Data management				
ID	**Uncertainty (PICO formatted indicative uncertainty where possible. Advised minimum requirements are 'Population' and 'Intervention'. Not all submissions may be suitable for PICO structure, but they should be in a format that will ultimately be of value to the research community)**	**Original uncertainty . Physio - Physiotherapist, OS (Orthopaedic surgeon), P (parent), PT (patient). ANP (Advanced Nurse practioner).**	**Evidence (reference, and weblink where available, to the most recent relevant systematic review identified by the PSP, plus a maximum of 2 other systematic reviews, including protocols for future systematic reviews, that the PSP considers relevant.)**	**Source of Uncertainty (if there are multiple sources, a PSP may wish to show them e.g. 1 x patient, 19 x clinician, 4 x research recommendations). *Code: Total no of individuals asking this question. (no of indivuals asking this question) Physio - Physiotherapist, OS (Orthopaedic surgeon), P (parent), PT (patient). ANP (Advanced Nurse practioner).***
CP.1A.1	**Can physio, botox, FES, orthotics, casting prevent the development of deformity requiring surgery in CP?**	How can we improve surgeons understanding of the wider picture? e.g. that pain/function may be the bigger issue (physio) Can surgery be prevented by combined optimum physiotherapy and orthotic interventions as per the Bangor (Wales) CDC model that has been operating for more than 20 years, with combined clinics between highly trained paed physiotherapists & specialist paediatric orthopaedic consultants and the Pts & orthotists, gold standard orthotic provision and all children able to access on a regular basis, from 1- adulthood, cheap and efficient Video Vector Gait Analysis by the PTs, to analyse walking, optimise orthosis designs and alignments, using published clinical algorithms by Owen E, and set physiotherapy programmes. The orthopaedic consultants who attend this clinic over 30 years have said that the children in the area covered by this CDC, ie Gwynedd and Mon have much less surgery than in other areas of UK. National awards have been won by this team including a Recognising Achievement Award by Welsh Government and an MBE. (physio)	**BOTULINUM TOXIN**	53. Physio (13) os(8) P (28) Pt (3) Nurse (1) ANP (1)
CP.1A.2	**What surveillance is effective in preventing deformity requiring surgery in CP?**	What age should children have routine hip xrays from? (physio) What is the success rate of carrying out an operation vs botox, splints, casts? (p) can contractures in CP kids be prevented (os) Can splinting prevent knee contractures and foot deformity in cerebral palsy? (os) Are we being encouraged to over splint? (P) is this beneficial? as muscle wastage is occurring (P) do knee flexion contractures predispose to windsweep? (os) Where is the correction in serial casting for gastrocsoleus shortening (os) Benefit of serial casting post soft tissue release in CP population. (physio) Cerebral Palsy: Efficacy of non surgical interventions in selected cases (os) Does Botox prevent MSK complication in CP (os) Why is botox preferred to Lengthening and does it damage muscle fibres? (p) What is the success rate of botox injections on lower limb? (p) I would like to see better data/research on the short and long term benefits and risks of Botox injections. The risks bit is important too. There is a fair bit of anecdotal evidence of complications but no research evidence. Benefits/risks of longer-term use also not evidenced (p) When is surgery absolutely essential, and when can other options such as botox/ medication/splinting more appropriate. (physio) How long does it last? (p) Evan had SDR in 2010 and has been doing great. We have put a lot of emphasis on gaining strength and his feet didn't appear to be an issue. they have been gradually getting worse. He suppinates, but the worse part is his heel is displacing because of tight muscles in his foot. He is already getting pain in the foot outside and his heel is beginning to look like it is coming over the other side of his foot. Our orthopedic surgeon has suggested targeted Botox to the tight muscles in his foot to give us a window to try and correct the issue. he says we will be able to stretch the foot and strengthen it, although it isn't guaranteed. Is there evidence for this? (pt) Are there side effects? (pt)	SR: Cope S and Mohn - Johnsen S . The effects of dosage time and frequency on motor outcomes in children with cerebral palsy: A systematic review. Dev Neurorehabil. 2017 Aug;20(6):376-387. SR: Garcia Salazar et al. Intrinsic properties and functional changes in spastic muscle after application of BTX-A in children with cerebral palsy: systematic review. Dev Neurorehabil. 2015 Feb;18(1):1-14. SR: Druschel C. Off Label Use of Botulinum Toxin in Children under Two Years of Age: A Systematic Review. Toxins (Basel). 2013 Jan; 5(1): 60–72. SR: Pin et al. Efficacy of botulinum toxin A in children with cerebral palsy in Gross Motor Function Classification System levels IV and V: a systematic review. Dev Med Child Neurol. 2013 Apr;55(4):304-13. SR: Baird MW and Vargus-Adams J. Outcome measures used in studies of botulinum toxin in childhood cerebral palsy: a systematic review. J Child Neurol. 2010 Jun;25(6):721-7. SR: Albavera-Hernandez et al. Safety of botulinum toxin type A among children with spasticity secondary to cerebral palsy: a systematic review of randomized clinical trials. Clinical Rehabilitation. 2009; 23: 394–407 SR: Fonseca et al. Effect of physiotherapeutic intervention on the gait after the application of botulinum toxin in children with cerebral palsy: systematic review. Eur J Phys Rehabil Med. SR: Ryll et al. Effects of leg muscle botulinum toxin A injections on walking in children with spasticity-related cerebral palsy: a systematic review. Dev Med Child Neurol. 2011 Mar;53(3):210-6. RCT: Kawano A et al. Ultrasonographic evaluation of changes in the muscle architecture of the gastrocnemius with botulinum toxin treatment for lower extremity spasticity in children with cerebral palsy. J Orthop Sci. 2018 Mar;23(2):389-393 RCT: Hong et al. Efficacy of Repeated Botulinum Toxin Type A Injections for Spastic Equinus in Children with Cerebral Palsy—A Secondary Analysis of the Randomized Clinical Trial. Toxins (Basel). 2017 Aug 21;9(8). RCT: Copeland et al. Botulinum Toxin A for Nonambulatory Children with Cerebral Palsy: A Double Blind Randomized Controlled Trial. The Journal of Pediatrics, July 2014, Vol.165(1), pp.140-146 RCT: Barber et al. The effects of botulinum toxin injection frequency on calf muscle growth in young children with spastic cerebral palsy: a 12-month prospective study. J Child Orthop. 2013. 7:425–433 RCT: Colovic H et al. Estimation of botulinum toxin type A efficacy on spasticity and functional outcome in children with spastic cerebral palsy.. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2012 Mar;156(1):41-7. **PHYSIO** SR: Gillett et al. The impact of strength training on skeletal muscle morphology and architecture in children and adolescents with spastic cerebral palsy: A systematic review.Res Dev Disabil. 2016 Sep;56:183-96. SR: Moreau et al. Effectiveness of Rehabilitation Interventions to Improve Gait Speed in Children With Cerebral Palsy: Systematic Review and Meta-analysis. Phys Ther. 2016 Dec;96(12):1938-1954 SR: Arpino C et al. Efficacy of intensive versus nonintensive physiotherapy in children with cerebral palsy: a meta-analysis. Int J Rehabil Res. 2010 Jun;33(2):165-71. RCT: Bania et al. The effects of progressive resistance training on daily physical activity in young people with cerebral palsy: a randomised controlled trial. Disabil Rehabil. 2016; 38(7):620-6.	

