Spinal injury assessment

Consultation on draft guideline
Stakeholder comments table

07/08/15 to 21/09/15

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

ID	Stakeholder	Document	Page No	Line No	Comments Please insert each new comment in a new row	Developer's response Please respond to each comment
1	Association of ambulance chief executives	Short	8	10	Re. self-extrication, more clarity here would be beneficial-suggest including spinal BONY tenderness. There will be difficulty in determining the difference between c-spine tenderness and pain, which could lead to patients not being immobilised when needed.	Thank you for your comment. This has been edited and spinal pain has been removed to avoid any confusion.
2	Association of ambulance chief executives	Short	7	19	Suggest also stressing need for securing patient once placed on a scoop stretcher e.g with straps	Thank you for your comment. This has been added.
3	Association of ambulance chief executives	Short	7	20	Should consideration be given to removing collar and tape for suspected raised intracranial pressure?	Thank you for your comment. This was considered in the evidence review on ,'what pre-hospital strategies to protect the spine in people with suspected spinal injury are the most clinically and cost effective during transfer from the scene of the incident to acute medical care?'. Raised intracranial pressure was listed as an outcome to be recorded from any identified evidence however no evidence was identified.
4	British Orthopaedic Association	Short	5	21-23	This represents a big change in practice in pre hospital environment and training will be needed.	Thank you for your comment. The pre hospital representative on the guideline development group did not consider this to be a big change in practice and that the recommendation endorses good practice. The guideline development group recognised that there will be training requirement as a result of the guideline and recommendation 1.10.1 states that

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						ambulance and hospital trust boards should provide each healthcare professional with the training and skills to deliver any interventions they are required to give.
5	British Orthopaedic Association	Short	6	26-28	This represents a big change in practice in pre hospital environment and training will be needed.	Thank you for your comment. The pre hospital representative on the guideline development group did not consider this to be a big change in practice and that the recommendation endorses good practice. The guideline development group recognised that there will be training requirement as a result of the guideline and recommendation 1.10.1 states that ambulance and hospital trust boards should provide each healthcare professional with the training and skills to deliver any interventions they are required to give.
6	British Orthopaedic Association	Short	12	13-16	Please clarify on whether X-ray should be obtained.	Thank you for your comment. X-ray should not be obtained for adults with a high risk factor for cervical spine injury.
7	British Pain Society	General	General	General	The BPS welcomes the guideline including the early recognition and management of pain associated with spinal injury. The prompt recognition of pain that difficult to treat with standard analgesic regimes should be encouraged and pain teams involved in order to optimism analgesic management particularly of neuropathic pain. Alcohol or drug abuse is often seen in association with spinal injury and patients with these problems are at particular risk of developing chronic pain.	Thank you for your comment.
8	British Society of Interventional Radiology	Full	General	General	No comments on behalf of BSIR	Thank you for your comment.
124	Chief Fire Officers Association	Short	General		We feel that more training and guidance on the initial assessment and management in the pre-hospital setting needs to be considered for initial emergency service responders, such as the Fire and Rescue Service, particularly where Road Traffic Collisions are concerned.	Thank you for your comment. The Trauma: service delivery guidance makes a recommendation that all staff should be competent and trained to carry out the interventions they are required to give.
125	Chief Fire Officers Association	Short	General		Question 1: The assessment and management within pre-hospital settings would have the biggest impact on the Fire and Rescue Service. And areas, particularly around assessment,	Thank you for your comment.. The Trauma: service delivery guidance makes a recommendation that all staff should be

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					could be challenging to implement for the Firefighters.	competent and trained to carry out the interventions they are required to give.
126	Chief Fire Officers Association	Short	General		Question 2: Consideration for additional training for Fire and Rescue Service personnel, that would be appropriate to their scope of practice, could overcome this; along with the potential to improve patient care in the pre-hospital setting and reduce the amount of distress that the patient would be exposed to as part of an extrication from a Road Traffic Collision.	Thank you for your comment.. The Trauma: service delivery guidance makes a recommendation that all staff should be competent and trained to carry out the interventions they are required to give.
106	Department of Health	General	General		Thank you for the opportunity to comment on the draft for the above clinical guideline. I wish to confirm that the Department of Health has no substantive comments to make, regarding this consultation.	Thank you for your comment.
62	Hywel Dda University Health Board	Short	4	14	1.1.4 – "Full inline immobilisation" is referred to , but just what this entails is not mentioned. There is emerging evidence to suggest that rigid collars confer little benefit and may actually cause potential harm.	Thank you for your comment. The guideline development group agreed that it was vital to highlight the importance of spinal immobilisation and when to immobilise the spine. The methods used to immobilise the spine are dependent on the circumstances and it is difficult to cover all scenarios in this guideline. The guideline development group agreed it was impossible to describe a, 'one fits all' situation in a recommendation without being appearing prescriptive and this could be potentially counterproductive in supporting clinicians. Additional detail on how to immobilise the spine using specific equipment has been added to the LETR in section 8.6 of the guideline. The guideline development group noted the methods and practices to carry out spinal immobilisation are well documented in detail elsewhere (for example, ATLS and in 'Moving and handling patients with actual or suspected spinal cord injuries (SCI) produced by the Spinal Cord Injury centres of the United Kingdom and Ireland. The guideline development group note

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						there is a move towards the use of no collars in some immobilised patients however no evidence assessing this was identified in the review detailed in chapter 8 of the full guideline. The guideline development group discussed the potential benefits and risks of this approach and decided they did not want to make a consensus recommendation in this area.
63	Hywel Dda University Health Board	Short	4	18	1.1.15 mentions tailoring the type of immobilisation, particularly in relation to airway and fixed deformities of the spine. Is there any scope to go further with this? Perhaps more useful just to state that if it is difficult to provide a satisfactory fit with the collar due to patient's body habitus or pre existing deformity of the spine or fitting of a collar worsens pain or position it may be omitted?	Thank you for your comment. As you note this section outlines the principle that the spine should be immobilised according to the person's circumstance. This includes the appropriate use of spinal immobilisation devices and ensuring that collars are fitted appropriately. Additional text that includes other patient groups (e.g. short/wide necks, pre-existing deformity) has been added to recommendation 1.1.12 in the NICE guideline and section 8.6 in the full guideline. The guideline development group note there is a move towards the use of no collars in some immobilised patients however no evidence assessing this was identified in the review detailed in chapter 8 of the full guideline. The guideline development group discussed the potential benefits and risks of this approach and decided they did not want to make a consensus recommendation in this area.
64	Hywel Dda University Health Board	Short	10	1	1.3.3 – Life saving intervention is mentioned. Should the presence of neurogenic shock be specifically mentioned as a reason to pause at a TU to commence (peripheral) vasopressor/inotropic support?	Thank you for your comment. It is impossible to list all the lifesaving interventions that severely injured patients may need and the trauma guideline development groups decided not to list specific interventions. This was to avoid the possibility that the list would be seen as a definitive list of interventions that would

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						require diversion to a trauma unit.
65	Hywel Dda University Health Board	Short	12	1	1.5.2 – Getting an urgent MRI performed in our centre (DGH/TU) will be virtually impossible to do, certainly within any reasonable time frame and will not happen out of hours.	Thank you for your comment. The costs, benefits, and harms of different types of imaging were discussed extensively by the GDG and it was accepted that MRI is the gold standard for cord injuries for both adults and children. For children with suspected column injuries; ligamentous injuries are likely to be more common than bony injuries, and MRI was shown to be more sensitive and specific for ligamentous injuries meaning there will be fewer false negatives and false positives which would save on downstream costs. The economic model, although not directly applicable to children, also showed that when a high proportion of column injuries are ligamentous in nature, the Canadian c-spine rule followed by MRI was the most cost effective strategy. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of this population will already be excluded using the Canadian c –spine rule. It should be noted that children with suspected spinal injuries should be transported to a major trauma centre where there is greater availability or MRI scanners (see recommendations 1.3.2 and 1.3.7). There is further detail on the guideline development group rationale for MRI as the optimal imaging option in section 10.6 of the full guideline. NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole.

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						The Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
66	Hywel Dda University Health Board	Short	13	2	1.5.11 (as above [ID66])	Thank you for your comment. This has been edited to include the entire spine.
67	Hywel Dda University Health Board	Short	14	1-14	1.6 – Local experience of referral to spinal surgical services (none on site in our DGH) is very poor. This recommendation gives stipulation for the referral of spinal cord injury. Guidance regarding the referral of spinal column (with potential for instability) would be useful as well as a recommendation for time taken to have a decision from the tertiary service. There should also be recommendations regarding ongoing input from spinal surgeons where patients are not immediately transferred (e.g. daily "virtual" ward round?) There are frequently long delays in accepting patients or poor guidance for those that are not transferred. This is, in part, a symptom of a lack of a formalised trauma network in our region.	Thank you for your comment. The guideline development group agree that the management of the spinal column is important. The guideline development group prioritised the referral of people with spinal cord injury for an evidence review and as such made recommendations for this population. The aim of these recommendations is to improve the collaboration and to establish a partnership of care early in the patient's injury.
9	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	General	General	The guidance on spinal imaging is too complicated for everyday practice. Significant work is required to make the guidance easy to follow and to use in clinical practice.	Thank you for your comment. The guidance on spinal imaging has been revised and simplified. The guideline development group believe it is now easier to follow and use in clinical practice.
10	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	49	25	*CT as first line imaging for adults with cervical spine injury* The guidance as written appears to suggest that all adults with suspected c-spine injury should have CT as first line investigation. This will have significant resource implications and is unlikely to be deliverable in a time critical fashion in many	Thank you for your comment. The economic model showed that in adults with suspected column injury, the Canadian c-spine rule followed by CT was the most cost effective strategy. The population that will have CT is likely to

