## JLA Complex Fractures: Indicative Questions 1-18 and evidence summary

PSP Name	Rank of uncertainty	Uncertainty	Explanatory note	Evidence summary	Evidence	Evidence	True Uncertainty?
			Тор	o 10 priorities - Final workshop 08 Jun 2021			
Complex fractures	1	What is the best way to reduce the risk of infection after complex fractures?	Infection may cause significant morbidity and mortality in patients with complex fractures.	All studies referenced in NG37 were of low quality and high risk of bias.  There is moderate-certainty evidence that NPWT is not a cost-effective treatment for open fracture wounds.  No other relevant trial evidence Cochrane/PUBMED since 2015	Effect of Incisional Negative Pressure Wound Therapy vs Standard Wound Dressing on Deep Surgical Site Infection After Surgery for Lower Limb Fractures Associated With Major Trauma The WHIST Randomized Clinical Trial	NICE Guideline 37 Fractures (complex): assessment and management	Yes
Complex fractures	2	What is the optimal outpatient rehabilitation strategy for patients with complex fractures?	Patients with complex fractures may spend significant amounts of time completing rehabilitation over months or years. This may be very challenging and involve many trips to the rehabilitation facility.	NG37 and NG39 – discuss patient rehabilitation in the context of providing adequate information. They state that this is very important to patients citing the qualitative study listed here.  No other relevant trial evidence Cochrane/PUBMED since 2015.	Improving recovery-Learning from patients' experiences after injury: a qualitative study	NICE Guideline 37 Fractures (complex): assessment and management  NICE Guideline 39 Major trauma: assessment and initial management	Yes
Complex fractures	3	What psychological support would be useful for patients with complex fractures and when?	Complex fractures may lead to psychological morbidity in multiple ways. Firstly, the index injury may have been psychologically traumatic. Second, scarring and deformity may lead to issues with body image. Third, challenges may relate to changes in function and knockon effects around work and leisure.	Psychological wellbeing is mentioned in NG37 as a study outcome. The guideline also advises mental health team involvement for patients with psychological or psychiatric risk factors though there is no evidence supplied relating to this.  No other relevant trial evidence Cochrane/PUBMED since 2015.	NICE Guideline 37 Fractures (complex): assessment and management	-	Yes
Complex fractures	4	Is it possible to determine which patients will develop complications, arthritis, and poor functional outcomes after complex fractures?	Complex fractures may involve significant complications and there is relatively little recent high-quality evidence to help us prognosticate who will develop complications and how these could be prevented and managed.	Complications are discussed in both NG37 and NG39 as the outcomes of studies that have been reviewed. However, there is no evidence supplied on prediction of complications.  Several studies use development of complications as a primary outcome measure when comparing treatments such as operative versus non-operative management of a fracture. However, no studies were found aiming to understand prognosis in these injuries.  No other relevant trial evidence Cochrane/PUBMED since 2015.	NICE Guideline 37 Fractures (complex): assessment and management	NICE Guideline 39 Major trauma: assessment and initial management	Yes
Complex fractures	5	What are the options for preventing and treating chronic (long-term) pain after complex fractures?	Pain affects patients at the time of injury and in some cases for the remainder of the patients life. This causes significant morbidity and may reduce quality of life and negatively impact work and leisure.	NG193 has been published (Apr 2021) since the evidence checking process for this JLA PSP was conduct (Oct 2020).  Chronic pain related to fractures is not referenced.  No other relevant trial evidence Cochrane/PUBMED since 2015.	NICE Guideline 193 Chronic pain (primary and secondary) in over 16s: assessment of all chronic pain and management of chronic primary pain	=	Yes