Is the alternative surgery more likely to work? (pt) botulinum toxin - long term effects of repeated injecting for adults who received injections in childhood, (physio)	RCT: Scholtes VA et al. Effectiveness of functional progressive resistance exercise training on walking ability in children with cerebral palsy: a randomized controlled trial. Res Dev Disabil. 2012. 33: 181–188. RCT: Brunner et al. Continuous vs. blocks of physiotherapy for motor development in children with cerebral palsy and similar syndromes: A prospective randomized study. Dev Neurorehabil. 2014 Dec;17(6):426-32. doi:
To try and prevent surgery should all children with complex conditions eg CP and SB have access to specialist tertiary centres where all the professionals are trained to a high postgraduate level of knowledge and experience. At the moment it seems they are seen by local staff who are not always trained to a high enough level with poor coordination amongst the team of professionals. The model of a number of centres of excellence in UK where the professionals in that team would work with the local team to form the wider Team Around The Child to ensure that all orthoses and accompanying physiotherapy programmes are optimum for the child at all ages. This happens with other rare paediatric conditions like Cystic Fibrosis, why does it not happen with CP and SB to provide preventative interventions. The recommendations of the NHS England Churchill report 2015 on Orthotic Provision hasn't been implemented well enough through UK (an FOI has identified this) maybe because there are too many organisations and also because paeds orthotics is low priority to many of them. If there were specialist centres then they would be motivated to implement and set high standards. The Churchill report states how much NHS £ can be saved if there were better services. It also states all the reports and recommendations that have gone before. and how little has changed. So is there the question .....can this only change if there are specialist centres. (physio)	RCT: Bryant et al. Can a six-week exercise intervention improve gross motor function for non-ambulant children with cerebral palsy? A pilot randomized controlled trial. Clin Rehabil. 2013. Feb;27(2):150-9
Could surgery be prevented if all physiotherapists and orthotists working with children, especially those with complex disabling conditions like CP SB, are trained to a higher level in understanding standing and walking, orthotic and physiotherapy management. Currently knowledge of standing and walking and orthotic biomechanics is at a low level. I know this as for 20 years I have taught a post grad course on these subjects both in the UK and internationally and I also train undergraduates. Knowledge levels in UK are shockingly low. Also not all orthopaedic surgeons understand typical and abnormal patterns of walking to the depth they need in complex conditions. So this leads to my next question about specialist centres for complex conditions. (physio)	RCT: Copeland et al. Botulinum toxin A for nonambulatory children with cerebral palsy: a double blind randomized controlled trial. J Pediatr. 2014 Jul;165(1):140-146.e4. RCT: scholtes et al. Effectiveness of functional progressive resistance exercise strength training on muscle strength and mobility in children with cerebral palsy: a randomized controlled trial. Dev Med Child Neurol. 2010 Jun;52(6):e107-13.
What orthotic is best for hip abduction in ambulatory children? (nurse) Is there any benefit to weekly physiotherapy in the community in a GMFCS V child once they are back to pre op range of movement and mobility following hip surgery? (physio)	**FES**
Research on the benefits of strength-training for children with cerebral palsy. And the impact that this has on the development of contracture and need for orthopaedic surgery to correct them. Also looking at the impact of spasticity on this. (p)	SR: Moll et al. Functional electrical stimulation of the ankle dorsiflexors during walking in spastic cerebral palsy: a systematic review.Dev Med Child Neurol. 2017 Dec;59(12):1230-1236. SR: Chiu HC and Ada L. Effect of functional electrical stimulation on activity in children with cerebral palsy: a systematic review. Pediatr Phys Ther. 2014 Fall;26(3):283-8. RCT: Mudge et al. Electrical Stimulation Following Botulinum Toxin A in Children With Spastic Diplegia: A Within-Participant Randomized Pilot Study.Phys Occup Ther Pediatr. 2015;35(4):342-53.
Is serial casting more successful than surgery? (P) When is serial casting most successful in terms of age of child? (P) What % of surgery goes wrong? (p) How successful is serial casting? (p)	**SERIAL CASTING**
Eg as in E's case, what % of foot positions stay in corrected place? (P)	SR: Tustin K and Patel A. A Critical Evaluation of the Updated Evidence for Casting for Equinus Deformity in Children with Cerebral Palsy.Physiother Res Int. 2017 Jan;22(1). RCT: Dai A and Demiryu rek A. Serial Casting as an Adjunct to Botulinum Toxin Type A Treatment in Children With Cerebral Palsy and Spastic Paraparesis With Scissoring of the Lower Extremities. Journal of Child Neurology.2017, Vol. 32(7) 671-675 RCT: Dursun N et al. Randomized Controlled Trial on Effectiveness of Intermittent Serial Casting on Spastic Equinus Foot in Children with Cerebral Palsy After Botulinum Toxin-A Treatment. Am J Phys Med Rehabil. 2017 Apr;96(4):221-225.
How can you maintain muscle & avoid muscle wastage? (P) Youngest age suitable Nerve transfer techniques Implantable Functional Electronic Stimulation Use of dynamic orthosese (p)	
Are there any alternative approaches to operating and if this is the only way forward, what can be done in preparation to promote a quick recovery? (p)	RCT: Lee et al. The effect and complication of botulinum toxin type a injection with serial casting for the treatment of spastic equinus foot. Ann Rehabil Med. 2011 Jun;35(3):344-53.
Is hamstring lengthening appropriate in GMFSC level IV and V to aid postural management and prevent secondary complications/deformities? (physio)	RCT: Park et al. Short-term effects of combined serial casting and botulinum toxin injection for spastic equinus in ambulatory children with cerebral palsy. Yonsei Med J. 2010 Jul;51(4):579-84.
Given nerve and muscle imbalance can serial casting be combined with electro pulse treatment to encourage weaker muscle improvement to prevent regression of the distorted limn back to it's poor position prior to casting? (p) Can the cast be hinged / articulated to encourage use of weaker muscle groups where the patient has nerve / muscle imbalance? (p) Can the cast be hinged / articulated to reduce muscle wasting typical of being in a cast? (p) What about using Epsom salts for limbs just out of casts, to help with nerve sigmal conductivity, circulation, inflamation and general recovery?(p)	**AFO** RCT:Maas et al. A randomized controlled trial studying efficacy and tolerance of a knee-ankle-foot orthosis used to prevent equinus in children with spastic cerebral palsyClin Rehabil. 2014 Oct;28(10):1025-38.
Are AFO's beneficial in CP (os) Are operations actually needed in all cases? Could AFOs or similar supports be more commonly used to avoid the need for operating? (p) Is serial casting necessary or will the surgery be sufficient with maybe the aid of specialist orthotics (AFO/DAFO)? (p)	**GENERAL** Novak et al. A systematic review of interventions for children with cerebral palsy: state of the evidence. Dev Med Child Neurol. 2013 Oct;55(10):885-910.