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					Emergency Departments without significant investment. The guidance states that if a patient has a head injury the NICE head injury guidance should apply - which in many cases would suggest plain film x-ray as first line investigation - thus there appears to be conflict between these two sets of guidance as written.	be small as trauma is rare, and a proportion of this population will already be excluded using the Canadian c –spine rule. NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole. 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.
11	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	49	14	*Paediatric c-spine imaging* The guidance appears to recommend MRI as first line in all children with high suspicion of a cervical spine injury (that is those with neurological symptoms or signs) but CT in the context of a head injury as per the existing NICE head injury guidance. This seems reasonable but requires some clarification. We feel that CT should be used prior to MRI if further imaging is felt to be necessary on clinical grounds or where the plain films are inconclusive if there are no neurological symptoms or signs. • In the case of children with head injury CT will be the used prior to MRI and then if there is still a strong suspicion of a cspine injury then MRI is appropriate.	Thank you for your comment. The costs, benefits, and harms were discussed with the guideline development group and it was accepted that MRI is the gold standard for cord injuries for both adults and children. For children with suspected column injuries; ligamentous injuries are likely to be more common than bony injuries, and MRI was shown to be more sensitive and specific for ligamentous injuries meaning there will be fewer false negatives and false positives which would save on downstream costs. The economic model, although not directly applicable to children, also showed that when a high proportion of column injuries are ligamentous in nature, the Canadian c-spine rule followed by MRI was the most cost effective strategy. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of this population will already be excluded using the Canadian c –spine rule. Recommendation 1.5.5 indicates that the NICE Head injury guidelines should be followed for children with head injury and suspected c-spine injuries. In this case, the GDG agree that children are likely to have

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						CT prior to MRI. NICE clinical guidelines do not override the responsibility of healthcare professionals to make decisions appropriate to the clinical circumstances of each patient.
12	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	49	45	The guidance states that all paediatric c-spine x-rays should be reviewed (acutely) by a consultant radiologist. This will be logistically extremely challenging, particularly for trauma units.	Thank you for your comment. The guideline development group discussed this and believed that it was very important that paediatric c-spine x-rays should be reviewed by a consultant radiologist. The guideline development group took into account the availability of a consultant radiologist but considered the need for an experienced senior clinician to clarify the need for further imaging was imperative for children. This is important to reduce the potential of unnecessary radiation or a missed spinal injury. It should be noted that children with suspected spinal injuries should be transported to a major trauma centre where there is greater availability of imaging or MRI scanners (see recommendations 1.3.2 and 1.3.7). MTC's should provide 24/7 access to imaging and reporting, even if this is only on call out of hours. 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.
13	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	49	17	The guidance states that 3 view x-ray should be 'considered' if clinical suspicion persists for a c-spine injury but the child does not meet the guidance for MRI. We feel that x-ray in this circumstance should simply be performed - not just 'considered'.	Thank you for your comment. The guideline development group use 'consider' here to emphasise the importance of the repeated clinical assessment and careful consideration before imaging . There may be other clinical options to be considered.
14	Leeds Teaching Hospital	Full	53	9	*Measurement of vital capacity in patients with spinal injury*	Thank you for your comment. The guideline

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	NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)				The guidance states that all patients with a spinal injury should have their vital capacity measured prior to transfer to the ward. This is not feasible in an Emergency Department setting, nor is there any clinical evidence to support this statement.	development group considered that measuring vital capacity is crucial in a person with a spinal injury. Respiratory complications are a known common cause of mortality in people with acute spinal injury and it is imperative that there is a baseline measurement to avoid later complications. In the guideline development group's experience vital capacity is an established method of doing this. The guideline development group noted this was a measurement that is often neglected. This is outlined in section 19.6 in the full guideline. The experience of the guideline development group indicated that it is undertaken regularly and is feasible in an ED
15	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	General	General	*Cervical collars.* The guidance recognises that some patients (eg ankylosing spond) are not suitable for cervical collar application. We would recommend that this is extended to other patient groups (eg short / wide necks). Furthermore there is evidence to support the use of no cervical collar in anaesthetised and fully conscious and co-operative patients immobilised with blocks and tape.	Thank you for your comment. The guideline development group agree that the spine should be immobilised according to the person's circumstance. This includes the appropriate use of spinal immobilisation devices and ensuring that collars are fitted appropriately. Recommendations 1.1.11 to 1.1.14 outline this principle and highlight the importance of tailoring the approach to immobilising the spine. Additional text that includes other patient groups has been added to recommendation 1.1.12 in the NICE guideline and section 8.6 in the full guideline. The guideline development group note there is a move towards the use of no collars in some immobilised patients however no evidence assessing this was identified in the review detailed in chapter 8 of the full guideline. The guideline development group discussed the potential benefits and risks of this approach and decided they did not want to make a

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						consensus recommendation in this area.
16	Leeds Teaching Hospital NHS Trust (Leeds Major Trauma Centre) & West Yorkshire Major Trauma Network (WYMTN)	Full	48	33	The guidance recognises that patients should not be transported on longboards. We would recommend that this also applies to Kendrick Extrication Devices.	Thank you for your comment. The guideline development group agreed and have changed the wording of recommendation 1.1.19 to reflect that people should not be transported on any extrication device.
72	NHS England	Short	3	17	The document would have a more logical flow if the section on "How to carry out in-line spinal immobilisation" was moved to here	Thank you for your comment. The assessment and imaging recommendations have been reordered by the guideline development group.
73	NHS England	Short	4	3	What does significant mean? Can't tell significance in the field. Better to say "any distracting injury"	Thank you for your comment. Significant distracting injuries are those that would be dominant in a conscious patient and would distract from the symptoms that would indicate a spinal cord injury. The guideline development group agreed to keep the term significant distracting rather than any distracting. The guideline development group considered this alongside the extrication recommendations and wanted to maintain consistency between the two.
74	NHS England	Short	4	21	I am not sure that there is a logical consistence here. It seems that you are saying that anyone who has neck pain should be protected. If they don't have neck pain and are high risk, then no protection is needed? Is mid-line tenderness the same as pain (tenderness is complaint of pain when pressed). How do all the factors outlined in 1.1.5 relate to this statement and the Canadian C-spine rules? Much of this section seems to relate to the patient with the "presumed" isolated injury. What about those with polytrauma?	Thank you for your comments. The recommendations have been reordered by the guideline development group and this has been addressed. The factors outlined are those proposed by the Canadian C-spine rules. Recommendation 1.1.1 and 1.1.2 set out the need for a prioritising sequence to be used when assessing people with suspected trauma and to protect the spine at all stages of the assessment. The recommendations that follow in the guideline apply to any patient with a

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						suspected spinal injury including people with suspected multiple injuries.
75	NHS England	Short	8	7	I know this may be stating the obvious but surely you should not be asking patients to walk if they have suspected pelvic or lower limb fractures.	Thank you for your comment. This has been added.
76	NHS England	Short	9	19	This statement must be reconsidered and is at odds with the national and regional guidelines for the Major Trauma Networks. In some regions it will mean transporting patients up to 4 hours on a presumed diagnosis with no idea what else is wrong with them. For children it is even worse: a child injured at Lands End with any suspicion of spinal injury would need to be taken directly to Bristol. The Major Trauma Networks have been resilient and incredibly successful because they have standardised care. This guideline now suggests we abandon this and paramedics on scene somehow differentiate patients into at least 4 different groups.	Thank you for your comment .The guideline development groups for all the trauma guidelines extensively discussed the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections. In particular see Major Trauma: service delivery guidance, full guidance chapter 1. The guideline development groups also took into account the current trauma service configuration and major trauma service specifications. Drawing evidence and experience from across the five guidelines it was clear that a MTC provides the optimal service for a patient with major trauma, of whom some will have multiple injuries. The accompanying Major Trauma: service delivery guidance includes a recommendation that clarifies the underlying principle that people with major trauma are best treated in a major trauma centres but that this may vary regionally. This has now been repeated in the spinal injury guideline and there is a reference that the spinal guideline should be read alongside the service delivery guidance.
77	NHS England	Short	10	1	See the last point. This is simply not the place for this type of guidance. The prolonged journey time in patients with polytrauma is going to result in some very sick and some dead patients being delivered to the MTC 2-4 hours away. In the field, it is simply impossible to know that the patient has an "isolated spine injury".	Thank you for your comment. The guideline development groups for all the trauma guidelines extensively discussed the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections. In

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						particular see Major Trauma: service delivery guidance, full guidance chapter 1. The guideline development groups also took into account the current trauma service configuration and major trauma service specifications. Drawing evidence and experience from across the five guidelines it was clear that a MTC provides the optimal service for a patient with major trauma, of whom some will have multiple injuries. The accompanying Major Trauma: service delivery guidance (https://www.nice.org.uk/guidance/indevelopment/gid-cgwave0641) includes a recommendation that supports the underlying principle that patients with major trauma, including those with multiple injuries, are best treated in a major trauma centre but that this may vary regionally. This has now been repeated in the spinal injury guideline and there is a reference that the spinal guideline should be read alongside the service delivery guidance. The guideline development group do not agree that these recommendations would result in a worse outcome for patients if they are taken to a MTC as a result of bypassing trauma units. These guidelines make it clear that if a patient needs an immediate lifesaving intervention they should be taken to the nearest trauma unit.
78	NHS England	Short	10	13	Land End to Bristol? Barrow-in Furness to Newcastle? Dover to Kings? Just on suspicion. The secondary transfer protocols in all of the Major Trauma Networks allow for safe, appropriate and timely transfer of these children after assessment at the Trauma Units. Why change without evidence?	Thank you for your comment. The guideline development groups for all the trauma guidelines extensively discussed the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections. In particular see Major Trauma: service

