic and acetabular fractures with haemodynamic instability should have on going damage-control resuscitation and pelvic splintage with a binder.	Thank you for your comment. During the transport the Guideline Development Group anticipate that resuscitation and pelvic splintage will be on going. The Guideline Development Group also felt that the only sources of haemorrhage that are amenable to very rapid

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					Other sources of haemorrhage that are amenable to rapid surgical control should be excluded. Networks should have in place protocols for the rapid and safe transfer of such patients to the MTC to allow definitive care"	control would include external haemorrhage. This kind of bleeding is appropriately controlled with the use of tourniquets and external pressure while in transfer. The Guideline Development Group felt that further investigations for other sources of bleeding and/or transfer to the operating theatre in a trauma unit could pose a greater risk than rapid transport to a major trauma centre where all modalities are available. Also, the service delivery guideline recommends that protocols are provided for the safe and rapid transfer of patients who need definitive specialist intervention. We have now cross referred to this in the full version of our guideline.
73	NHS England	Short	8	5	Hip joint	Thank you for your comment. We have amended this as suggested.
74	NHS England	Short	9	7	Please consider two further points: 1. For patients who have had active bleeding from a pelvic fracture with haemodynamic instability, the binder should remain in place until the patient has been fully resuscitated and any pelvic blood clot has had time to stabilise. In this situation, the binder should be removed in a clinical area where the patient can be observed closely. 2. Consider earlier removal of a pelvic binder in patients with Spinal Cord Injury and abnormal sensation in the legs.	Thank you for your comments. 1. The recommendation has been 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. 2. We have added this consideration to our linking evidence to recommendations section of the full version of the guideline.
75	NHS England	Short	9	18	What about gross contaminants? Bits of wood or faeces?	Thank you for your comment. Outside of the theatre environment where surgical exposure of the injury can

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						be achieved, lavage has the potential to drive contamination deeper into the tissue. The Guideline Development Group believe lavage of wounds with gross contamination in the ED or pre-hospital setting has not been shown to improve outcomes. These open fractures are described in the guidelines as those requiring emergency access to theatre for assessment, debridement followed by lavage.
76	NHS England	Short	9	18	Surprised that you don't say anything about repeated examination of the wound (to be avoided) and using a photograph to avoid this.	Thank you for your comment. A review question about repeated removal of dressings was not included in the guideline so have not made a recommendation for this. The Guideline Development Group believed that in many settings pre-hospital photos would be helpful, as the pre-hospital phase may be the only time the wound is necessarily exposed."
77	NHS England	Short	10	5	Are you saying that the decision can only be made by an orthopaedic surgeon and a plastic surgeon? Can two junior doctors do this? For a closed vascular injury, does the vascular surgeon have no role? I believe that you should specify that this is a consultant decision. This section could also be interpreted as "The only indication to amputate early is to save life. If the limb can be salvaged i.e. remain viable, then it must be salvaged, no matter how poor the function and quality of life is likely to be. The wording of this whole section needs to be reconsidered.	Thank you for your comment. A review question about surgeon seniority was not prioritised as part of the guideline so this was not mentioned in the recommendation. We have added to the section on 'Recommendations and link to evidence' of the full version of the guideline to state the Guideline Development Group anticipate the decision would be made by consultants. The Guideline Development Group also anticipated that these patients would trigger a major trauma triage tool and would therefore be transported directly to a major trauma centre where the appropriately trained staff would be making the decisions.

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						The recommendations have been changed so that it is clear the decisions are limb salvage or amputation. The terminology has been changed to better reflect what the Guideline Development Group meant. The terms used now: emergency amputation (which is defined as an amputation that is carried out immediately on admission with no attempt to salvage the limb) and delayed primary amputation (which is defined as an amputation when there is time to delay decision but reconstructive surgery is not involved in the decision) rather than secondary amputation (which is defined as an amputation that is carried out after an attempted salvage of the limb).
78	NHS England	Short	10	6	Is secondary amputation the correct term? Many would interpret this as an amputation weeks or months down the line. Delayed primary amputation could be considered as an alternative.	Thank you for your suggestions. The terminology has been changed to better reflect what the Guideline Development Group meant. The terms used now: emergency amputation (which is defined as an amputation that is carried out immediately on admission with no attempt to salvage the limb) and delayed primary amputation (which is defined as an amputation when there is time to delay decision but reconstructive surgery is not involved in the decision) rather than secondary amputation (which is defined as an amputation that is carried out after an attempted salvage of the limb).
79	NHS England	Short	10	18	Please consider highlighting that injuries in an aquatic or marine environment are highly contaminated (although they do not look like it)	Thank you for your comment. This has been added into the 'other considerations' section of the LETR for this recommendation.
80	NHS England	Short	12	8	Most images are now transferred electronically and do not	Thank you for your comment. The guideline