		Can surgery be prevented if the children are provided from age 1 to adulthood with the optimum orthoses AND footwear. Most NHS organisations will provide an Ankle Foot Orthosis but will not provide the specialist footwear that is required by a high % of children with disability to make the Ankle Foot Orthosis work. An effective orthosis is an AFO combined with the correct footwear with correct sole design. Using AFOs that do not have this provision can lead to the AFO being ineffective or potentially doing harm to children and creating contracture and deformity that then needs surgery. I have published clinical algorithms for decision making and the footwear is an important component of those algorithms and the algorithms are regarded by many internationally to be the gold standard for orthosis provision. (physio) To what extent can hamstring release surgery be avoided by a physiotherapy program, which might be quite intensive/daily? (p) What are the clear indication for lower limb surgery , on various levels and expected outcomes following the surgery (physio) For children with tight gastrocnemius and/or tight Achilles tendons are hinged AFO's an effective alternative to surgical release.(ANP) Whether in-toeing improves with better controle of pelvic girdle and reduction of excessive lumbar lordosis. And by correction of heel valgus. By physiotherapy and exercises rather than surgery. (os) Do individuals who are operated on have the same end result (in terms of flexibility and movement) as individuals with the same condition who were easier to treat without operations? (p) Can exercise assist with improving a condition? This might include active play or activities/exercise programme for the older child. (p) How can a 'block' of 3-8 sessions as and when do anything? (physiotherapy) (P) FES versus Orthotics (P) Exercising badly versus reluctant exercise (P)		
CP.1B.1	**What is the best management for hip displacement in CP?**	guided growth to prevent hip dislocation in cerebral palsy (os)	**HIP SURGERY**	40. Psyio (12), P (4), OS (24)
CP.1B.2	**What is the role of early vs late soft tissue, growth guidance or osteotomy surgery in this condition?**	What is the true incidence of pain in Cerebral Palsy Hip dislocation ? (os)	SR: Miller SD et al. Prevention of hip displacement in children with cerebral palsy: a systematic review. Dev Med Child Neurol. 2017 Nov;59(11):1130-1138. SR: Bouwhuis, C. B. Effectiveness of preventive and corrective surgical intervention on hip disorders in severe cerebral palsy: a systematic review. Disabil Rehabil. 2015;37(2):97-105.	
CP.1B.3	**Should both hips be treated simultaneously?**	Timing of surgery in Non walking CP (os)		
CP.1B.4	**What is the frequency of pain in treated and untreated individuals?**	Timing and outcome of surgery for deformity in children with cerebral palsy, particularly multi-level lower limb surgery and surgery for hip dysplasia (os) When should coxa valga be treated surgically (physio) Soft tissue surgery timing in cp patients (os) The best way to treat children with cerebral palsy and dislocated hips. (os) Chronically dislocated hip in kids with cerebral palsy (os) should this condition be treated non-operatively? (os) Best procedure and timing of hip surgery in cp (os) With major hip surgery for dislocations/subluxations what is the predicted incident/risk of likely significant spinal scoliosis as a result of the altered muscle tone/forces acting upon other joints now the hips are fixed? Is the risk /incidence of scoliosis higher post hip reconstruction in children with CP? (physio) Is the risk /incidence of spinal scoliosis higher post hip reconstruction in children with cerebral palsy?(physio) are there advantages of early soft tissue surgery versus late bony surgery in displaced CP hips (os) In which hips and what type of surgery should children with cerebral palsy with hip displacement receive?(os) Which cohort of children with Cerebral Palsy should have hip reconstruction surgery, and when? (os) The timing of hip reconstruction in children with cerebral palsy (os) Which CP patients with GMFCS 4-5 benefit from early posas/adductor tenotomy. Some do, some don't. It would be useful to know which ones to select for tenotomy surgery and which to leave for bony surgery. (os) What are the long term benefits of an operation when you balance the risk of secondary problems? (p) How successful in preventing further surgery is early hip adductor release in young patients at risk of hip subluxation? (physio) I've just found out that my 11 yr old son's hip surgeon would like to do hip adductor release surgery. I'm interested to know how well it works, is it a big job, what the post surgery recovery is like etc (p) Which children present as the best candidates for success e.g. GMFCS for each type of surgery What procedure options are available for children who will not tolerate periods of bed rest e.g. those with learning difficulties For children undergoing SDR, is bony hip surgery best done before or afterwards if it is indicated? (physio) How much is tacit knowledge relied upon by certain members of the acute team for what are deemed 'common' orthopaedic surgeries? For neuro-orthopaedic surgery (e.g for GMFCS lev III-IV), are there predictors/threshold for input that suggest surgery could irreversibly make a child immobile (physio) CP - is soft tissue surgery to manage hip migration of benefit or is bony surgery the best intervention? (physio)	SR: de Souza RC et al. Hip salvage surgery in cerebral palsy cases: a systematic review.Rev Bras Ortop. 2015 Jun 16;50(3):254-9. SR: EL-Sobky, T et al . Bony reconstruction of hip in cerebral palsy children Gross Motor Function Classification System levels III to V: a systematic review. Rev Bras Ortop. 2015 Jun 16;50(3):254-9. SR: Boldingh EJ et al. Palliative hip surgery in severe cerebral palsy: a systematic review. J Pediatr Orthop B. 2014 Jan;23(1):86-92. SR: Carty CP et al. The effect of femoral derotation osteotomy on transverse plane hip and pelvic kinematics in children with cerebral palsy: a systematic review and meta-analysis. Gait Posture. 2014 Jul;40(3):333-40.	