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						delivery guidance, full guidance chapter 1. The guideline development groups also took into account the current trauma service configuration and major trauma service specifications. Drawing evidence and experience from across the five guidelines it was clear that a MTC provides the optimal service for a patient with major trauma, of whom some will have multiple injuries. The accompanying Major Trauma: service delivery guidance (https://www.nice.org.uk/guidance/indevelopment/gid-cgwave0641) includes a recommendation that supports the underlying principle that patients with major trauma, including those with multiple injuries, are best treated in a major trauma centre but that this may vary regionally. This has now been repeated in the spinal injury guideline and there is a reference that the spinal guideline should be read alongside the service delivery guidance.
79	NHS England	Short	11	24	The radiologist should not immediately look for spinal injuries. All of the MTCs use a hot reporting system that focuses on immediately life-threatening conditions first. An interim report looking in more detail is then issued as quickly as possible and always includes the spine. A definitive consultant report is then expected within 12-24 hours and usually much faster. The MTC protocols do not allow for radiological clearance of the spine (not the same as clearance of the spine) until this final consultant report is available.	Thank you for your comment. The guideline development group did not intend to imply that spinal injuries should be looked for before any life threatening conditions. The recommendation aimed to drive home the importance of rapid access to imaging for a person with a major trauma injury. The recommendation has been edited 'to exclude or confirm spinal injury' has been removed to avoid any misinterpretation.
80	NHS England	Short	12	1	The implications of this are enormous. Large numbers of younger children will require a General Anaesthetic for this investigation. Immediate MRI is not available 24/7 in most Children's MTCs and so children arriving in the evening (after a pleasant 4 hours stuck on the A30 coming from Land's End!) will then need to be admitted to have an MRI the next day under GA. The resource is simply not there to deliver this recommendation.	Thank you for your comment. The costs, benefits, and harms were discussed with the GDG and it was accepted that MRI is the gold standard for cord injuries for both adults and children. For children with suspected column injuries; ligamentous injuries are likely to be more common than

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						bony injuries, and MRI was shown to be more sensitive and specific for ligamentous injuries meaning there will be fewer false negatives and false positives which would save on downstream costs. The economic model, although not directly applicable to children, also showed that when a high proportion of column injuries are ligamentous in nature, the Canadian c-spine rule followed by MRI was the most cost effective strategy. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of this population will already be excluded using the Canadian c –spine rule. The GDG agreed that given the clinical and cost effectiveness evidence, MRI was the most appropriate imaging modality, and the consequences of missing an injury outweighed the additional resources that might be needed. The GDG acknowledge that MRI may be particularly challenging in children and NICE clinical guidelines do not override the responsibility of healthcare professionals to make decisions appropriate to the clinical circumstances of each patient. 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.
81	NHS England	Short	12	4	What about Children's MTCs that have ultra low-does CT?	Thank you for your comment. The costs, benefits, and harms of all imaging modalities were discussed with the GDG and it was accepted that MRI is the gold

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						standard for cord injuries for both adults and children. For children with suspected column injuries; ligamentous injuries are likely to be more common than bony injuries, and MRI was shown to be more sensitive and specific for ligamentous injuries meaning there will be fewer false negatives and false positives which would save on downstream costs. The economic model, although not directly applicable to children, also showed that when a high proportion of column injuries are ligamentous in nature, the Canadian c-spine rule followed by MRI was the most cost effective strategy. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of this population will already be excluded using the Canadian c –spine rule. Radiation risk is a concern in children and the guideline development group acknowledge that low dose CT scanners may help alleviate this. However as noted above the type of spinal injuries that children are prone to (ligamentous) are picked up more accurately with an MRI scanner, and because of this the model showed CCR + MRI is likely to be a cost effective strategy in this population because it will lead to less missed injuries and less false positives.
82	NHS England	Short	12	22	Patients with suspected polytrauma are likely to have a trauma CT. Perhaps you could say that the Trauma CT must include coronal and sagittal reformatted images of the whole spine and be reported by a consultant radiologist with appropriate expertise in spinal imaging.	Thank you for your comment. The GDG agreed that the reformatting should only take place in suspected column injury to avoid burdening radiology departments. The initial recommendation on the section on diagnostic imaging states that imaging should be interpreted by a healthcare

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						professional with training and skills in this area.
83	NHS England	Short	12	27	My understanding is that about 15% of spinal fractures will have an associated fracture at a different level and that symptoms from this can often be masked by the first fracture. If clinical assessment is not reliable (which it is not in this situation) then surely the obligation is to obtain cross-sectional imaging of the entire spine?	Thank you for your comment. This has been edited to include the entire spine.
84	NHS England	Short	13	2	See point 9 above	Thank you for your comment. The guidance on spinal imaging has been revised and simplified. The guideline development group believe it is now easier to follow and use in clinical practice.
85	NHS England	Short	13	17	Most trauma CT scanograms do not go vertex to toes and I'm not sure there is any evidence for this statement.	Thank you for your comment. The guideline development groups for Complex fractures, Major trauma and Spinal injuries discussed the benefits of performing whole body CT and this included a scanogram to the toes. The evidence review and the rationale for the recommendations are outlined in chapter 11 of the NICE Major Trauma clinical guideline.
86	NHS England	Short	13	20	See 14 above. Not sure this is in the remit of this spinal guidance. 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. The CT of limb injuries can then be performed as a planned investigation minutes, hours or days later.	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. A point has been added to the linking evidence to recommendation section (Refer to Major trauma clinical guideline chapter 11 for the evidence review on Whole Body CT in the trauma patient with multiple injuries.) to make it clear that the patient should not be repositioned in order to perform the scanogram.

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87	NHS England	Short	14	2	This system has never worked and it still does not. Within the Major Trauma Networks there are clear local referral guidelines and this varies by network. I can see no reason to create a separate pathway for these patients and return to a system that doesn't work! This point could read, "….the Trauma Team Leader should contact the regional Major Trauma Centre using the agreed Network guidelines"	Thank you for your comment. The guideline development group disagree with the assumption there are always local network guidelines and that they are always implemented. But the guideline development group do agree that locally agreed network guidelines where they exist and are implemented are important. The guideline development group have added a recommendation in the early management section to emphasise the need for trauma networks to have network- wide protocols.
88	NHS England	Short	14	9	This is another system that has been tried and failed. I am not certain what the added clinical value is? The current situation is that: 1. All MTCs have a named and linked SCIC. 2. All MTCs have guidelines agreed with the local SCIC for the early management of patients with SCI. 3. All MTC's contact the consultant at the SCIC either the day of admission or the following morning to discuss the case 4. All SCIC should provide an outreach service that should aim to review the patient within 3 days.	Thank you for your comment. The guideline development group disagree with the assumption there are always local network guidelines and that they are always implemented. But the guideline development group do agree that locally agreed network guidelines where they exist and are implemented are important. The guideline development group have added a recommendation in the early management section to emphasise the need for trauma networks to have network- wide protocols.. The guideline development groups disagreed that the linked spinal cord injury centre should be contacted any later than 4 hours after diagnosis and all agreed that the recommendation should not be changed. In the guideline development group's experience they heard about people with spinal cord injuries either too late or not at all. The rationale for the recommendation is explained in the evidence to recommendation section (14.6).
89	NHS England	Short	14	17	This is too easy to dodge. Why not say, "All Emergency Departments within a Trauma Network should have network-wide written guidelines for the immediate management of patients with SCI and these must be agreed with the SCIC".	Thank you for your comment. This has been added.

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90	NHS England	Short	14	19	Consider rewording, "There is no evidence that the following drugs provide neuroprotection after SCI and they should not be used"	Thank you for your comment. The recommendation is worded according to the suggestions set out in the NICE guidelines manual (2012) see chapter 9. Chapter 16 of the Spinal injuries full guideline sets out the evidence assessed for this topic and the guideline development group rationale for the recommendation.
91	NHS England	Short	16	1	I believe this applies to adults who may not be considered vulnerable as well	Thank you for your comment. The guideline development group agree that this set of recommendations could also apply to anyone with a spinal injury but they wanted to highlight the particular importance of these populations.
92	NHS England	Short	18	1	This should say potential spinal injury. Definitive diagnosis cannot take place pre-hospital	Thank you for your comment. This has been edited.
93	NHS England	Short	18	23	It is not the responsibility of the paramedics to determine the level of response at the TU or MTC. The situation is different if there is a pre-hospital doctor in attendance. All MTCs and TUs within a Major Trauma Network should have agreed written guidelines for the activation of the Trauma Team and these guidelines should include the response to patients with possible spinal injury.	Thank you for your comment. This has been edited.
94	NHS England	Short	18	30	……determine the response in the Emergency Department according to agreed and written local guidelines.	Thank you for your comment. This has been edited.
95	NHS England	Short	19	2	….and the Trauma Team briefing should include available pre-hospital information.	Thank you for your comment. This is clarified in the following recommendation.
96	NHS England	Short	19	7	Surely what you mean is record the first six point in 1.9.3 together with the findings of the primary survey using the cABCDE format	Thank you for your comment. The reference to the linking recommendation has been changed to 1.9.1 to clarify this was the minimum for the primary survey.
97	NHS England	Short	19	7	The Trauma Team Leader should be responsible for ensuring that all members of the team write an appropriate clinical record. As it reads, it could be interpreted as one clinician writing the record for all e.g. the Orthopaedic surgeon being designated to write the anaesthetic record.	Thank you for your comment. This has been edited.