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			12	11	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. 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!)	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. The point on plain English has been amended to state "including a summary written in plain English understandable by patients, family members and carers". This should allow the report to provide information of use to both clinicians and the patient.
			13	13	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.	The Guideline Development Group agree with your concerns about patient confidentiality and consent. Guidance on this is already provided in the patient experience guideline (https://www.nice.org.uk/guidance/cg138) so it has not been covered it in this suite of guidelines Thank you for the suggestion. The recommendation has been amended to state "Document and time each….. "

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					"Document and time each…."	
82	NHS England	Full	19	29	It is concerning that the guideline does not reference NICE Quality Standards 86 and 16 (Falls in older people: assessment after a fall and preventing further falls and hip fracture respectively)	Thank you for your comment. We have referenced both these guidelines which link to the quality standards.
83	NHS England	Full	19	32	I believe this should read Clinical Guideline 161: Falls (2013)	Thank you for your comment. We have corrected this.
84	NHS England	Full	46	7	'One or more out of oral ibuprofen….' – could this be made clearer I', afraid it doesn't make sense to me.	Thank you for your comment. This relates to the non-complex fracture guideline. We have edited the recommendation to state "oral ibuprofen, or oral paracetamol, or both for mild to moderate pain"
85	NHS England	Full	48	11	It is pleasing that the Guideline Development Group have included early assessment of ongoing falls risk as a marker of high risk of further falls but I wonder if the point could be strengthened to include reference a referral to an appropriate follow up service such as Fracture Liaison Service for persons at high risk for example older people.	Thank you for your comment. Fracture prevention was excluded from the guideline so no recommendations relating to referral for falls are made in this document. The guideline does cross refer to NICE's falls guideline CG161.
86	NHS England	Full	243	13 Section 10.1.6	It is pleasing that the recommendations include the standard assessment and documentation of falls risk in ED documentation as this would be of great individual clinical benefit as well as highlighting a patient safety issue. It is also pleasing that the Guideline Development Group sought to separate this group for clinical consideration out from the 'other comorbidity ' group other than the obvious vast numbers associated with this group.	Thank you for your comment. The Guideline Development Group recognised the importance of these issues.
87	NHS England	Full	250	14 Section	Although the focus of this research question was looking at information about procedures and aftercare it perhaps could have been strengthened by extending the question	Thank you for your comment. Fracture prevention was excluded from the guideline.

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				10.2.6	to consider information on prevention and access to services in particular falls and fracture liaison services.	
133	North Bristol NHS Trust	Full	**53**	11	6.1.6 I work in one of the few units in the country already seeing most of the serious open fractures in the network and the numbers are already overwhelming. This is not simply a lack of surgeon/theatre time. Even were the centre willing, the numbers involved with this recommendation would wholly overwhelm the system to the detriment of other patients for no discernible benefit. I strongly recommend that this be substantially changed. This places an unnecessary burden on the pre-hospital system. There are still a substantial number of open fractures as listed that are appropriately treated away from major trauma or specialist centres and should continue to be so. By far, it would be more helpful to recommend that there be a clear, auditable pathway within each network to deal with open fractures. Orthoplastic units are one solution to the problem. There are alternative approaches currently in use in England that deliver equally excellent results. My recommendation is that this is not ready for publication and would be extremely unhelpful. I say this as one of the clinical leads in a very successful orthoplastic unit serving a population of 2.5 million. It is also my opinion that there is no evidence other than individual opinion to support the NICE statement.	Thank you for your comment. The evidence review supported multidisciplinary orthoplastic care at each stage of the patient's treatment. Throughout the guideline development process the most appropriate trend was to transfer patients requiring multidisciplinary care to major trauma centres. TARN data suggests that pathways to get more open fractures transferred to major trauma centres will help orthoplastic services develop expertise in complex reconstruction. The economic analysis on open fractures involved analyses focusing on 3 areas; timing of debridement with and without a plastic surgeon, timing of cover, and multiple theatre sessions. The analyses found that the involvement of a plastic surgeon in debridement leads to cost savings due to the costs from reducing complications outweighing the additional staff costs. Taking into account the incidence of open fractures (which in the analysis was estimated to be around 105 fractures per MTC per year), which is relatively low, having a theatre list every day was not likely to be to be cost effective, However having three lists per week would allow soft tissue cover within 72 hours, and although this would increase costs compared