		What is the best treatment for hip migration in cerebral palsy? What is the best treatment for hip migration in Down's syndrome? (os) The success rate of hip arthrodesis in children with CP presenting with high or fluctuating tone and the effects on QoL and long term positioning. (physio) Should proximal femoral surgery be bilateral in neuromuscular disease(os) When should we surgically intervene and which operation (soft tissue or bony) has better outcomes in order to prevent hip migration in children with cerebral palsy? (os) in Children with CP and unilateral hip subluxation and early windsweep, what should the absulute indications be for bilateral synchronous varising osteotomies? (os) Hip correction surgery e.g. osteotomies are so invasive and take so much time for the complex child to recover. Is there an alternative?(physio) What are the long term benefits and implications with de rotational osteotomies of the femurs (physio) Are spica casts or broomstick casts best for short and longterm outcome Following Bilateral hip varising osteotomies +/- pelvic osteotomies for Children with CP hip reconstructions? (os) Do children undergoing hip surgery require immobilsation in hip spica post operatively and how does it affect outcome and post operative comfort levels? (physio) When does surgery produce better patient-centred outcomes than the natural history in hip displacement associated with immobility? (os) Are we unlucky as our Hip dysplasia operation was the most difficult recovery EVER! SDR was a walk in the park compared to this! One month post brace removal- and we are really struggling. What are the recovery average timings predictions and protocol? (p) Pain after hip reconstruction in CP children (os) Surgical outcomes of hip reconstruction in a non ambulatory child wit's cerebral palsy (os) How useful are sleep systems following hip reconstruction in CP? (physio) Cerebral palsy - GMFCS IV and V children. Do hips re-displace in adulthood after surgery to relocate the hip in childhood? (os) Diagnosis of hip problem after lower limb surgery, should X-rays be automatic? (p) can hip dislocations in some CP kids be prevented by preventing contractures (os)		
CP.1C.1 **CP.1C.2** **CP.1C.3**	**What is the short term and long term clinical and cost effectivenees of surgery for children with ambulant CP ambulant CP** **What is the best timing and technique in undertaking orthopaedic surgery in ambulant CP?** **Does gait analysis alter surgical decision making in ambulant CP?**	3. is the threshold for surgery for rotational deformities unified between different hospitals?(physio) IM nail fixation Vs plate fixation for rotation osteotomy of femur - Which gives better results in terms of time taken, weight bearing status, complications, post-op recovery.(os) Should rotation osteotomy of femur be done proximally or distally? Ease of operation, potential complications, relief of symptoms, strength of quads, anterior knee pain, perception of scar. (os) Most successful surgical technique and best age to operate at (nurse) 2. what is the optimum time to operate on lower limbs in CP (physio) Optimum surgical intervention for CP maifestations in the lower limb (os) This is a very broad question and difficult to answer without any context. 1. what evidence is there regarding lower limb surgery in CP (physio) the benefits of lower limb surgery in cerebral palsy and neurodisability (os) which surgical procedures improve patient and parent satisfaction in CP (os) hat are the best treatments for long term gain, either surgical or not, for children and adults with spastic diplegia cerebral palsy? (p) Cerebral Palsy: 1.Clearer indications for treatment 2. Which interventions are effective (os) Knee: Treatment of extensor mechanism malalignment (subluxation) (os) QOL and activity and participation in longer term post multilevel surgery (physio) How do we best decide what procedures to perform in multi-level surgery in cerebral palsy (other: clinical scientist) When is the best time to perform multi-level surgery in children with cerebral palsy (other: clinical scientist) What is the optimum age for multi level surgery? (p) Is there an optimum age for multi level surgery to have best effects? (physio) What are the key ages for multi level surgery to be carried out for those children with CP, who are likely to need further surgery due to growth spurts. (physio) Cerebral palsy - are functional gains after multilevel surgery in children to improve gait sustained into adulthood and for how long? (os) What are the clear indication for lower limb surgery , on various levels and expected outcomes following the surgery (PHYSIO) what is the effectiveness of multilevel surgery in CP (os) Does multilevel surgery improve walking? (os) Which procedures are of most benefit? (os)	**MULTILEVEL SURGERY** SR: Kolman SE et al. Salvage Options in the Cerebral Palsy Hip: A Systematic Review. J Pediatr Orthop. 2016 Sep;36(6):645-50 SR: Lamberts et al. A Systematic Review of the Effects of Single-Event Multilevel Surgery on Gait Parameters in Children with Spastic Cerebral Palsy. PLoS One. 2016 Oct 18;11(10):e0164686. SR: McGinely et al. Single-event multilevel surgery for children with cerebral palsy: a systematic review. Dev Med Child Neurol. 2012 Feb;54(2):117-28. Miller SD et al. Distal rectus femoris transfer as part of multilevel surgery in children with spastic diplegia--a randomized clinical trial. Dev Med Child Neurol. 2017 Nov;59(11):1130-1138. **COST EFFECTIVENESS** SR: Shih et al. Economic evaluation and cost of interventions for cerebral palsy: a systematic review. Dev Med Child Neurol. 2018 Jun;60(6):543-558. **GAIT ANALYSIS** RCT: Wren TA et al. Impact of gait analysis on correction of excessive hip internal rotation in ambulatory children with cerebral palsy: a randomized controlled trial. Dev Med Child Neurol. 2013 Oct;55(10):919-25. RCT: Wren TA et al. Outcomes of lower extremity orthopedic surgery in ambulatory children with cerebral palsy with and without gait analysis: results of a randomized controlled trial. Gait Posture. 2013 Jun;38(2):236-41. RCT: Wren TA et al. Influence of gait analysis on decision-making for lower extremity orthopaedic surgery: Baseline data from a randomized controlled trial. Gait Posture. 2011 Jul;34(3):364-9. **EQUINUS** SR: Tustkin K et al. A Critical Evaluation of the Updated Evidence for Casting for Equinus Deformity in Children with Cerebral Palsy. Physiother Res Int. 2017 Jan;22(1) SR: Shore BJ et al. Surgical correction of equinus deformity in children with cerebral palsy: a systematic review. J Child Orthop. 2010 Aug;4(4):277-90. RCT: Mansour et al. Is percutaneous medial hamstring myofascial lengthening as anatomically effective and safe as the open procedure? J Child Orthop, 2017:11(1):15-19 RCT: El Hage et al. Is percutaneous adductor tenotomy as effective and safe as the open procedure?. J Pediatr Orthop. 2010 Jul-Aug;30(5):485-8.	63. Physio (19), OS (20), P (13), Pt (3), Nurse (1), CS (4), OT (1), PS (1), HCS (1)

		effect of multilevel surgery on quality of life compared to therapy +/- botox (os) In cerebral palsy surgery, how does SEMLS affect strength into adulthood? (os) Single Event Multi-level surgery in ambulant children with CP: Is there a difference between parental and patient satisfaction post-operatively? (physio) Single Event Multi-level surgery in ambulant children with CP: We assume that satisfaction post-surgery is linked to function, is this true for patients and for parents? (physio) How soon should we mobilise kids after multilevel hip surgery in CP (physio) Soft tissue surgery timing in cp patients (os) How do we manage hips after multilevel surgery - do they need a spica?(Physio) How long will my MLSx benefit me? (pt) What are the long term benefits of MLSx in terms of quality of life? (ot) How useful and widely used are standing frames following multilevel surgery? (physio) Complications / length of stay for complex needs children having multilevel surgery (physio) Questions about optimal surgery types, times and rehab for children needing lower limb surgery because of neurological problems including Cerebral Palsy (physio) Gastroc lengthening - long term implications - operative versus non operative outcome? (physio) What is most successful way to lengthen a hamstring in cerebral palsy?(os) When does hamstring surgery produce better patient-centred outcomes than physiotherapy and lifestyle modification alone in ambulant children with bilateral cerebral palsy?(os) Has ham string release been stopped in some hospitals with results being negative? (p) Surgical management of knee flexion contractures in children with Cerebral palsy (physio) CP optimal management of equinus ankle - muscle lengthening, tendon lengthening.... (os) PERC's surgery versus Physio ?? (p) Comparisons between soft tissue surgery and splints/orthotics (p) Are there any studies of long term outcomes after PERCS, 2 years, 5 years, 10+ years? What are the results? How do these compare to standard tendon lengthening procedures? (p) Is PERCS performed on the NHS in the uk? (p) I am in Basingstoke is my child likely to have access to PERCS on the NHS? (p) PERCS / SPML is this minimally invasive tendon lengthening? (p) Can lengthening weaken the tendons causing problems later on, like ruptured TA or Hamstrings? (p) Does psoas lengthening help fixed flexion deformity in cerebral palsy? (os) Is there a 'theory' or calculation when dividing a tendon in the foot and swinging a portion over or is it left to each consultant to make the judgement. (p) Is it more detrimental to leave an equinus contracture until the age of 7+to reduce risk of reoccurrence or treat early to allow more normal function, with the risk of reoccurrence?(physio) Research on different techniques for correcting contractures and impact on muscle strength.(p) Timing of angular correction (os) Recurrence rates following deformity correction (podiatric surgeon) Whether post operative immobilization in cast post soft tissue lengthening affects outcome in children with cerebral palsy?(physio) Long term outcomes from multilevel or single level surgery for children with Cerebral palsy eg functional, pain, spasticity, range of movement (physio) Can we artificial intelligence to use gait analysis more effectively (os) Can we have a set of agreed gait/funtional outcome measures, which are standardised nationally? (cs) Should a gait analyses be done before any orthopaedic surgery? (p) How can we improve cost-effectiveness of clinical movement analysis to assess and evaluated patients pre- and postoperatively? (healthcare scientist) What level of gait imporvement should be expected by the various surgical procedures on offer? (cs) Does lower leg surgery results in not using splints anymore? (pt) Does lower leg surgery results in being able to walk unaided? (pt)		
CP.1D	**What is the short term and long term clinical cost effectiveness of SDR in ambulant CP**	Should there be more emphasis on pre-hab (pre operative rehab) to secure the most successful outcome in surgery? Is there a 'right time' for orthopaedic surgery for children listed for/having undergone SDR (selective dorsal rhizotomy) surgery? (physio) Role for SDR and multilevel surgery in optimising function during growth(os) SDR - benefits for use in GMFCS 4 and 5, and for hemiplegia. currently mostly used only for levels 2 and 3 (physio) As there is a SDR protocol now why can one surgeon 'do his own thing' and not observe the recommendations even when this has resulted in re admissions, no physio 'in house' and infections? (p)	Nicolini-Panisson et al. SELECTIVE DORSAL RHIZOTOMY IN CEREBRAL PALSY: SELECTION CRITERIA AND POSTOPERATIVE PHYSICAL THERAPY PROTOCOLS. Rev Paul Pediatr. 2018 Jan 15;36(1):9. Grunt et al. Selection criteria for selective dorsal rhizotomy in children with spastic cerebral palsy: a systematic review of the literature. Dev Med Child Neurol. 2014 Apr;56(4):302-12. Grunt et al. Long-term outcome and adverse effects of selective dorsal rhizotomy in children with cerebral palsy: a systematic review. Dev Med Child Neurol. 2011 Jun;53(6):490-8.	12. Physio (2), P (6), OS (4)