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98	NHS England	Short	19	25	Most images are now transferred electronically and do not go with the patient. However, there can be problems. A statement like, "Major Trauma Networks should ensure that immediate electronic transfer of images is possible between all Trauma Units and the regional MTC. Clinical teams at the MTC must be able to access these images.	Thank you for your comment. The guideline development groups agree and have discussed this extensively. They considered that the final wording implicitly includes electronic images. While the images may not 'go' with the patient the underlying principle applies, any patient documentation should be immediately available to the receiving clinicians.
99	NHS England	Short	20	1	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 a distraught family member and the background information is incredibly helpful to them (I have had more letters of thanks from GPs for sending them an admission note than anything else in my career and I've never been thanked once in 30 years for a discharge summary!) Given the complexity of polytrauma, I do not believe it is easy to produce a report in plain English for the patient / relatives / family that is also helpful for the medical staff treating the patient. Ideally, two admission records would be produced. A further issue is patient confidentiality so a plain English clinical note for the patient is perfectly acceptable. However, giving this to the relatives etc without the patient's consent (they are often unconscious) is not acceptable. In my experience, the family dynamics is often complex with estranged relatives etc and a very stressful situation. Working through these dynamics requires skill and empathy and the simple question of which relative should have access to such a note could result in a number of unintended problems.	Thank you for your comment.
100	NHS England	Short	21	20	If there are 700 new SCI patients per year, how can there be 40,000 patients living with the consequences (unless there has been a massive reduction in the incidence)?	Thank you for your comments. The references for these figures are Harrison, P (2007) Managing spinal cord injury: The first 48 hours. Spinal injuries Association. More up to date references (http://www.spinal-research.org/research-matters/spinal-cord-injury/facts-and-figures/) suggest the number is nearer 1000 and this has been edited in the text.

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101	NHS England	General	General		I am very surprised that the guideline has not covered clearance of the spine in the unconscious patient. This is an extremely common and difficult situation in clinical practice and has huge implications for Intensive Care. This is clearly within the scope of the guideline and the group should consider adding this. Also very surprised that there is scant mention of rehabilitation. Although I accept that the scope was early management, rehab needs to start within 48 hours and is becoming part of acute care. No discussion of rehab prescription and no mention of major trauma rehab coordinators who have an essential role in the system and the care of SCI patients. The section on audit needs to include TARN, UKROC and the SCI registry.	Thank you for your comment. The guideline development group considered that clearance of the spine is implicit in the guideline. It is clear when a person needs immobilising, imaging or repeated clinical assessment and the decision to clear the spine is made by the treating clinician based on their assessments and imaging results. Rehabilitation was not included in the remit for the guideline and was not addressed by the guideline development group. NICE has recently been commissioned by NHS England to develop guidelines on rehabilitation for chronic neurological disorders including traumatic brain injury and rehabilitation after traumatic injury. Rehabilitation prescription and major trauma rehabilitation coordinators will be considered in the scoping of the newly commissioned rehabilitation guidelines
102	NHS England	Full	17	24	[section 3.3.3] This section could be strengthened by the addition of links to NICE Quality Standard 86: Falls in older people: assessment after a fall and preventing further falls.	Thank you for your comment. Reference to the NICE quality standard 86 has been added to this section.
103	NHS England	Full	238	and elsewhere	Imaging spelt as Imagining	Thank you for your comment. This has been corrected.
104	NHS England	General	Glossary		the description of an x-ray in the glossary is v old fashioned:- A radiograph made by projecting X-rays through organs or structures of the body onto a photographic film. Structures that are relatively radiopaque (allow few X-rays to pass through), such as bones and cavities filled with a radiopaque contrast medium, cast a shadow on the film. Also called X-ray film Suggest use the description from RCR or SCoR websites as film is rarely used and almost never in the UK with the advent of digital imaging	Thank you for your comment. This has been edited.
17	Optasia Medical	Full	General	General	Having read the full guideline, we commend its content and have no comments	Thank you for your comment.

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18	Optasia Medical	Short	General	General	Having read the short guideline, we commend its content and have no comments	Thank you for your comment.
19	Optasia Medical	Appendices	General	General	Having read the appendices, we commend its content and have no comments	Thank you for your comment.
32	Royal College of Emergency Medicine	Full	General	General	The guidance on spinal imaging is too complicated for everyday practice. Significant work is required to make the guidance easy to follow and to use in clinical practice.	Thank you for your comment. The guidance on spinal imaging has been revised and simplified. The guideline development group believe it is now easier to follow and use in clinical practice.
33	Royal College of Emergency Medicine	Full	49	25	*CT as first line imaging for adults with cervical spine injury* The guidance as written appears to suggest that all adults with suspected c-spine injury should have CT as first line investigation. This will have significant resource implications and is unlikely to be deliverable in a time critical fashion in many Emergency Departments without significant investment. The guidance states that if a patient has a head injury the NICE head injury guidance should apply - which in many cases would suggest plain film x-ray as first line investigation - thus there appears to be conflict between these two sets of guidance as written.	Thank you for your comment. The economic model showed that in adults with suspected column injury, the Canadian c-spine rule followed by CT was the most cost effective strategy. The population that will have CT is likely to be small as trauma is rare, and a proportion of this population will already be excluded using the Canadian c –spine rule. NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole. 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.
34	Royal College of Emergency Medicine	Full	49	14	*Paediatric c-spine imaging* The guidance appears to recommend MRI as first line in all children with high suspicion of a cervical spine injury (that is those with neurological symptoms or signs) but CT in the context of a head injury as per the existing NICE head injury guidance. This seems reasonable but requires some clarification. We feel that CT should be used prior to MRI if further imaging is felt to be necessary on clinical grounds or where the plain films are inconclusive if there are no neurological symptoms or signs.	Thank you for your comment. The costs, benefits, and harms were discussed with the GDG and it was accepted that MRI is the gold standard for cord injuries for both adults and children. For children with suspected column injuries; ligamentous injuries are likely to be more common than bony injuries, and MRI was shown to be more sensitive and specific for ligamentous injuries meaning there will be fewer false negatives and false positives which would save on downstream costs. The economic model, although not directly applicable to

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						children, also showed that when a high proportion of column injuries are ligamentous in nature, the Canadian c-spine rule followed by MRI was the most cost effective strategy. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of this population will already be excluded using the Canadian c –spine rule. Recommendation 1.5.5 indicates that the NICE Head injury guidelines should be followed for children with head injury and suspected c-spine injuries. In this case the GDG agree that children are likely to have CT prior to MRI. NICE clinical guidelines do not override the responsibility of healthcare professionals to make decisions appropriate to the clinical circumstances of each patient.
35	Royal College of Emergency Medicine	Full	49	45	The guidance states that all paediatric c-spine x-rays should be reviewed (acutely) by a consultant radiologist. This will be logistically extremely challenging, particularly for trauma units.	Thank you for your comment. The guideline development group discussed this and believed that it was very important that paediatric c-spine x-rays should be reviewed by a consultant radiologist. The guideline development group took into account the availability of a consultant radiologist but considered the need for an experienced senior clinician to clarify the need for further imaging was imperative for children. This is important to reduce the potential of unnecessary radiation or a missed spinal injury. It should be noted that children with suspected spinal injuries should be transported to a major trauma centre where there is greater availability of imaging or MRI scanners (see recommendations 1.3.2 and 1.3.7). MTC's should provide 24/7 access to imaging and reporting, even if this is only on call out of

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						hours. 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.
36	Royal College of Emergency Medicine	Full	49	17	The guidance states that 3 view x-ray should be 'considered' if clinical suspicion persists for a c-spine injury but the child does not meet the guidance for MRI. We feel that x-ray in this circumstance should simply be performed - not just 'considered'.	Thank you for your comment. The guideline development group use 'consider' here to emphasise the importance of the repeated clinical assessment and careful consideration before imaging . There may be other clinical options to be considered.
37	Royal College of Emergency Medicine	Full	53	9	*Measurement of vital capacity in patients with spinal injury* The guidance states that all patients with a spinal injury should have their vital capacity measured prior to transfer to the ward. This is not feasible in an Emergency Department setting, nor is there any clinical evidence to support this statement.	Thank you for your comment. The guideline development group considered that measuring vital capacity is crucial in a person with a spinal injury. Respiratory complications are a known common cause of mortality in people with acute spinal injury and it is imperative that there is a baseline measurement to avoid later complications. In the guideline development group's experience, vital capacity is an established method of doing this. The guideline development group noted this was a measurement that is often neglected. This is outlined in section 19.6 in the full guideline. The experience of the guideline development group indicated that it is undertaken regularly and is feasible in an ED.
38	Royal College of Emergency Medicine	Full	General	General	*Cervical collars.* The guidance recognises that some patients (eg ankylosing spond) are not suitable for cervical collar application. We would recommend that this is extended to other patient groups (eg short / wide necks). Furthermore there is evidence to support the use of no cervical	Thank you for your comment. The guideline development group agree that the spine should be immobilised according to the person's circumstance. This includes the appropriate use of spinal immobilisation devices and ensuring that collars are fitted appropriately. Recommendations 1.1.11 to 1.1.14 outline this principle and highlight the