Complex fractures	6	What is important to patients recovering from complex fractures?		Not mentioned in NICE guidelines specifically. No other relevant trial evidence Cochrane/PUBMED since 2015.	Nil	-	Yes
Complex fractures	7	What additional care and support is helpful for patients being discharged from hospital after a complex fracture?	Patients with complex fractures receive supportive care from a multidisciplinary team that may be dispersed across different service organisations.	Not mentioned in NICE guidelines specifically. No other relevant trial evidence Cochrane/PUBMED since 2015.	Nil	-	Yes
Complex fractures	8	When is it better to replace, fix or fuse fractures around the ankle, knee or acetabulum (hip socket)?	Joint replacement, fixation with metalwork, and fusion with screws are all methods of treating fractures around joints. It is not well understood which injury pattern at each joint may benefit from each intervention.  Furthermore, it is not known which patients may benefit from each.	No specific NICE guidance exists on this question. A Cochrane review and several randomised controlled trials have been conducted to answer specific questions that fall under this uncertainty. Further studies are ongoing, none are likely to answer the question entirely.	The Ankle Injury Management (AIM) Trial,	Effect of Locking Plate Fixation vs Intramedullary Nail Fixation on 6- Month Disability Among Adults With Displaced Fracture of the Distal Tibia The UK FixDT Randomized Clinical Trial	Yes
			•	-	Cochrane Review: Interventions for treating fractures of the distal femur in adults	Fractures of the posterior wall of the acetabulum: Treatment using internal fixation of two parallel reconstruction plates Trial	-
				-	Single versus double column fixation in transverse fractures of the acetabulum: A randomised controlled trial	AceFIT – a study comparing three methods of treatment of acetabular fractures (a type of hip fracture) in older patients; surgical fixation versus surgical fixation and hip replacement versus non-surgical treatment	-
Complex fractures	9	Can peer support (from other patients) be used to help patients with complex fractures?		Not mentioned in NICE guidelines specifically. No other relevant trial evidence Cochrane/PUBMED since 2015.	Nil	-	Yes
Complex fractures	10	Can patients be provided with expected recovery times for functional recovery and return to life roles after complex fractures?	The rehabilitation journey after complex fractures can be very long and demanding for patients. There is frequently concern relating to returning to work, caring responsibilities, and leisure.	Not mentioned in NICE guidelines specifically. No other relevant trial evidence Cochrane/PUBMED since 2015.	Nil	-	Yes
		'	Indicative que	estions 11-18 discussed at final workshop 08	Jun 2021		
Complex fractures	11	When is it safe to start weight-bearing and joint movement after a complex fracture?	For some types of fracture surgeons may decide to restrict movement and weight-bearing after surgical fixation to reduced a perceived risk of impairment of healing. However, this may result in longer patient stays in hospital, dependence on care services, and muscle loss leading to poor patient outcome.	NG37 and 39 mention weight-bearing in terms of an outcome from studies they have reviewed. However, these guidelines offer no specific advice.	NICE Guideline 37 Fractures (complex): assessment and management	NICE Guideline 39 Major trauma: assessment and initial management	Yes
				The WAX Weightbearing in Ankle Fractures trial will report in 2022 but will not entirely answer this question in the context of complex fractures.			
				No other relevant trial evidence Cochrane/PUBMED since 2015.			

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A 2020 Randomised Controlled Trial linked here by Haac et al. found	
no evidence of superiority between Low Molecular Weight Heparin or	
Aspirin for VTE prevention in fracture patients. Non-pharmaceutical	
method of VTE prophylaxis exist and include patient hydration, early	
mobilisation, and compression stockings.	

Complex fractures	17	What is the best bone defect reconstruction option in the acute treatment of complex fractures?	Complex fractures may result in bone defects whereby a region of bone is destroyed or must be excised by the treating surgeon as it has lost its blood supply. Several treatment options exist for these situations such as fixation with new morphology, cadaveric bone graft, autologous bone graft, or bone free flaps.	NG37 examined the evidence for staging and treating Pilon fractures. Evidence for all outcomes included in the review was very imprecise. Overall, the NICE committee felt the Low quality of the evidence underlined the need for research in this area.	NICE Guideline 37 Fractures (complex): assessment and management	An International, Multicenter, Prospective Registry on Post-traumatic Long Bones Defects (registry data)	Yes
			-	-	Enhancement of Bone Regeneration and Healing in the Extremities by the Use of Autologous BonoFill-II (single group assignment trial in noncomplex fractures)		
Complex fractures	18	Should metalwork routinely be removed after surgery and when?	Complex fractures may be treated using internal fixation with nails, plates, and screws. This metalwork may be left in situ forever or removed after a period of time. Some patients report problems with plates and screws close to the skin, ligaments, or tendons in areas such as the outside of the ankle.	No relevant guideline or trial evidence.	Nil		Yes