		Results of SDR in ambulant CP children (os) Post sdr how long would you leave until orthopaedic surgery to fully see the benefits sdr before surgery. (p) Does SDR help children with Cp long term? (p) Long term efficacy Whether surgery may need to be repeated Experience of surgeon at operating on children post SDR (p) Long term outcomes following SDR in ambulatory CP (os) Why are the physio protocols post SDR different from hospital to hospital? (p) What is the role of SDR in cerebral palsy? (os) Why will no surgeon report this person/hospital as they are aware of it? (Regarding SDR protocol now why can one surgeon 'do his own thing' and not observe the recommendations (p)			
CP.1E	**What is the best management of lower limb deformity in hemiplegic CP?**	How does the surgery to correct foot deformity in Hemiplegia behave over time as the patient moves into the adult years and beyond? (p)_ Does changing the alignment of the lower leg/foot predispose the patient with Hemiplegia to secondary deformities such as bunions/bunionettes etc. as they grow older? (p) What are the long term benefits of foot deformity correction in Hemiplegia? What are the potential negative effects? (p) Is there a way to minimize the atrophy and loss of strength/range of motion in the Hemiplegic surgically treated lower leg? (p)	RCT: El-Shamy SM et al. WalkAide Efficacy on Gait and Energy Expenditure in Children with Hemiplegic Cerebral Palsy: A Randomized Controlled Trial. Am J Phys Med Rehabil. 2016 Sep;95(9):629-38. RCT: Jelsma J et al. The effect of the Nintendo Wii Fit on balance control and gross motor function of children with spastic hemiplegic cerebral palsy.Dev Neurorehabil. 2013;16(1):27-37.	4. P (4)	
CP.1F	**What is the effective surgeon and centre experience on the outcome of orthopaedic lower limb surgery in cerebral palsy patients**	If surgery is going to be performed on children especially those with rare or relatively rare and complex conditions like CP and SB should that surgery only be determined and performed by a limited number of consultants who are high trained in the condition and the surgical and other options for management of those conditions. In this way the children and families get the best opinions and treatment and outcomes can be monitored, and the centres of excellence can coordinate easily to improve the national standards of care for children and families. This happens in other highly complex conditions requiring surgery eg heart surgery. (Physio) What is the best way to record patient outcomes after hip surgery and multilevel surgery - outcome measures are poor - CP child not patient friendly. (physio) Would be very important also to develop and use child and parent related functional outcome scores to allow the outcomes of surgery in this group to be assessed (os) Can you use language that makes it clear to parents and children faced with an impending operation? (P)	Schiariti V et al. Comparing contents of outcome measures in cerebral palsy using the International Classification of Functioning (ICF-CY): a systematic review. Eur J Paediatr Neurol. 2014 Jan;18(1):1-12. Tsoi WS et al. Improving quality of life of children with cerebral palsy: a systematic review of clinical trials. Child Care Health Dev. 2012 Jan;38(1):21-31. Debuse D et al. Outcome measures of activity for children with cerebral palsy: a systematic review. Pediatr Phys Ther. 2011 Fall;23(3):221-31.	4. Physio (2), Os (1), P (1)	
DDH.1A	**What is the best screening for DDH in terms of clinical and cost effectiveness**	Should the 6-8 month health check be reinstated for hip examination - and by whom (os) DDH - should we do nationalultrasound screening? (os) Can we scan all babies with hip dysplasia to avoid the need for surgeryin the future? (p) **Universal screeningfor DDH in the UK (os)** **Would routine ultrasoundon babies help reduce undetected DDH? (p)** **Whydo we useselective screeningfor DDH when it is not effective? (os)** How would universal screening/widening the risk factors for DDH affect the rates of surgical intervention? (p) **What is the cost benefit analysisfor a national US screening programme for DDH (os)** **ways toimprove screening (os)** What is thecost benefit analysisof an ultrasound to identify hip dysplasia in all children versus the cost of late treatment/surgery rather than pavlik harness as a result? (p) is there a better way to screenfor DDH other than ultrasound and clinical examination? (os) Long term results multicentre, prospective data in DDH screening (os) Ways to assess if NIPE screening is successfully identifying DDH (os) Developing a tool for medical professionals to identify casesof hip dysplasia. (p) How can the detection of hip dysplasia in infants be improved to reduce the need for invasive surgery later on? (p) Why was hip dysplasia not identified sooner? (pt) Reasons forlate presentationsin DDH (os) should we be using "standardised" ultrasound assessment tools for conditions such as hip dysplasia (Physio) if the answer to q 1 is yes? How can this be done? (Physio) Is there anything that can be done to prevent it? (p)	Systematic review: Shorter D, Hong T and Osborn DA. Screening programmes for developmental dysplasia of the hip in newborn infants (Review). Evid.-Based Child Health. 2013; 8:1: 11–54 Randomised Control Trial: Rosendahl et al. Immediate Treatment Versus Sonographic Surveillance for Mild Hip Dysplasia in Newborns. Pediatrics. 2009; Vol 125(1)	20. OS (10), Pt (1), Physio (2), P (7)	
DDH.1B	**What is the aetiology of DDH?**	Is hip dysplasia a genetic condition? (p) Is hypermobility linked to hip dysplasia. (p) What causes hip dysplasia? (pt) The natural history of hip dysplasia and which operative interventions influence it? (os) Long term outcome for DDH treatment vs natural history (os)	Systematic Review: Randall T. Loder and Elaine N. Skopelja. The Epidemiology and Demographics of Hip Dysplasia. ISRN. 2011; Article ID 238607, 46 pages. doi:10.5402/2011/238607 Systemia Review: Ortiz-Neiraa CL, Oddone Paoluccib E and Donnonc T. A meta-analysis of common risk factors associated with the diagnosis of developmental dysplasia of the hip in newborns. Eur J Radiol. 2012; 81, e344– e351 Systematic review: de Hundt M et al. Risk factors for developmental dysplasia of the hip: a meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2012; 165; 8–17	5. P (2), OS (2), Pt (1)	
DDH.1C.1 **DDH.1C.2** **DDH.1C.3**	**What are the indications for bracing?** **Which brace is best?** **What is the best treatment when bracing fails?**	Are we now overtreating neonates with DDH by using Graf criteria (os) Are we overtreating acrtabular dysplasia? (os) Which harness should we use for DDH - Pavlik has taken over the world with little evidence! (os)	Systematic reviews and randomised control trials within the last 10 years were identified (143 results). Titles and abstracts were screened, 1 was found to be eligible, however unable to locate full access text.	9. Physio (2), P (2), OS (4), ANP (1)	