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					collar in anaesthetised and fully conscious and co-operative patients immobilised with blocks and tape.	importance of tailoring the approach to immobilising the spine. Additional text that includes other patient groups has been added to recommendation 1.1.12 in the NICE guideline and section 8.6 in the full guideline.
39	Royal College of Emergency Medicine	Full	48	33	The guidance recognises that patients should not be transported on longboards. We would recommend that this also applies to Kendrick Extrication Devices.	Thank you for your comment. The guideline development group agreed and have changed the wording of recommendation 1.1.19 to reflect that people should not be transported on any extrication device.
107	Royal College of Nursing	General	General		This is to inform you that the RCN had no comments to submit to inform on the Spinal injury assessment draft guideline consultation. Thank you for the opportunity. We look forward to participating in the next stage.	Thank you for your comment.
105	Royal College of Paediatrics and Child Health	General	General		Thank you for inviting the Royal College of Paediatrics and Child Health to comment on the NICE Draft guideline on *spinal injury assessment*. We have not received any responses for this consultation.	Thank you for your comment.
68	Royal College of Physicians	General	General	General	The RCP is grateful for the opportunity to comment on the NICE draft guideline consultation on spinal injury assessment. We have liaised with the Joint Speciality Committee on Rehabilitation Medicine (joint between the British Society of Rehabilitation Medicine and the RCP) and would like to make the following comments.	Thank you for your comment.
69	Royal College of Physicians	General	General	General	Our experts note the recommendation that a spinal cord injury consultant should be contacted by the consultant neurosurgeon or spinal surgeon responsible for the patient within four hours of diagnosis of spinal cord injury. We feel that the document would benefit by clarifying whether this is for advice regarding acute or surgical management.	Thank you for your comments. Early contact by the major trauma centre with the spinal injury consultant ensures there is a joined up collaborative service with the linked spinal cord injury centre. This supports the consultant neurosurgeon or spinal surgeon in the initial management of the person avoiding missed or poorly managed cord or column injuries. The advice could be on any aspect of care of the patient with a spinal injury.

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					Our experts wish to highlight that the current curriculum for spinal cord injury training does not include this aspect of care. In addition, it is not within the spinal cord injury training programme in the current curriculum (2010) that trainees should have a period of training in a Neurosciences Centre or Major Trauma Centre, to enable them to develop appropriate knowledge and skills to provide this advice. Overall, we believe that surgical procedures for spinal fixation and ICU practices for neuroprotection and management of physiology have changed considerably over the last few years. Unless spinal cord injury consultants and trainees work in neurosciences centres and major trauma centres, it is highly likely that they will not be fully informed of up to date practices.	The guideline development group recognised that there will be training requirement as a result of the guideline and recommendation 1.10.1 states that ambulance and hospital trust boards should provide each healthcare professional with the training and skills to deliver any interventions they are required to give.
123	Salford Royal NHS Foundation Trust	General	General		We recognise the significant amount of work that has gone into producing these documents. We would like to make the following comments: Two key points from ourselves are: **Spinal cord injury- referral to Spinal Injury Unit within 4 hours:** Our nearest spinal injury unit is Southport, and they specialise in the rehabilitation of the spinal cord injured patients. They DO NOT manage in the hyper acute/ acute phase. This is led as shared care between the intensivists and the spinal/ neurosurgeons. We would suggest that in our specialist centre, a 4 hour referral target is not feasible and that making the referral subsequent to definitive treatment (completion of surgery or decision to treat conservatively) does not compromise the care of a patient with SCI. **Rehabilitation:** Rehabilitation is well recognised as a key component of major trauma care and recovery. Rehabilitation assessments and prescriptions are required to be completed within the first 72 hours following admission by the national specification but rehabilitation is not referred to within the draft guidelines except for a brief reference in the suggested areas of research. This would appear to be a clear omission when other elements of the pathway have been given extensive coverage	Thank you for your comments. The guideline development group disagreed that the linked spinal cord injury centre should be contacted any later than 4 hours after diagnosis and all agreed that the recommendation should not be changed. In the guideline development group's experience they heard about people with spinal cord injuries either too late or not at all. The rationale for the recommendation is explained in the LETR in section 14.6 of the full guideline. Rehabilitation was not included in the remit for the guideline and was not addressed by the guideline development group. NICE has recently been commissioned by NHS England to develop guidelines on rehabilitation for chronic neurological disorders including traumatic brain injury and rehabilitation after traumatic injury.

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					and detail. If this is because it is felt that the research isn't as strong some good practice standards would be helpful. Rehabilitation is an area where wide variation in practice is frequently apparent, and certainly provision of appropriate community rehabilitation for musculo-skeletal polytrauma is a clear example where appropriate care is very limited.	Rehabilitation prescriptions will be considered in the scoping of the newly commissioned rehabilitation guidelines.
127	Sheffield Teaching Hospitals NHS Foundation Trust	Short	4	1	We already see large numbers of patients who are immobilised unnecessarily at scene. The evidence base for the benefit of spinal immobilisation is very poor, and the strategy described is likely to perpetuate the current situation as anyone with 'spinal pain' is immobilised. Many of the groups in this list may also be better without immobilisation eg agitated.	Thank you for your comment. The guideline development group agree that when making the decision to immobilise the spine it should assessed using the risk factors outlined in the recommendations and the be tailored to the person's specific circumstances. The GDG agreed that it may be better to let agitated people find a position where they are comfortable with manual in-line spinal immobilisation (recommendation 1.1.11).
128	Sheffield Teaching Hospitals NHS Foundation Trust	Short	12	13	Will generate large amounts of CT requests on basis of age. May be the right thing to do clinically but significant resource impact on CT department. One of our spinal surgeons has also suggested that all patients with Ankylosing Spondylitis sustaining a neck injury should have a CT scan.	Thank you for your comment. The guideline development group extensively discussed the available evidence, including the quality, for all of the recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections. Recommendations were made on CT for adults because the guideline development group were in clear agreement about the benefits, harms and cost-effectiveness. The economic model showed that in adults with suspected column injury, the Canadian c-spine rule followed by CT was the most cost effective strategy. The population that will have CT is likely to be small as trauma is rare, and a proportion of this population will already be excluded using the Canadian c – spine rule. The guideline development group rationale for CT as the optimal imaging option is detailed in section 10.6 of the full guideline.

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						NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole. 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. The guideline development group agree that patients with Ankylosing Spondylitis are an important population to consider. This was not an area that was identified by stakeholders at the scoping stage as important areas for inclusion. NICE guideline scopes particularly address areas where there is uncertainty or national variation in practice, and it is rarely feasible to cover all areas. Please refer to the NICE guidelines manual (section 2.3.2) for further details**.**
70	South Western Ambulance Service NHS Foundation Trust	General	General	General	Thank you for the opportunity to comment on these guidelines. These comments are in addition to any that are due from AACE.	Thank you for your comment.
71	South Western Ambulance Service NHS Foundation Trust	Short	5	1	Some of these are ?incorrect; patients are at low risk if they "have been ambulatory at any time" not, if they have "not been ambulatory at any time". Similarly, low risk patients are those without midline tenderness and who are able to rotate the head 45 degrees left and right.	Thank you for your comment. These have been edited.
40	Spinal Injuries Association	Full	50	27	Consider replacing the phrase "spinal specialists" with "spinal and spinal cord injury specialists" to avoid the major trauma centre creating the Emergency Department SCI protocols on their own without involving their linked SCI centre.	Thank you for your comment. This has been edited and the guideline development group have added a recommendation to emphasise the need for trauma networks to have network- wide protocols that are

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						agreed with the linked spinal cord injury centre.
41	Spinal Injuries Association	Full	53	5	Consider replacing "complete an ASIA chart as soon as possible before the person is moved to the ward" with EITHER "complete an ASIA chart as soon as possible and before the person leaves the emergency department" OR "The ASIA chart should be completed in the Emergency Department before the Major Trauma Centre Spinal Surgeon calls the Consultant in SCI of the linked SCI centre". The reason for this is that sometimes patients go to theatre from the Emergency Department and not to the ward, and the ASIA chart should be done before the patient leaves the Emergency Department. There is also no reason why the Spinal Surgeon should not have the AISA chart from his junior doctor before calling the SCI centre.	Thank you for your comment. The recommendation has been edited to' If spinal cord injury is suspected in people aged over 4 years, complete an ASIA chart (American Spinal Injury Association) as soon as possible in the emergency department'.
42	Spinal Injuries Association	General	General	General	The guideline does not seem to describe this. Some persons have described a two person log-roll. SCI specialists in the Multi-Disciplinary Association of SCI Professionals (MASCIP) and the British Association of SCI Specialists (BASCIS) have always recommended a three or five person turn (please see 'Moving and handling patients with actual or suspected Spinal Cord Injuries (SCI)', produced by the Spinal Cord Injury Centres of the United Kingdom and Ireland). The guideline should describe how the log-roll should be done.	Thank you for your comment. The guideline development group agreed that it was vital to highlight the importance of spinal immobilisation and when to immobilise the spine. The methods used to immobilise the spine are dependent on the circumstances and it is difficult to cover all scenarios in this guideline. The guideline development group agreed it was impossible to describe a, 'one fits all' situation in a recommendation without being appearing prescriptive and this could be potentially counterproductive in supporting clinicians. Additional detail on how to immobilise the spine using specific equipment has been added to the LETR in section 8.6 of the guideline including the suggested number of people to logroll. The guideline development group agreed that the methods and practices to carry out spinal immobilisation are well documented in detail elsewhere (for example, ATLS and in 'Moving and handling patients with actual or suspected spinal cord injuries (SCI) produced by the Spinal Cord Injury Centres

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						of the United Kingdom and Ireland.
	SRFT				On face value, this looks fairly comprehensive, however there is a lot of stuff missing here that others have covered. An approach similar to the EAST guidance which is clear, and covers a large number of presentations and real clinical questions would have been helpful to cover areas where clinical decision making can be varied and difficult. For example: Blunt cardiac injury Thoracotomy Aortic injury	Thank you for your comment. The guideline development group agree that these are important areas for the acutely injured patient. Some of these areas are covered in the NICE Major trauma clinical guideline. Other areas were not identified by stakeholders at the scoping stage as important areas for inclusion. NICE guideline scopes particularly address areas where there is uncertainty or national variation in practice, and it is rarely feasible to cover all areas. Please refer to the NICE guidelines manual (section 2.3.2) for further details.
	SRFT				**Cervical spine** It is disappointing to see that the GDG haven't adopted the common sense approach of not immobilising the neck with collars when the patient is awake and alert and able to immobilise it themselves. There is increasing evidence against the use of collars, with little good evidence supporting their use, and it would be a refreshing radical step, in line with current practice (this has been adopted now by the APLS for one) It would also be useful to have something around clearance of the spine in the obtunded patient as per EAST guidance.	Thank you for your comment. The guideline development group agree that the spine should be immobilised according to the person's circumstance. This includes the appropriate use of spinal immobilisation devices and ensuring that collars are fitted appropriately. The recommendations outline this principle and highlight the importance of tailoring the approach to immobilising the spine. Additional text that includes other patient groups has been added to recommendation 1.1.12 in the NICE guideline and section 8.6 in the full guideline. The guideline development group note there is a move towards the use of no collars in some immobilised patients however no evidence assessing this was identified in the review detailed in chapter 8 of the full guideline. The guideline development group discussed the potential benefits and risks of this approach and decided they did not want to make a consensus recommendation in this area.