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						to the current estimated baseline of two lists per week, this cost could be outweighed by the quality of life impact from reduced complications. 72 hours also agrees with the clinical evidence. If debridement can be performed at a maximum within 24 hours for all fractures, but the more severe ones in shorter time than this, then some fractures could have all stages of the operation in one go depending on if they come in on a day with a theatre list, and at a maximum the operations should take place in two stages which would also be cost saving compared to current practice. All the analyses taken together point towards the fact that orthoplastic involvement and earlier treatment can be cost effective with additional expenditure in some parts of the treatment pathway being offset by savings in other parts of the pathway, and there are other indirect populations that may also benefit from these services which haven't been incorporated into the analyses. Therefore transferring patients with open fractures to the appropriate destination where these specialties are available in a timely manner is the most clinically and cost effective way of treating open fractures. The Guideline Development Group believe that many major trauma centres are not yet receiving enough open fractures to provide adequate clinical exposure or ensure the cost effectiveness of orthoplastic services. Localising all open fractures in the centres with those specialties will also help with skill retention and improve

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						experience in managing open fractures.
134	North Bristol NHS Trust	Full	76	31	6.2.6 Practically this may become problematic and mean that the individual spends a substantial amount of time back in a hub unit when the decision and surgery could be made locally. The recommendation should say 'consider' rather than mandate. **5. When indicated, perform the secondary amputation within 72 hours of injury.** This is unhelpful and impractical. The 'magic' 72 hours reappears with no justification. I work in a busy orthoplastic unit dealing with mangled limbs. In most the decision to salvage or amputate is made acutely. There are a multitude of reasons why a secondary amputation might be necessary and many of these are not apparent by 72 hours. In addition, the military experience is that there should be no rush to undertake the secondary amputation (assuming no life-threatening or other physiological reasons) as this can be an adjustment period.	Thank you for your comment. The terminology has been changed to better reflect what the Guideline Development Group meant. The terms used now: emergency amputation (which is defined as an amputation that is carried out immediately on admission with no attempt to salvage the limb) and delayed primary amputation (which is defined as an amputation when there is time to delay decision but reconstructive surgery is not involved in the decision) rather than secondary amputation (which is defined as an amputation that is carried out after an attempted salvage of the limb). This recommendation relates to patients who would be taken directly to a major trauma centre where the appropriate multi-disciplinary team members would be available to make a decision quickly.
135	North Bristol NHS Trust	Full	83	5	**6.3.6** This is the subject of a large multicentre study that is in the grant application phase. The assumption is based on a relatively small North American series. This recommendation needs to be shelved until the trial reports and there is robust data. If not, the skew in practice may mask any perceived benefit and change practice on no evidence and preclude the possibility to ever obtain this. It also places an additional burden on the pre-hospital	Thank you for your comment. This use of antibiotics was prioritised as an area to cover in the guideline. Having reviewed the evidence the Guideline Development Group believes there is sufficient evidence to make a recommendation. It is acknowledged in the LETR that this may be a change in practice and have resource implications.

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					crews.	
136	North Bristol NHS Trust	Full	**83**	13	**6.3.6** Perform debridement: -immediately for highly contaminated open fractures -within 12 hours of injury for high-energy open fractures (likely Gustilo–Anderson classification type IIIA or type IIIB) that are not highly contaminated -within 24 hours of injury for all other open fractures**.** **When internal fixation is used, perform definitive soft tissue cover at the same time.** Comment I work within this system in one of only a handful of units (3-5) able to consistently deliver this. However, it is only one system. As stated earlier, it would be much more helpful at this stage to recommend a network pathway. All of the points above should be prefaced with 'consider…'. The biggest risk of this aspirational recommendation is that most of the networks risk a flood of litigations	Thank you for your comment. The evidence reviewed showed a benefit to undertaking procedures earlier, and with combined orthoplastic involvement. 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.

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						Debridement within 12 hours or within 24 for less severe 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. The Guideline Development Group want to be able to set a standard across the country and believe the recommendations made reflect the evidence, are attainable, and will lead to the best outcome for the patients.
137	North Bristol NHS Trust	Full	**179**	7	Temporizing strategy may just be cast. This needs to be included as an option.	Thank you for your comment. The method of temporary stabilisation was not defined in the recommendation but achieving greater fracture control with spanning external fixation was agreed to be a better solution. Displaced pilon injuries, even of the type B variety, are subject to soft tissue compromises from the injury and after-effects. If stabilisation is needed to achieve fracture and soft tissue control, this being done sooner (within 24 hours) offers benefits.
138	North Bristol NHS Trust	General			This needs to be a locally agreed pathway within each network and it may be more appropriate to transfer to another trauma unit. I know of several where this would be the case (therefore 'specialist' gets replaced by 'another').	Thank you for your comment. We have assumed your comment relates to the recommendation on the immediate destination for people with open fractures. The Guideline Development Group believe that all open long bone and hindfoot and midfoot fractures need to be transferred to an Orthoplastic centre 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'