DDH.1C.4	**Should dysplasia be treated in neonates?**	Is a pavlik harness the best splint for DDH? (os) Success of pavlik harness in Graf sub groups - III, IV. Is there a case for early surgical treatment. Lower threshold for surgery in these subgroups? (Physio) Does the Pavlik harness have a significant effect on reducing the need for surgical intervention in severe (Grade 4) DDH and does age of diagnosis have an impact on this outcome? (P) What is the optimal/minimal duration of Pavlik harness treatment for effective treatment of DDH.(ANP) Could surgery be an option before 6 months of age to gain better outcomes (p) Is there any indication for early closed reduction of Graf IV hips under the age of 6 months of age? (Physio)			
DDH.1D	**What is the best treatment for late presenting DDH in terms of timing, surgical method, complications and outcomes?**	Do we have to wait for the capital epiphysis to be present to reduce the risk of AVN in infants who present with a delayed diagnosis of CDH (os) what is the best surgical treatment for late presenting DDH (os) Outcome of treatment in late presentations of DDH versus treatment of early presentations of DDH (<3 months) (os) At what stage does research show that late diagnosis leads to difficulties in correcting DDH? (p) does radiological evidence of avn following ddh treatment match clinical signs/symptoms (os) What is the best age to reduce a congenitally dislocated hip? (os) In sever DDH is there any point for the operation as a baby given a second operation is needed? (p) When is the best time to perform closed/open reduction for DDH? (paediatrician) Open reduction for DDH in a child whose femoral epiphysis has not appeared on X-ray. (os) DDH - optimal timing of surgical intervention (os) Timing for DDH surgery in babies (before or after appearance of ossific nucleus) (physio) timing of surgical intervention in DDH - immediate vs delay for ossific nucleus or other omen (os) DDH - optimal surgical strategies (os) What is the best surgical route for treatment of congenitally dislocated hip (medial vs anterior)? (os) Dislocated hip age 6-18 months, closed or open reduction is superoir (os) Does closed reduction of dysplastic hips really work (os) Is there always value in attempting closed reductions (conducted under GA, which has its own risks) before resorting to an open reduction - a plan which puts a child through GA twice? (p) Is open/ closed reduction in babies always the best option for severe DDH or is surgical intervention best left until an osteotomy can be performed - if so, what is the best age to perform this procedure? (p) DDH treatment- closed vs open reduction in children age 12 months (os) is medial open reduction safe? (os) Early MAOR versus delay open reduction. AVN, radiological and hip function scores. Secondary surgery rates. (os) Does Pre operative traction reduce AVN and improve outcome for paediatric hip dislocation (os) Traction versus surgery fixation, which gives better orthopaedic results (bones rather than finances) (nurse) Short and long term outcomes of closed reduction, open reduction and open reduction with osteotomy for DDH (os) Is femoral anteversion really important in the treatment of DDH under the age of 2 years? (os) Do we require to remove the pins from the leg after the DDH operation or can they be left in? What are the pros and cons? (p) The use of Salters osteotomy for hip dysplasia and further surgery in adulthood (p) Are there ways of avoiding the nerve during surgery to stop numbness (long term) in the thigh following the hip osteotomies? (p) Up to what age can arthrogram and closed reduction of hip be used without needing to do a pelvic osteotomy. (os) Does the frequency of fremoral and pelvis osteotomies over time affect other areas of development, particularly for children under 5. Does the cumulative effect of surgery outweigh what could be achieved in adulthood via replacement? (p) Ways of minimising risk of Osteonecrosis following surgery for DDH. Predictors and time limits for acetabular dysplasia remodelling in DDH (os) How best to avoid avascular necrosis in management of hip dysplasia? Awareness amongst surgeons of congenital myopathy presenting as bilateral dysplasia hips? (p) Developmental hip dysplasia and complications such AVN (p) Effective treatment of AVN (any sight) (os) Will my child have normal range of movement in their leg and hip after the DDH operation? (p) success rates of 'closed' hip reductions in babies over 12 months (nurse) success rates of 'medial open reductions' (Nurse) Should medial open reductions on the hip be abandoned, in favour of an anterior open reduction? (os)	Azzoni et al, 2011 Williams et al, 2017 SR: Wang et al., 2016 Novais et al, 2015 Bradley et al, 2016 Gardner et al, 2014 Akilapa, 2014	38. Physio (1), P (11), OS (22), Nurse (3), Paediatrician (1)	
DDH.1E	**What are the long-term outcomes of treatment? What are the effects of multiple operations?**	Success rate of surgery for congenital dislocation of the hip (gp)		20. Physio (2), P (7), OS (9), OT (1), GP (1)	