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						The guideline development group considered that clearance of the spine is implicit in the guideline. It is clear when a person needs immobilising, imaging or repeated clinical assessment and the decision to clear the spine is made by the treating clinician based on their assessments and imaging results.
	SRFT				The algorithm suggests that the following would require full spinal immobilisation: any spinal pain, past history of spinal problems including surgery – these then follow through to the patient requiring CT scan (adult c spine), MR scan (child c spine). The presence of spinal pain should really be an entry point in the algorithm – the Canadian Guidance was derived from alert stable trauma patients with neck pain, as its absence would surely mean that the patient doesn't have a neck injury (assuming they are alert). I am also concerned that the guidance could be interpreted that anyone who has a past history of neck problems gets a CT – whilst I understand the purpose of this (patients with ankylosing spondylitis, Severe osteoporosis etc.) it could easily be over interpreted and lead to a risk of harm from conducting too many CTs. The text of the box containing the Canadian guidance is unclear and incorrect. Firstly it mentions "the person has one of the following low risk features" then mixes low risk features (simple rear end collision, delayed onset pain and converse of low risk features (which are not by definition high risk features!) i.e. not ambulatory, midline tenderness, not comfortable sitting). I'm not sure what went wrong here, but this is similar to the confusion around the Canadian rule in the 2nd edition of the Head Injury guidance which combined low risk features rather than treating them as single entities. This is repeated in the text in paragraph 5.2.9 and throughout the document and is also used in the children's algorithm **Page 41** 5.1.1 Right hand column- refers on the second bullet in the big box to low risk factors which are not low risk : • Is not comfortable in a sitting position	Thank you for your comment. The guidance on spinal imaging has been revised and simplified. The guideline development group believe it is now easier to follow and use in clinical practice. The wording of the Canadian C-spine rules has been made clearer.

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					• Has not been ambulatory at any time since the injury • Has midline cervical spine tenderness	
	SRFT				The NICE guidance on HI recommends x-ray for those with low risk features and reduced movement rather than CT as recommended here. I'm comfortable with this, but it is a discrepancy and we would need buy in from radiology. For thoraco-lumbar films, it takes us down a route of x-ray for anyone with bony tenderness or pain on movement. There is a paucity of good evidence here, so a consensus route is the best way forward which this provides. The Canadian group specifically went for "absence of midline tenderness" as opposed to NEXUS which had "presence of midline tenderness (for imaging)" for neck x-rays due to the poor inter-observer reliability of the latter. I suspect we will be doing loads of x-rays in this group whereas experienced clinicians may use a bit more clinical judgement. I would remove "full in-line immobilisation" for those with only thoraco-lumbar injuries and no neck injuries Small point, but mechanism alone shouldn't generate imaging for neck injuries as the text suggests – the Canadian rules were derived in "alert, stable trauma patients with neck pain"	Thank you for your comment. The economic model showed that in adults with suspected column injury, the Canadian c-spine rule followed by CT was the most cost effective strategy. The population that will have CT is likely to be small as trauma is rare, and a proportion of this population will already be excluded using the Canadian c –spine rule. NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole. 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. NICE clinical guidelines do not override the responsibility of healthcare professionals to make decisions appropriate to the clinical circumstances of each patient. The guideline development group agreed that it was important to maintain full in-line immobilisation until the clinician was comfortable that there wasn't another spinal injury and the decision to clear the spine is made by the treating clinician based on their assessments and imaging results.
	SRFT				Re transfer direct to TU. This is not supported for patients who may have a column injury but no evidence of cord injury – especially given the criteria above for suspecting injury (everyone	Thank you for your comment. The GDG extensively discussed the available evidence, including the quality, for all of

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					with a history of back pain previously!). I am also wary of the suggestion of transferring all patients with a suspected cord injury to an MTC as this will lead to a significant overtriage, but I suspect that this will be harder to argue.	these recommendations and their discussions are captured in the 'Linking evidence to recommendation' sections throughout the guideline. The GDG were in clear agreement about the benefits, harms and cost-effectiveness and also took into account the current trauma service configuration and major trauma service specifications. Drawing on the evidence and their experience appropriate recommendations were made for the interventions in the guideline and this is reflected in the strength of the recommendations. For more information on the wording of recommendations see Developing NICE guidelines: the manual (Chapter 9).
43	The James Cook University Hospital	Short Full Full	14 172 173	11 10 12	The statement that "the major trauma centre should contact the local spinal cord injury centre consultant within 4 hours of diagnosis" is in conflict with guidance published recently – The British Orthopaedic Association Standard for Trauma 8 "The Management of Traumatic Spinal Cord Injury". Published by The British Association of Spinal Cord Injury Specialists, The British Association of Spine Surgeons, The Society of British Neurological Surgeons and the British Orthopaedic Association, Standard 8 states "Management of the spine must follow the written protocols agreed with the linked Spinal Cord Injury Centre, or alternatively the on call consultant at that centre should be contacted within 4 hours of injury"	Thank you for your comment. The guideline development group agreed that all trauma networks should have network written guidelines that are agreed by the linked spinal cord injury centre. The guideline development group discussed at length whether the call should be within 4 hours of diagnosis or injury. They concluded that after diagnosis was a more appropriate point to contact the spinal cord injury centre at this time useful clinical information could be given. The guideline development group noted that without a diagnosis it would be speculative to contact the on call consultant and could result in many inappropriate referrals waiting for a diagnosis would avoid this.
44	The James Cook University Hospital	Short Full	14 172	11 7	All Major Trauma Centres and Trauma Networks have a designated and agreed linked spinal cord injury centre as defined	Thank you for your comment. This has been edited.

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		Full	173	12	in "Developing Geographical Lead Responsibilities for English Spinal Cord Injury Centres – A Report of the CRG in Spinal Cord Injury 2013". This has now been implemented by the CRG for SCI thus the statement "linked spinal cord injury centre" would be more accurate and consistent with the current situation.	
45	The James Cook University Hospital	General	General		The Guidelines are entitled "Spinal Injury: Assessment and Initial Management". There is no reference to initial management with the exception of advice not to give neuroprotection and not to give treatment aimed at reducing long term neurogenic pain. The acutely injured SCI patient is exceptionally vulnerable. It takes only four hours to develop a pressure ulcer which may take months to heal and sometimes leaves a permanently vulnerable scar. The initial bladder management is vital. No mention is made of potential life threatening bradycardia consequent on attempted intubation. No mention is made of gastric protection or DVT prophylaxis. At the very least it is important to acknowledge that these important areas are not being covered or analysed in this guideline. However the CRG for SCI has endorsed and published "Advice on Management Acute SCI patients" http://www.spinalcordinjury.nhs.uk/docs.aspx?section=Guidelines This advice was initially written by the National Spinal Cord Injury Strategy Board, forerunner of the CRG for SCI. Essentially it is an expert consensus, as level1 evidence is not available. The expert base was wide and representative of English practice (All NHS Spinal Cord Injury Centres in England, All Specialised Commissioning Groups, The British Association of Spinal Cord Injury Specialists, The Multi-Disciplinary Association of Spinal Cord Injury Professionals, The Spinal Injuries Association, The National Clinical Director for Trauma Care Clinical Policy and Strategies). It is strongly suggested that consideration be given to drawing attention to this existing national advice in the absence of further analysis from NICE.	Thank you for your comment. The guideline development group agree that these are important areas for the acutely injured patient. These were not identified by stakeholders at the scoping stage as important areas for inclusion. NICE guideline scopes particularly address areas where there is uncertainty or national variation in practice, and it is rarely feasible to cover all areas. Please refer to the NICE guidelines manual (section 2.3.2) for further details.
20	The Royal College of Radiologists	Full	12	22	**Suspected column injury only**. The Royal College of Radiologists has assumed on reading that this relates to non-major trauma patients, e.g. with assumed Osteoporotic collapse. We would recommend that this is specified.	Thank you for your comment. The guideline population is people with spinal column or cord injury secondary to a traumatic event. This does not refer to non-major trauma patients.