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						before full assessment and this is done erroneously, then standards of care for that injury would not be met, including those as recommended from supporting evidence. In addition, this recommendation should 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 our guideline.
139	North Bristol NHS Trust	General			This should read that for open or threatened open pilons, a robust local pathway of management should be in place.	Thank you for your comment. This was not considered separately but open fractures have a clear pathway within the guideline. The Guideline Development Group anticipate appropriate clinical judgement to be exercised in an impending open pilon fracture.
30	North Devon District Hospital	Full	53	11	The recommendations about open fractures do not take into account severity of injury or actual need for orthoplastic combined treatment. Many of the less severe injuries, which do not require soft tissue coverage, can be satisfactorily treated in trauma units. In some areas of the country, the extra journey to the MTC is considerable and the effect on these patients should be taken into consideration.	Thank you for your comment. The Guideline Development Group believe that all open long bone and hindfoot and midfoot fractures need to be transferred to an Orthoplastic centre 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 those as recommended from supporting

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						evidence. In addition, this recommendation should 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 our guideline.
144	Orthopaedic Trauma Society	Full	46	4	1. why transport *all* open long fractures to MTCs (other than hands and feet) – evidence found nil. Note consensus and understand reasons. This is designed to create a crisis in MTCs and Plastics units to shake things up – which is welcome, but will be exceptionally unpopular and difficult without evidence. On balance I support it.	Thank you for your comment. The Guideline Development Group believe that all open long bone and hindfoot and midfoot fractures need to be transferred to an Orthoplastic centre 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 those as recommended from supporting evidence. There is no evidence to indicate that open upper limb fractures (excluding the wrist and hand) should be managed differently to this. In addition, this recommendation should be read in conjunction with the service delivery guideline which

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						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 our guideline.
145	Orthopaedic Trauma Society	Full	46	21	5. evidence for performing a secondary amputation within 72 hours of injury poor	Thank you for your comment. The GDG agree that the evidence for the timing of intervention is poor. The recommendation is based on a consensus decision. The GDG believed that a time limit is necessary once it has been decided that a limb needs amputating. This recommendation is written to apply to patients at their first assessment who are deemed to require an amputation but there is time to delay the decision. Reconstructive surgery would not be involved in the decision. The terminology has been changed to better reflect what the Guideline Development Group meant. The terms used now: emergency amputation (which is defined as an amputation that is carried out immediately on admission with no attempt to salvage the limb) and delayed primary amputation (which is defined as an amputation when there is time to delay decision but reconstructive surgery is not involved in the decision) rather than secondary amputation (which is defined as an amputation that is carried out after an attempted salvage of the limb).
146	Orthopaedic Trauma	Full	47	25	21. "do not apply a pelvic binder unless active bleeding suspected" – will discourage use of binders in pre-hospital	Thank you for your comment. The Guideline Development Group believed that pelvic binders are

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	Society				setting. Not a good idea. Needs better careful wording. Presently worded saying pelvic mechanical instability – this will encourage pre-hospital pelvic stability examination, something to be actively discouraged. Far better to say: "Haemodynamic instability + suspicion of severe pelvic injury = apply binder. Not otherwise."	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 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 justification for this recommendation is in the linking evidence to recommendation section
147	Orthopaedic Trauma Society	Full	86	1	11. there is no evidence for saline soaked dressings. Need to understand the purpose of a dressing – to cover and prevent further contamination and to absorb exudate. A saline soaked dressing will do the former and not the latter. An open wound will bleed and produce exudate – there is little if any chance of tissue dessication. There is no guarantee that the patient will be able to get to theatre for formal debridement in a timely fashion – contamination will then potentially become infection. This is more likely if the exudate / bleeding cannot be absorbed as an excellent incubation area / culture medium will have been created. Dry dressings are less likely to do this and the creation of a culture medium will take longer – see plenty of military experience. This is safer practice. Agree re	Thank you for your comment. The consensus recommendation was that a saline-soaked dressing with an occlusive layer is an effective way of reducing desiccation of the wound and also reduces the likelihood of further contamination. Desiccation of bone and soft tissues cannot be prevented reliably by exudate from the trauma. A saline-soaked dressing under an occlusive layer prevents further tissue necrosis from desiccation.