		Would there be a way of optimizing the surgical procedure or post-operative period to reduce the need for children with DDH from undergoing multiple pelvic procedures? (ot) long term evidence for what surgery benefits perthes and ddh. (os) Long term results, multicentre, prospective data in CTEV, DDH surgery (including surgical outcomes) (os) How successful will the operation be for DDH and will my baby require another operation? (p) Is there any research to see patterns in how an osteotomy can affect a person later in life? (p) DDH - what is the definition of a concentric reduction. 1 v 3 v 5mm medial dye pooling - correlated to subsequent outcomes (os) What should one do for residual acetabular dysplasia in children and when (os) More Long term outcomes into adulthood following surgery for DDH/SUFE/Perthes (physio) Outcome at age 18, 35 and 50 following open reduction as a child (p) Long term outcomes of DDH with endpoint of THR (including number of surgeries etc) (os) The long term outcome of children who have been treated for DDH (i.e. the risk of developing osteoarthritis in adulthood by Severin Classification) (os) What is the prognosis for my child with DDH into adulthood? (p) How likely is my child in later life going to have problems with arthritis after a DDH operation as a baby? (p) Long term success of treating hip dysplasia with incremental minimally invasive surgery versus immediate more extensive surgery? (p) After DDH treatment, what degree of asymptomatic residual acetabular dysplasia requires corrective treatment? (os) Do children undergoing femoral and/or pelvic osteotomies have improved functional outcomes? reduced pain? return to activities/sport? (Physio) How likely is it that an infant that underwent an operation for DDH will experience further problems during childhood or adulthood? (p) how long must follow up continue for DDH (os) X RAYS/ MRI prior to discontinuing follow up (os)		
DDH.1F	**What is the best management for late acetabular dysplasia?**	Should we perform surgical reconstructions in adolescents with asymptomatic hip dysplasia? (os) Should we treat mild dysplasia in DDH? (os) What is the optimal time to intervene in hip dysplasia (os) Is there an age when it becomes difficult to correct without a hip replacement? (p) salvage surgery following hip pathology in childhood - 20 or 30 year follow up is THR a better option than arthrodesis? (os) Does a pelvic osteotomy for hip dysplasia really improve hip longevity? (os) Is there benefit from pelvic osteotomy for asymptomatic residual acetabular dysplasia in 8-12 year olds (os) Are preemptive osteotomies worth doing? (p) Does performing a pelvic osteotomy for persistent dysplasia in DDH delay THR in adulthood? (os) For how long will the hip shelf osteotomy reduce the likelihood of a hip replacement? (p) What are the alternatives to the osteotomy procedure? (p) How effective is the osteotomy? (p) What is the role of PAO where there is incongruity (os) What level of a symptomatic acetabular dysphasia should we intervene in (os) Does improving the cover of a hip in late adolescence, i.e. in DDH, actually change anything (compared to placebo ideally) - i.e. pain, longevity of the hip etc etc (os)		15. P (5), OS (10)	
DDH.1G	**What is the role of the pre-operative traction. What is the post -op care iN ddh treatment.**	does traction have a role in treatment of DDH (os) Could we look at introducing traction again for babies with DDH, to see if the outcomes are different to the babies who need multiple surgeries to get the hip/s stabilized. Can we predict those to whom traction may be of benefit? (Physio) What is the optimal time in a hip spica plaster cast for the management of DDH in the under 1 year old group? Parents generally accept the time we tell them but they are increasing aware of national/ international variation in management, there are also cost considerations for both the family and NHS. We have stopped using the 3rd cast (broomstick cast) this I am sure has made a huge saving within our service. (nurse) Plaster cast use post surgery; a necessity or will braces/splints suffice (NURSE) What is the impact of physiotherapy post surgery + spica in toddlers? (P) What are the outcomes of wearing the rhino brace post spica VS wearing the spica longer? (and rhino day vs night, 12 hours vs 23 hours, etc) (P) Standard evidence based practice for the whole of the UK for the following: Best total care of a hip spica cast Best inner materials used in hip spica cast application (NURSE) Is a hip spica effective enough in mobilizing joint to allow best results after surgery? (p) Hips picas - should they be left on even if soiled, would removal and replacement change the outcome of the operation? (nurse)		12. Physio (1), P (5), OS (1), Nurse (5)	

		Undercast padding. Do waterproof options improve skin conditions or worsen them - hipspica casts. (NURSE) How long should my child be in a spica for hip dysplasia - the internet is confusing. (p) What is the optimal time in spica cast following open/ closed reduction or osteotomy? (p)			
P.1A	**What is the cause of Perthes disease?**	What is the cause of Perthes disease? (p) What causes perthes disease (p) What causes Perthes' disease? (os) Why does Perthes disease happen? (p) Why perthes exists, no one seems to know what the cause is. If this was found out it could help recovery. (p) What causes Perthes disease? (os) What causes Perthes disease? When should surgical intervention be used and when not? - How does surgical intervention impact on mobility in later life? (p) Is perthes heredity (p) Is Perthes Hereditary (P) What research is done into Perthes and why it occurs. (p) Perthes Disease (p) Why does it effect certain age groups and genders (P) Why does it affect everybody differently and why mainly boys (p) Why does it agfect boys more than girls, however, we only have girls affected in our family? (p) Causes and best treatment for Perthes (p) - to include Where does lcpd come from what's the cause reason etc... (p) Possible relationships with other conditions such as club foot.(grandparent)	Woratanarat P. Meta-Analysis of Hypercoagulability Genetic Polymorphisms in Perthes Disease. J Orthop Res. 2014 Jan;32(1):1-7. doi: 10.1002/jor.22473. Epub 2013 Aug 27.	17. P (14), OS (2), Grandparent (1)	
P.1B.1 **P.1B.2**	**What are the short term and long term outcome of surgery compared to non-surgical care in the treatment of Perthes Disease** **Which operation leads to best results**	What is the best way to treat Perthes? (p) Do operations for Perthes disease of hip work? (os) What is the best treatment for Perthes disease? (os) Perthes management (os) Best way of treating Perthes? (os) When and how to treat perthes (os) Management of Perthes (Os) Which surgeries used to treat perthes have the best outcomes long term? (p) 4. What is the best treatment for Perthes at different ages and stages? (OS) Consensus for protocols for management of common conditions such as Perthes (PHYSIO) What treatment has the most favourable outcomes for Perthes Disease? (p) Clarification on the treatment of perthes (os) The benefits of non weight bearing for children with Perthes (p) How should we best maintain a spherical head- off load the limb or not? (os) How long should you non weight bear for when diagnosed with perthes disease (p) Does vitamin D supplementation increase the healing phase of Perthe's, and potentially negate the need for surgery (ANP) Does physiotherapy intervention improve outcome of Perthes Disease (physio) How to best treat Perthes disease to offer best chance of recovery/ less likelihood of problems in later life (p) Does surgery for children with Perthes speed up the regrow then period of the disease versus a wait and see approach? (p) the 'wait and see' approach versus the surgical pro-active approach is something all parents of kids with perthes struggle with. no dr has an answer. (p) How can hippo-therapy lead to more minor operations in Perthes, and speed up and improve post-operative recovery? (p) Just wondering if anyone has any experience of children with Perthes using scooters? When we're at home I tend to encourage her to cycle mostly, but we're going to Paris in a few weeks and I thought we could take a folding scooter so my 6yo daughter has an alternative to walking everywhere. Her mobility is luckily still pretty good 7m post-diagnosis but she's obviously slow and does get tired if walking a lot. Just not sure whether the pushing/bouncy movement might be bad for her hip though?? (We are asked about scooters a lot.) (p) Has anyone used a hyperbaric chamber? Someone mentioned this to in order to encourage the repair (p) Why do some consultants perform surgery for certain cases of Perthes when others get the same or better outcomes through hippo-therapy? (p)	SR: Hardesty CK et al. The Role of Bracing in Legg-Calve-Perthes Disease. J Pediatr Orthop. 2011. 31(2 Suppl):S178-81 SR: Saran et al. Do Femoral or Salter Innominate Osteotomies Improve Femoral Head Sphericity in Legg-Calvé -Perthes Disease? A Meta-analysis. Clin Orthop Relat Res. 2012. 470:2383–2393 SR: Hsu et al. What Is the Evidence Supporting the Prevention of Osteoarthritis and Improved Femoral Coverage After Shelf Procedure for Legg-Calvé -Perthes Disease?. Clin Orthop Relat Res.2012.470:2421–2430 SR: Nguyen N et al. Operative Versus Nonoperative Treatments for Legg-Calvé-Perthes Disease: A Meta-Analysis. Journal of Pediatric Orthopaedics. 2012. Vol 32(7) p 697-705 SR: Kadhim M, Holmer L and Bowern R.The role of shelf acetabuloplasty in early and late stages of Perthes disease: a meta-analysis of observational studies. J Child Orthop. 2012. 6:379–390 SR: Young et al. Evidence for Using Bisphosphonate to Treat Legg-Calvé -Perthes Disease.Clin Orthop Relat Res. 2012. 470:2462–2475 SR: Hanna et al. Systematic review of the outcome of total hip arthroplasty in patients with sequelae of Legg–Calve´–Perthes disease. Arch Orthop Trauma Surg. 2017. 137:1149–1154 SR: Karimi M and McGarry T. A Comparison of the Effectiveness of Surgical and Nonsurgical Treatment of Legg-Calve-Perthes Disease: A Review of the Literature. Adv Orthop.2012. 1-7	89. Physio (5), P (42), OS (36), Pt (3), ANP (1), Paediatrician (1), GP (1), Charity (1)	