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21	The Royal College of Radiologists	Full	13		Whole Body CT. The Royal College of Radiologists recommends clear guidance is included regarding whether whole Body CT should be performed with or without IV contrast, based on current evidence as this is often an area of individual variation.	**Thank you for your comment.** The guideline development group agree that this is an important area when performing a CT. This was not identified by stakeholders at the scoping stage as an important area for inclusion. NICE guideline scopes particularly address areas where there is uncertainty or national variation in practice, and it is rarely feasible to cover all areas. Please refer to the NICE guidelines manual (section 2.3.2) for further details.
22	The Royal College of Radiologists	Full	13	12	The Royal College of Radiologists recommends that specific guidelines regarding MRI be included here since this is a common challenge - MRI availability is limited in the majority of hospitals. For example, should MRI be available within 48 hours, 24 hours, or less, should the patient always be immediately transferred to a site where MRI is available. The inclusion of more detail regarding clinical criteria is recommended. The UK has a very low number of CT and MRI scanners as compared to other OECD countries, with around 7 MRI scanners per million population: • Germany has 11 MRI per million population • Spain has 15 MRI per million population • France has 9 MRI per million population. **References:** https://www.cancerresearchuk.org/sites/default/files/horizon_scanning_exec_sum_final.pdf http://www.healthindicators.eu/healthindicators/object_document/o6121n29138.html	Thank you for your comment. The clinical criteria setting out when to use MRI is outlined in the recommendations and are based on the risk factors identified in the Canadian C-spine rules. The guideline development group were unable to recommend the exact timing that MRI should be available but the recommendation makes it clear that MRI should be performed urgently. The costs, benefits, and harms were discussed with the GDG and it was accepted that MRI is the gold standard for cord injuries for both adults and children. For children with suspected column injuries; ligamentous injuries are likely to be more common than bony injuries, and MRI was shown to be more sensitive and specific for ligamentous injuries meaning there will be fewer false negatives and false positives which would save on downstream costs. The economic model, although not directly applicable to children, also showed that when a high proportion of column injuries are ligamentous in nature, the Canadian c-

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						spine rule followed by MRI was the most cost effective strategy. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of this population will already be excluded using the Canadian c –spine rule. It should be noted that children with suspected spinal injuries should be transported to a major trauma centre where there is greater availability or MRI scanners (see recommendations 1.3.1 and 1.3.6). Therefore overall the GDG felt that the benefits of MRI and savings from downstream costs were likely to outweigh the cost of the MRI scan. There is further detail on the guideline development group rationale for MRI as the optimal imaging option in section 10.6 of the full guideline. NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole. 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.
23	The Royal College of Radiologists	Full	50		44) "CT in adults with any high risk factor. If, after CT a neurological abnormality attributable to spinal cord injury cannot confidently be excluded, perform MRI." This has been very badly worded – is there a neurological abnormality or not? This is a question answered by clinical examination, not imaging. Presumably it is the attribution of any neurology to spinal cord injury that needs excluding? The corollary is – in the absence of any neurological abnormality, MRI	Thank you for your comment. To make this clearer the wording of the recommendation has been edited to, 'if after CT ,there is a neurological abnormality which could be attributable to spinal cord injury, perform MRI'.

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					is not required, even if CT demonstrates spinal column injury - is that the intention of the advice?	
24	The Royal College of Radiologists	Full	50		"48. If a new spinal column fracture is confirmed assess whether there is a fracture elsewhere and image if appropriate. 49. In children where there is a strong suspicion of spinal column injury do MRI thoracic or lumbosacral spine." Point 48 should both preceded and follow on from point 49 – also, whole spine MRI rather than "thoracic or lumbosacral" may be more appropriate.	Thank you for your comment. This has been reworded to, 'In children where there is a strong suspicion of a spinal column injury as indicated by a) clinical assessment, b) abnormal neurological signs or symptoms, or both, perform whole spine MRI.'.
25	The Royal College of Radiologists	Full	50		"51. Discuss the findings of the x-rays with a consultant radiologist and perform further imaging if needed." Why do these (paediatric) radiographs need discussion with a radiologist whilst adult ones do not? (item 47.) The guidelines should state that *any* radiographs that may lead to a request for a CT should be discussed with a radiologist. "52. Perform CT in adults with a suspected thoracic or lumbosacral spine injury associated with abnormal neurological signs or symptoms. If after CT, a neurological abnormality attributable to a spinal cord injury cannot confidently be excluded, perform MRI." This is very badly worded – in this scenario (in contrast to point 44) neurological abnormality <u>is stated to be present,</u> so how can it be confidently excluded? Alternatively, can CT, whether normal or abnormal, confidently attribute neurological abnormality to a spinal cord injury, or exclude cord injury as the cause? An MRI scan therefore appears to be required - is this the intention of this guidance?	Thank you for your comments. 1. Recommendation 1.5.1 makes it clear that all images for both adults and children should be interpreted immediately by a healthcare professional with training and skills in the area. In addition the guideline development group believed that it was very important that paediatric c-spine x-rays should be reviewed by a consultant radiologist. The guideline development group took into account the availability of a consultant radiologist but considered the need for an experienced senior clinician to clarify the need for further imaging was imperative for children to reduce the potential of unnecessary radiation or a missed spinal injury. The guideline development group considered the risk of unnecessary radiation as particularly pertinent to children 2.To make this clearer the wording of the recommendation has been edited to, 'Perform CT in adults with a suspected thoracic or lumbosacral spine injury

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						associated with abnormal neurological signs or symptoms. If after CT, there is a neurological abnormality which could be attributable to spinal cord injury, perform MRI."
26	The Royal College of Radiologists	Full	50		"55. use multiplanar reformats of whole body CT" The Royal College of Radiologists fully endorses this statement.	Thank you for your comment.
27	The Royal College of Radiologists	General	General		The Royal College of Radiologists found the structure of the imaging guidance overall to be confusing, particularly with regard to appropriate use of CT and MRI which requires clarification.	Thank you for your comment. The guidance on spinal imaging has been revised and simplified. The guideline development group believe it is now easier to follow and use in clinical practice.
28	The Royal College of Radiologists	General	General		Thoracic Lumbar spine trauma - plain films are mentioned as the first line of imaging. These have low sensitivity, are technically difficult to do in the immobilised patient, particularly the lateral view is compromised as a cross table lateral is performed which causes trolley artefact. The Royal College of Radiologists believes CT should be the first line imaging modality in the poly-trauma patient, with MRI to assess disc ligament complex (to determine optimal management strategy, based on TLICS scoring system). Often plain films are done invariably to be followed by CT.	Thank you for your comment. The guideline development group agree and recommendation 1.5.14 on full body CT states that CT is the appropriate course of action for adults with suspected multiple injuries.
29	The Royal College of Radiologists	General	General		C Spine trauma – Very limited role for plain radiographs, depends on pre-test probability.	Thank you for your comment. The guideline development group agree.
30	The Royal College of Radiologists	General	General		The role of MRI needs to be clarified a little more – are other centres using the SLIC score as a clinical decision making tool for C spine trauma?	Thank you for your comment. The guideline development group are not aware of centres using the SLIC score as a clinical decision making tool for cervical spine trauma. The tool was not identified in any of the evidence reviews evaluating validated tools.
31	The Royal College of Radiologists	General	General		Is there any guidance on timing of MRI of the spine in the poly trauma patient ?	Thank you for your comment. The guideline development group discussed this and were unable to provide guidance on the timing that MRI should be available for the poly

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						trauma patient. The guideline development group agreed that the timing of MRI would be dependent on the clinical situation and the type and severity of injuries the person has. In the person with multiple injuries the timing of a MRI would be prioritised alongside the other investigations and interventions that are needed.
46	The Society and College Of Radiographers	Full	49	12	This guideline precludes experienced and appropriately trained radiographers from reporting these examinations. This may have an impact on services where radiographers form a core part of the trauma reporting team.	Thank you for your comment. The guideline development group agree and have changed the wording in recommendation 1.5.1from a radiologist to a healthcare professional with training and skills in this area.
47	The Society and College Of Radiographers	Full	49	14	This recommendation will be a challenge in practice. Many children require sedation/anaesthesia for MRI scans and other injuries may impact their ability to co-operate. There may be contraindications to MRI scanning from either the child's condition or other interventions to support their well being. The Society and College of Radiographers agree with MRI for those suspected spinal injuries in children but For those children with contra-indication for MRI would CT be more suitable -instead of plain x-ray and then possible CT afterwards. The Society and College of Radiographers also have concerns regarding staffing and support staff – e.g. anaesthesia may be required/play therapists etc	Thank you for your comment. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of the population will already be excluded using the Canadian c –spine rule. The children that have x-ray are those where there is a clinical suspicion for a c-spine injury but not a strong suspicion as indicated by the Canadian c- spine rules. It is not appropriate that these children have a CT. The GDG felt that given the clinical and cost effectiveness evidence, MRI was the most appropriate imaging modality, and the consequences of missing an injury were felt to outweigh the additional resources that might be needed. The GDG acknowledge that MRI may be particularly challenging in children and NICE clinical guidelines do not override the responsibility of healthcare professionals to make decisions appropriate to the clinical circumstances of each patient.