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					antispetics (especially iodine which creates a selective MRSA culture medium).	
148	Orthopaedic Trauma Society	Full	215	32	39. this is likely to become outdated in short time as evidence for newer methodologies for diagnosing and monitoring ACS come on line (eg pH monitoring) – some way of allowing for new technology assessment may be required	Thank you for your comment. The Guideline Development Group made the recommendation based on the evidence currently available. When the guideline is considered for update the availability of new methodologies will be taken into account.
142	Peninsula Trauma Centre	Short	9	6	We are concerned that leaving a pelvic binder in situ for 24 hours is unsafe and an unnecessary risk due to its pressure effect (1). The decision on removing a binder or replacing with skeletal stabilisation in haemodynamically compromised mechanically unstable patient should be made by a trained Orthopaedic Surgeon on review of the CT scan i.e. within 1 hour of scout. The binder should be removed or replaced within 4 hours. The pelvic binder should be viewed as a prehospital or inter-hospital transfer haemorrhage control device. 1. AJL Jowett, GW Bowyer. Pressure characteristics of pelvic binders. Injury Int J Care Injured (2007) 38, 118-121	Thank you for your comment. The recommendation has been amended to advise removing the binder as soon as possible and within 24 hours. The section on 'Research and link to Evidence' in the full version of the guideline also notes that current practice involves removing or changing the position of the binder. The Guideline Development Group did not feel there was sufficient evidence for this level of detail to add it to the recommendation.
52	Royal College of Emergency Medicine	Full	44	4	Open fractures to the MTC: To avoid overwhelming orthoplastic services and Emergency Departments clearer guidance on what constitutes a significant open fracture is required(eg 'visible bone or significant flap laceration')	Thank you for your comment. An open fracture is defined in our glossary as "A fracture associated with a wound. The skin may be pierced by the bone or by a blow that breaks the skin at the time of the fracture. The bone may or may not be visible in the wound." The Guideline Development Group believe that for long

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						bone or hindfoot and midfoot open fractures the most important feature of the optimal destination was that it should provide orthoplastic care, which would usually mean it would be a MTC or a specialist centre for orthoplastic care. The benefits of getting the patient to orthoplastic care where the expertise exists to treat these patients in the timely manner required were believed to outweigh possible harms in terms of greater time in reaching that destination and the delay to starting treatment. This is supported by other evidence and recommendations in this guideline that advise immediate debridement for some open fractures and that all open fractures should be debrided within 24 hours 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)
53	Royal College of Emergency Medicine	Full	44	23	Pre-hospital antibiotics within 1 hour : The evidence for this is scanty and it is imperative that such an intervention is not allowed to delay transfer - ie should only occur once transfer is under way.	Thank you for your comment. The absence of RCT evidence and the quality of the evidence available was discussed by the GDG. Overall, the prevention of deep infection after an open fracture was considered essential to avoid tragic sequelae, such as amputation or even death. The Guideline Development Group believe the available evidence supports the administration of prophylactic antibiotics within one hour of the injury. The guidance states administration should not delay

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						transfer to hospital giving the option of antibiotic administration during transfer. The Guideline Development Group considered that antibiotics could be given once the patient is in the ambulance and therefore not delay the time it takes the patient to get to hospital. This is noted in the discussions in the full guideline.
54	Royal College of Emergency Medicine	Full	47	16	Suspected pelvic fracture to the nearest hospital: This contradicts many triage tools which include 'suspected pelvic fracture' as a step 2 indication for bypass to the MTC. The caveat is that such a suspected fracture should be in the context of significant energy transfer i.e. not just a simple fall from standing in a frail elderly patient	Thank you for your comment. The Guideline Development Group agree and the recommendation was written with this intention. It has now been edited to make it clearer. The recommendation now reads: Transport people with suspected pelvic fractures: - to the nearest hospital if suspected pelvic fracture is the only pre-hospital triage indication - directly to a major trauma centre if they also have other pre-hospital triage indications for major trauma
55	Royal College of Emergency Medicine	Full	47	25	The guidance recommends only applying a pelvic binder if active bleeding from a pelvic fracture is suspected. Given the difficulty of recognising active bleeding in the early stages of assessment this seems an unnecessarily risky approach given the negligible risk of pelvic binder application. The Faculty of Pre Hospital Care has a protocol which is recommended http://conovers.org/ftp/BMJ-Pelvic-Binders.pdf	Thank you for your comment. The Guideline Development Group believed 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 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

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						unnecessary investigations with no corresponding benefit in outcome. The justification for this recommendation is in the linking evidence to recommendation section
56	Royal College of Emergency Medicine	Full	49	11	Whole-body CT scanogram: The guidance recommends performing a whole body (head to toe) pass through the CT scanner to obtain a scanogram in blunt trauma patients with suspected limb injury. Obtaining such CTs can be technically difficult and may delay obtaining images of life threatening head and torso 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. Undertaking a scanogram to identify which areas of the body might need more focused higher resolution imaging would enable quicker treatment and avoid delays associated with further imaging later if an injury is missed initially and the patient deteriorates. 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 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. A note has been added to the Recommendations and link to evidence section of the full guideline.
57	Royal College of Emergency Medicine	Full	49	11	The guidance must not lead to a situation where imaging is taking priority over care of a potentially seriously injured patient. The focus of recent years has been on the rapid acquisition of imaging capable of identifying life-	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

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					threatening injuries - acquisition of non-time critical images must not take priority over this.	happen at the time the patient was being imaged for their trauma. Undertaking a scanogram to identify which areas of the body might need more focused higher resolution imaging would enable quicker treatment and avoid delays associated with further imaging later if an injury is missed initially and the patient deteriorates. 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 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. A note has been added to the Recommendations and link to evidence section of the full guideline.
58	Royal College of Emergency Medicine	Full	49	14	Specific guidance on which fractures merit / require CT imaging should be included if this route is to be followed.	Thank you for your comment. The recommendation is for patients undergoing a whole body CT with blunt trauma and suspected multiple injuries. These patients would already be indicated for CT. The findings will determine what further imaging, if any, is required. This is described in the Recommendations and link to evidence section of the full version of the guideline. We have labelled the recommendation as "Whole body CT for suspected multiple injuries" to make this clear in the short version.
59	Royal College of Emergency	Full	General		Case reports have highlighted that the (entirely appropriate) use of pelvic splints can prevent the	Thank you for your comment. Unfortunately we cannot answer your comment as it is incomplete

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	Medicine				identification of significant fractures on imaging that become apparent when the splint is removed. We would recommend	
88	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 response
89	Royal College of Nursing	Short	17	8	Our members consider that access to the required healthcare personnel is important. 7 day working for clinicians and radiologists to solve this would need more resources, also more nursing staff would be required particularly if there is more than one spine injury patient requiring attention at the same time, as time critical	Thank you for your comment. The NICE guidelines on Diagnostic Services both currently in development are covering seven day working. 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. There is also a recommendation in the major trauma service delivery guideline on the provision of a dedicated major trauma service that encompasses providing a service 24 hours a day 7 days a week.
31	Royal College of Paediatrics and Child Health	Full	General		Thank you for inviting the Royal College of Paediatrics and Child Health to comment on the NICE Draft guideline on *Complex Fractures*. We have not received any responses for this consultation.	Thank you for your comment
143	Sheffield	Short	6	2	This has not presently been agreed across our trauma	Thank you for your comment. The Guideline

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	Teaching Hospital NHS Foundation Trust				networks (Y+H, East Midlands) hence still doesn't appear in the pre hospital triage tools. STH ED has been unable to agree to direct transfers of open fractures due to concerns over increased workload.	Development Group 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) The Guideline Development Group believe that all open long bone and hindfoot and midfoot fractures need to be transferred to an Orthoplastic centre 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 those as recommended from supporting evidence. In addition, this recommendation should 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 our guideline.
27	Stockport NHS Foundation Trust	Short	9		What if they need external fixation does this not need to be done asap	We are sorry but we cannot work out what you are referring to.
28	Stockport NHS Foundation	Short	9	15	Following the SIU guidelines for log rolling	Thank you for your comment. We are unaware what the SIU guidelines are. Does SIU stand for spinal injury

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	Trust					unit? These recommendations apply to people with pelvic fractures.
29	Stockport NHS Foundation Trust	Short	17	8	7 day working for medics and radiologists to solve this would need more resources also need more nursing staff if there are more than one ?spine injury at a time as time critical	Thank you for your comment. The NICE guidelines on Diagnostic Services both currently in development are covering seven day working. 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. There is also a recommendation in the major trauma service delivery guideline on the provision of a dedicated major trauma service that encompasses providing a service 24 hours a day 7 days a week.
32	The Newcastle upon Tyne Hospitals NHS Foundation Trust]	Full	recommendation 8		Would undertake lavage in grossly faecal /farmyard contamination of wounds	Thank you for your comment. Outside of the theatre environment where surgical exposure of the injury can be achieved, lavage has the potential to drive contamination deeper into the tissue. The Guideline Development Group believe lavage of wounds with gross contamination in the ED or pre-hospital setting has not been shown to improve outcomes. These open fractures are described in the guidelines as those requiring emergency access to theatre for assessment, debridement followed by lavage.
33	The Newcastle upon Tyne Hospitals NHS	Full	recommendati		Again if there was gross contamination would lavage, there is no point in putting a dressing over manure impregnated wounds	Thank you for your comment. There was no evidence to support lavage of wounds with gross contamination in the ED or pre-hospital setting. The Guideline