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						The Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
48	The Society and College Of Radiographers	Full	49	14	This guideline will be a challenge in practice from the requirement to have rapid access 24/7 to MRI equipment and suitably trained radiographers to operate them. The Society and College of Radiographers has concerns regarding access to MRI scanners 24/7 as many units do not operate MR 24/7 The following caveat should be considered : **Where appropriate and Where available**	Thank you for your comment. The costs, benefits, and harms were discussed with the GDG and it was accepted that MRI is the gold standard for cord injuries for both adults and children. For children with suspected column injuries; ligamentous injuries are likely to be more common than bony injuries, and MRI was shown to be more sensitive and specific for ligamentous injuries meaning there will be fewer false negatives and false positives which would save on downstream costs. The economic model, although not directly applicable to children, also showed that when a high proportion of column injuries are ligamentous in nature, the Canadian c-spine rule followed by MRI was the most cost effective strategy. The population that will go on to have MRI is likely to be small as trauma is rare and particularly so in children, and a proportion of this population will already be excluded using the Canadian c –spine rule. There is further detail on the guideline development group rationale for MRI as the optimal imaging option in section 10.6 of the full guideline. Taking this into account the guideline development group did not agree that adding, 'where appropriate and where available' would be useful. The recommendations make it clear when it is

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						appropriate to perform a MRI for a child with a high suspicion of c-spine injury. Adding where available would introduce the option of not performing a MRI when it is appropriate. This would result in an unequal care for children in this situation depending on where they are being treated. It should be noted that children with suspected spinal injuries should be transported to a major trauma centre where there is greater availability or MRI scanners (see recommendations 1.3.2 and 1.3.7). NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole. 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.
49	The Society and College Of Radiographers	Full	49	35	The Society and College of Radiographers are concerned that this guideline does not require expert interpretation/reporting of the images by a radiologist or suitably trained reporting radiographer. This could result in unnecessary CT scans being performed with a resultant unnecessary exposure of the patient to relatively high doses of radiation.	Thank you for your comment. The initial recommendation in the diagnostic imaging section (1.5) states that imaging should be performed urgently, and interpreted immediately by a healthcare professional with training and skills in this area to exclude or confirm spinal injury. This refers to all the recommendations to all the imaging section.
50	The Society and College Of Radiographers	Full	49	51	This guideline precludes a suitably trained and experienced reporting radiographer contributing to the core trauma team.	Thank you for your comment. This comment refers to the need for a consultant radiologist to report on paediatric c-spine x-rays. The guideline development group discussed this and believed that it was very important that paediatric c-spine x-rays should be reviewed by a consultant radiologist. The guideline development

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						group took into account the availability of a consultant radiologist but considered the need for an experienced senior clinician to clarify the need for further imaging was imperative for children. This is important to reduce the potential of unnecessary radiation or a missed spinal injury. The wording in recommendation 1.5.1 has been changed from a radiologist to healthcare professional with training and skills in this area. This does not preclude a suitably trained and experienced reporting radiographer contributing to the core trauma team.
51	The Society and College Of Radiographers	Full	50	55	The Society and College of Radiographers are concerned that this guideline might imply that a whole body CT can answer all diagnostic questions from one exposure. Not all CT scanners will have the capacity to perform this function either in a timely manner or to sufficient quality. Dedicated spinal scans are usually performed using different algorithms and localisation than that for abdominal or thoracic contents.	Thank you for your comment. The guideline development group do not agree that the guideline implies a whole body CT can answer all diagnostic questions from one exposure . This recommendation states that if someone has had a full body CT as part of their general management then multiplanar reformatting (sagittal and coronal) will determine the presence or absence of a fracture of the thoracic or lumbosacral spine. The guideline development group were keen that digital CT data already collected during whole body CT should not be repeated but reformatted to avoid further radiation exposure.
52	The Society and College Of Radiographers	General	General		Using an age criteria of 65+ in order to solely place a patient into a high-risk group appears questionable. Data has been compiled using the Canadian C-Spine rules but the evidence base for a cut off at 65 appears to be weak. Is there an argument to be made where those at or above 65 with other criteria present should then proceed into a high risk group? Without careful consideration patients 65+ with fairly minimal trauma could be undergoing CT of the spine.	Thank you for your comment. The evidence supported the use of the Canadian C-spine rules. This is a validated tool and has been replicated accordingly. The guideline development group while sympathetic to your comment did not think it was appropriate to amend or add to the criteria established in the Canadian C-spine rules.

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53	The Society and College Of Radiographers	General	General		Spinal immobilisation was clearly discussed. It should be important to stress that spinal immobilisation in the hospital setting should not comprise of non-CE marked items e.g. rolled up towels, saline bags and micropore tape. Such items are likely not to be fit for purpose and also can significantly reduce image quality. As part of the acute assessment within the hospital environment clothes, jewellery and metallic artefacts should be removed. Removal in the radiology department prior to imaging is often undertaken with minimal staff and could threaten the immobilisation of a potentially unstable spinal fracture.	Thank you for your comments. These points have been added to LETRs in section 8 and 10 of the full guideline.
54	The Society and College Of Radiographers	General	General		There are concerns regarding the siting of MR scanners which in many units are remote from the Emergency Department	Thank you for your comment. The guideline development group acknowledge the concern of the siting of MR scanners and note that similar concerns were raised about CT scanners when the head injury guideline originally recommended the increased use of CT scanners and these are now generally located in or near emergency departments.
55	The Society and College Of Radiographers	General	General		NICE may wish to make further comments regarding adjunctive procedures to increase the visualisation of C7/T1 on lateral c-spine images. Some commentators express the view that applying upper limb traction can mobilise the spine as can moving a patient into a swimmers projection.	Thank you for your comment. The guideline development group did not address adjunctive procedures or evaluate the evidence and as such did not make a recommendation in this area.
56	The Society and College Of Radiographers	General	General		The Society and College of Radiographers feels there needs to be acknowledgement that in some institutions there is a lack of X ray interpretation skills and that there is a culture towards c-spine CT. C-spine X rays are often used to obtain a ct scan regardless of the conventional X ray findings. CT could be avoided in some instances if the conventional c-spine images were reviewed by senior clinicians (including reporting radiographers).	Thank you for your comment. The recommendations reflect the evidence and guideline development group discussion that X-rays of the C-spine are not appropriate for first line imaging for people with a high suspicion of c-spine injury. The guideline development group have recommended that the use of x-rays could be considered in children where after repeated clinical assessment suspicion of an injury remains. See chapters 10 to 12 of the full guideline on diagnostic imaging for details on the evidence reviews and guideline development group decision

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						making. The guideline development group agree that healthcare professionals with training and skills in this area should interpret any imaging. C-spine x-rays in children should be discussed with a consultant radiologist. This is reflected in recommendations 1.5.1 and 1.5.4.
57	The Society and College Of Radiographers	General	General		There is an equipment cost regarding MR compatible spinal boards	Thank you for your comment. The guideline development group considered these costs alongside the benefits of MR for this population and agreed the consequences of missing an injury outweigh the additional resources and radiation risk. Additional information has been added to the linking evidence to recommendation section 10.6.
58	The Society and College Of Radiographers	General	General		There are significant capacity issues and many of our members report difficulties in access for cord compression imaging	Thank you for your comment. The recommendations on imaging reflect the evidence and the guideline development group discussion on the clinical and cost effectiveness. The guideline development group considered capacity issues alongside the benefits for this population and agreed the consequences of missing an injury with a less effective imaging modality outweigh the additional resources. In addition the GDG noted that the population requiring imaging for a spinal injury is likely to be small as this type of trauma is rare and particularly so in children. See chapters 10 to 12 of the full guideline on diagnostic imaging for details on the evidence reviews and guideline development group decision making. NICE make recommendations that are cost effective, even if it would have a cost impact to implement for the population as a whole.

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						The Resource Impact Assessment team at NICE is responsible for identifying the resource impact that may occur as a result of commissioning and implementing services in line with NICE guidance and quality standards.
59	United Kingdom Spinal Societies Board	Short Full Full	14 172 173	11 10 12	We are concerned that the statement that "the major trauma centre should contact the local spinal cord injury centre consultant within 4 hours of diagnosis" is in conflict with guidance published recently – The British Orthopaedic Association Standard for Trauma No 8 "The Management of Traumatic Spinal Cord Injury" This is a consensus document published with agreement between The British Association of Spinal Cord Injury Specialists, The British Association of Spine Surgeons, The Society of British Neurological Surgeons and the British Orthopaedic Association. Standard 8 states "Management of the spine must follow written, agreed protocols with the linked Spinal Cord Injury Centre, or alternatively the on call consultant at that centre should be contacted within 4 hours of injury"	See comment 65 Thank you for your comment. The guideline development group agreed that all trauma networks should have network written guidelines that are agreed by the linked spinal cord injury centre. The guideline development group discussed at length whether the call should be within 4 hours of diagnosis or injury. They concluded that after diagnosis was a more appropriate point to contact the spinal cord injury centre at this time useful clinical information could be given
60	United Kingdom Spinal Societies Board	Short Full Full	14 172 173	11 7 12	The description "local spinal cord injury centre" is not strictly correct. All Major Trauma Centres and Trauma Networks have a designated and agreed linked spinal cord injury centre as defined in "Developing Geographical Lead Responsibilities for English Spinal Cord Injury Centres – A Report of the CRG in Spinal Cord Injury 2013. Thus the statement "linked spinal cord injury centre" would be more accurate and consistent with the current situation.	Thank you for your comment. This has been edited.
61	United Kingdom Spinal Societies Board	General	General		The Guidelines are entitled "Spinal Injury: Assessment and Initial Management". With respect to Spinal Cord Injury there is no reference to the importance of the need to consider the immediate management of the patient's skin, pressure areas and bladder anywhere in the documents. We appreciate that to include recommendations regarding these would have necessitated another major strand of work and research. However these core aspects of the initial management should not be ignored. At the least we believe it should be acknowledged that these are important areas and are not being covered or analysed in this guideline.	Thank you for your comment. The guideline development group agree that these are important areas for the acutely injured patient. These were not identified by stakeholders at the scoping stage as important areas for inclusion. NICE guideline scopes particularly address areas where there is uncertainty or national variation in practice, and it is rarely feasible to cover all areas. Please refer to the NICE guidelines manual for further details.

Registered stakeholders