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	Foundation Trust]		on 10			Development Group believe that outside of the theatre environment where surgical exposure of the injury can be achieved, lavage has the potential to drive contamination deeper into the tissue. However, the Guideline Development Group believe that a saline soaked dressing with an occlusive layer is an effective way of reducing desiccation of the wound and also reduces the likelihood of further contamination. Consequently, it is recommended that these wound are not irrigated and that a dressing is applied directly to the wound. Guideline Development Group These open fractures are described in the guidelines as those requiring emergency access to theatre for assessment, debridement followed by lavage.
34	The Newcastle upon Tyne Hospitals NHS Foundation Trust]	Full	Recommendation12		Temporary stabilisation and shunt insertion should be undertaken at same time. Fasciotomies for reperfusion compartment syndrome	Thank you for your comment. The Guideline Development Group agreed that shunting for a devascularised limb is performed before temporary stabilisation as re-establishment of perfusion is the first priority. More detailed discussions are written in the LETR of the full version of the guideline. The review question focused on the order of interventions and not the specific surgical procedures therefore no comment is made on the use of fasciotomies.
35	The Newcastle upon Tyne Hospitals NHS Foundation	Full	Recommendation		IIIa & IIIB open fractures should be operated on the next available list with appropriate skills mix (orthoplastic) and not within the stipulated 6-12 hrs – evidence shows skills mix more important that time frame of within 12 hrs.	Thank you for your comment. 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 as the staffing

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	Trust]		14			costs from the presence of a plastic surgeon were outweighed by the savings from the reduced complications. 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 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 Guideline Development Group agree that the staffing is important and have recommended a combined orthoplastic approach. However doing it well with the right people and also doing it quickly is the optimal approach to managing the open fracture and would achieve the best outcomes.
36	The Newcastle upon Tyne Hospitals NHS Foundation Trust]	Full	Recommendation 21		This is incorrect. Binders should be applied to all to prevent haemodynamic instability – we do not wait for the patient to decompensate and then play catch up!!! The first clot is the lifesaving clot. Ask any P&A surgeon.	Thank you for your comment. The Guideline Development Group believed 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

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						on clinical signs or mechanism of injury but only if active bleeding is suspected. 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 justification for this recommendation is in the linking evidence to recommendation section
37	The Newcastle upon Tyne Hospitals NHS Foundation Trust]	Full	Recommendation 28		Blood products – (major haemorrhage protocol) and binders should be first line – intervention is not without its complications and should be used appropriately. Having to deal with full thickness gluteal necrosis secondary to over aggressive IR is not uncommon. This is often a very difficult area, but goes back to the principle of the first clot being the "saviour". Supra-acetabular external fixators/binders and pelvic packing is more accessible than IR which is often not available in a timely fashion	Thank you for your comment. The recommendation is for first-line invasive treatment. 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'. 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 guideline should be read alongside the Major Trauma: service delivery guidance. We have identified this recommendation as having an impact on services (see appendix The Major Trauma: service delivery guideline) and 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.
38	The Newcastle upon Tyne Hospitals NHS Foundation Trust]	Full	Recommendation 33		Omit "children's orthopaedic trauma specialist" for "appropriately skilled orthopaedic trauma surgeon". The majority of paediatric poly/complex trauma is undertaken by ortho trauma surgeons who are not necessarily paediatric orthopaedic surgeons.	Thank you for your comment. The Guideline Development Group are not recommending that surgery should be undertaken by a children's orthopaedic trauma specialist but that children should be transferred to centre where there is a children's orthopaedic trauma specialist because of the risk of complications. Therefore they believe the recommendation should stay the same.
91	The Royal College of Radiologists	Full	141	1	7.2 Timing of transfer of patients with pelvic fractures: In patients who are haemodynamically unstable and are being transferred for haemorrhage control, should insertion of an aortic occlusion balloon be considered if there is concern that the patient may not survive the transfer?	Thank you for your comment. A question investigating aortic occlusion balloons was not prioritised in the guideline so there is no recommendation on this.
92	The Royal College of Radiologists	Short	7		[p7-8] Guidelines for whole body CT. No comments to make here. I note that the role of the Radiologist should be emphasised.	Thank you for your comment.
93	The Royal College of Radiologists	Short	18	line 21 line 10-11	Recommendations for research: Cysto-urethrogram. The Guideline Committee was interested in whether the first CT scan with iv contrast (trauma scan) could accurately diagnose bladder injuries. The Royal College of Radiologists would like to submit the following comments:	Thank you for your comment. The Guideline Development Group asked the question related to cystourethrogram so have not discussed the separate imaging techniques. However, we note that the individual techniques could be used as a comparator in the research recommendation proposed.

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					Comment #1 It may be worth discussing the cystogram and urethrogram separately: to our knowledge, direct urethrography is the only satisfactory imaging for urethral injury in the acute setting. Comment #2: There is a reasonable body of publications on the subject of cystography, which may be worth referring to in this section: i) Vaccaro & Brody, Radigraphics 2000 [http://pubs.rsna.org/doi/full/10.1148/radiographics.20.5.g00se111373]. ii) Quaglino et al in the J Trauma, 2006 [http://www.ncbi.nlm.nih.gov/pubmed/16917459] recommended CT cystography via introduction of dilute contrast material via a urinary catheter at the time of initial CT. iii) Ramchandani and Butler, AJR 2009: http://www.ajronline.org/doi/pdf/10.2214/AJR.09.2470 Cystography (direct or via CT) requires distension of the bladder to >250-300ml to demonstrate a bladder injury (whether intra or extra peritoneal). *'It is important to recognize that passive distention of the bladder, using excreted contrast material only, during a routine abdominopelvic CT study cannot be relied on to diagnose bladder rupture, even with clamping of a*	

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					urethral catheter [50, 55, 56]'.	
94	The Royal College of Radiologists	General	General		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	Thank you for your comment. The statement that implied double reporting has been removed from the 'linking evidence to recommendation' section of the Major trauma guideline.
95	The Royal College of Radiologists	General	General		Clarification is required as to whether the guidelines are stipulating for all whole body CT to be double reported, which would have resource implications.	Thank you for your comment. This has been removed from the 'linking evidence to recommendation section' of the Major trauma guideline
96	The Royal College of Radiologists	General			**Pelvic imaging Section:** "Use CT rather than X-ray for high energy pelvic fractures	Thank you for your comment. The Guideline Development Group considered that the scenario for pelvic fractures was not the same as for spinal imaging where specific scenarios were raised as requiring discussions with a radiologist.

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					For first-line imaging in children (under 16s) with suspected high-energy pelvic fractures: - use CT rather than X-ray when CT of the abdomen or pelvis is already indicated for assessing other injuries - consider CT rather than X-ray in other situations. Use clinical judgment to limit CT to the body areas where assessment is needed." In contrast with the spinal injury guidance, the Royal College of Radiologists notes that at no point in this document is there a suggestion to: "discuss ….. findings with a consultant radiologist " or "interpreted immediately by a radiologist" appear.	The Guideline Development Group expected that the report would come with the imaging results and be available at the time of management. This has been added to the section on 'Recommendations and link to evidence' of the full version of the complex fracture guideline. The section now also states "The Guideline Development Group noted that a definitive radiology report should be available at the time of management and be provided by a clinician trained to provide the definitive written report."
39	The Society and College of Radiographers	Full	49	11	This recommendation may be a challenge where the CT scanner has insufficient capability to perform this length of scanogram, 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.	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. Undertaking a scanogram to identify which areas of the body might need more focused higher resolution imaging would enable quicker treatment and avoid delays associated with further imaging later if an injury is missed initially and the patient deteriorates. It was also noted that the ease of scanning the limbs during the same session depends upon the size of the

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						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. A note has been added to the Recommendations and link to evidence section of the full guideline.
40	The Society and College of Radiographers	Full	49	14	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. These patients would already be indicated for CT. The findings will determine what further imaging, if any, is required. This is described in the Recommendations and link to evidence section of the full version of the guideline. We have labelled the recommendation as "Whole body CT for suspected multiple injuries" to make this clear in the short version.
41	The Society and College of Radiographers	Full	General	General	The Society and College of Radiographers are concerned that there is no reference to the reporting of diagnostic images by a suitably trained and competent radiologist or radiographer within a suitable timeframe.	Thank you for your comment. We have add to our section on 'Research and link to evidence' for pelvic imaging in the full version of the guideline to state "The Guideline Development Group noted that a definitive radiology report should be available at the time of management and be provided by a clinician trained to provide the definitive written report."
42	The Society and College of Radiographers	Full	General	General	The Society and College of Radiographers are concerned that the justification for further CT scans of suspected limb trauma is defined within this document where other imaging with less radiation dose may be more	Thank you for your comment. The recommendation is for patients undergoing a whole body CT with blunt trauma and suspected multiple injuries. The Guideline Development Group reviewed their discussions which

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					appropriate.	are captured in the 'Recommendations and link to evidence section' of the full version of the guideline and ensured that the justification for whole body CT is clear and that the radiation dose is stated.
43	The Society and College of Radiographers	Full	General	General	The Society and College of Radiographers are concerned that the justification for whole body CT scans is not adequately defined within this document	Thank you for your comment. The recommendation is for patients undergoing a whole body CT with blunt trauma and suspected multiple injuries. The Guideline Development Group reviewed their discussions which are captured in the 'Recommendations and link to evidence section' of the full version of the guideline and ensured that the justification for whole body CT is clear and that the radiation dose is stated.

Registered stakeholders