What are the differences for a Perthes patient in risky, painful, invasive surgery leading to months of immobility in recovery, vs horse riding which is not only beneficial to the condition, but has a host of other positive effects? (p)
Use of bisphosphonates in Perthes - oral, IV, intraosseous. (os)
Does vitamin D deficiency affect the outcome of Perthes prognosis, either following a 'watch and wait' pathway or surgery? (charity)
Will giving my child calcium and or Vitamin D supplements help (P)
Best surgical operation for perthes (eg VDRO vs shelf) (os)
What is the ideal surgical management of Perthes disease? (?DVRO, ?pelvic osteotomy, ?how to treat hinged abduction) (os)
In which patients and what type of surgery is best for Perthes disease? (os)
How can we identify patients with Perthes' disease likely to benefit from surgical intervention? (os)
What is the most successful treatment for Perthes disease? (p)
What is the best intevention for Perthes disease and should a treatment plan involve multiple surgeries or aim for a single surgery? (pt)
What is the most effective operation for treating Perthes Disease (p)

What is the bes5 operation for late onset Perthes Disease in girls over 12 years old (p)
Why is there not a consistent approach to operating on children with Perthes across the UK? (p)
What are the benefits of surgical intervention for Perthes disease, and to what extent does this vary by age. (p)
role of surgery in Perthes (os)
the relative value of operations in Perthes (p)

Perthes' Disease - containment surgery or no containment surgery. Op vs. non-op. (os)
What difference is made to a child's Perthes recover with early surgery intervention? (p)
A true RCT on treatment (femoral varus osteotomy and spica) versus observation in Perthes (os)
Surgical options and prognosis in treating Perthes (gP)
is my child crippled for life (many think this after reading blogs) (p)
how long does Perthes last (p)
What new operations can help Perthes Disease (P)

Which patients should have operative intervention for Perthes disease? (OS)
Perthes: when to operate and which op to do? (OS)
Perthes disease, when to operate (os)

When is surgery appropriate for Perthes and what is the best operation (os)

Is early surgical treatment the best option for PERTHES disease in children (pt)
Perthes' condition - at what stage does surgery give optimal results in the long term to preserve the hip joint? (os)

Perthes disease Does having an operation make it easier to live with perthes (p)
What hip shapes have the worse prognosis in Perthes' disease - and can AI be used to predict this better? (os)
Who assesses and who operates? Is there any evidence? Are there outcomes for the procedures? What is patient satisfaction? (physio)
How effective is surgery in children with Perthes? (p)
Does surgical intervention in Perthes disease improve outcome (os)
Optimal management of Perthes' does surgery improve outcomes and if so for who (os)
Could surgery at the onset of perthes prevent a poor outcome instead of trying to correct damage further down the line? (p)
If identified, can it be prevented? (p)
Can this prevention include less intrusive surgical procedures? (p)
Is there like to be prevention for Perthes disease in the future? (pt)
outcome of surgery for Perthes (physio)
long term evidence for what surgery benefits perthes and ddh. (os)

What is the the short term and long term outcome for Perthes disease patients? (p)
More Long term outcomes into adulthood following surgery for DDH/SUFE/Perthes (physio)
What is the cost of surgery for Perthes vs hippo-therapy? (p)
Does surgery in Perthes affect the outcome? (OS)
joint distraction in Perthes and AVN of the hip (OS)
Studies into management/Outcomes of AVN hips in children (non-Perthes) vs. Perthes (os)
will my child get arthritis in all of his/her joints .? (p)
Why does the hip click when he walks (p)
why can't my child have a hip replacement now with a prosthesis that grows with him (p)

Perthes' Disease of the hip: 1. Reliable identification of those hips with a poor prognosis at or shortly after presentation 2. An effective treatment! (os)
Can you prevent hip replacements following Perthes Disease? (p)
What are the benefits of an early hip replacement for teenagers who suffered with Perthes? (p)
Is there a way that the femoral head can be stabilised to prevent further detioration in Perthe's disease. (p)

		Is there a possibility for a section of the femoral head to be removed to reduce the deterioration time and kick start the regrowth of the bone. (p) which is better: shelf or varus osteotomy for high risk early Perthes? (os) How does shelf osteotomy truely work? (os) Can a varus osteotomy for severe perthes improve long term outcomes? (os) What is the best surgical procedure to contain femoral head in Perthes Disease: Shelf or Femoral Verus osteotomy? (paediatrician) Perthes' condition - what is the most durable operation to ensure long term function in the hip - femoral osteotomy, pelvic osteotomy or a combination of both? (os) Is there a role for hip distraction in LCP (os) - How is leg length difference best treated? (p) Does correcting limb lengthening discrepancy improve patient outcomes? (os) Should leg length differences in children with Perthes be corrected earlier to reduce pain and discomfort? (P) my child has a leg length discrepancy will it sort itself out, do we need to have a further surgery, or should our child go through leg lengthening surgery or have the growth plate on the good leg drilled. (P)			
SUFE.1A.1 **SUFE.1A.2** **SUFE.1A.3**	**What is the optimal surgical treatment and timing for unstable SUFE.** **What is the optimal fixation method for stable SUFE.** **What is the best form management for severe stable SUFE.**	Initial operative management of Severe SUFE - already in progress (OS) What is the best treatment for severe stable SCFE. Fixation insitu and later osteotomy or primary intra articular osteotomy. (OS) What is the optimum treatment for an acute or acute on chronic unstable slipped epiphysis (os) Management of SUFE (os) Comparative outcome between conservative and surgical treatment for SCFE (physio). What is the best treatment for SCFE? (physio) Trial of Parsch technique for acute SUFE (os) Severe slipped upper femoral epiphysis. Open reduction or in situ pinning (os) SCFE reduce or pin in situ (os) is it better to treat SUFE with a pin in situ and late corrective osteotomy, or surgical dislocation and reduction (os) Sufe- growing vs threaded screws rct (os) SUFE: open/closed reduction/ pin in situ: what to do and when? (os) Do need to do CT scan to assess the severity of SUFE helping us to decide weather to fix in situ or to reduce the slip with osteotomy. (paediatrician) How should we treat unstable SUFE to optimise hip function throughout life course? (os) What is the best treatment for severe unstable SUFE? Is surgical dislocation via ganz osteotomy any better or worse than cuneiform osteotomy? (os) Delayed diagnosis of slipped upper femoral epiphysis and prognosis following surgery (gp) Hip dislocation and capital realignment in SUFE Long term outcome Short term AVN rate (os) Outcome of hip dislocation surgery for SUFE in long term Does it reduce long term risk of degenerative arthritis (os) Outcomes following surgery versus non surgery for severe slipped upper femoral epiphysis (os) Should the non-affected hip undergo fixation in SUFE (Slipped Upper Femoral Epiphysis)? (os) How should we treat unstable SUFE to optimise hip function throughout life course?(os) SCFE - contralateral hip fixation or not? (os)	SR: Lorder RT et al. What is the best evidence for the treatment of slipped capital femoral epiphysis? J Pediatr Orthop. 2012 Sep;32 Suppl 2:S158-65 SR: Tosounidis T et al. Prognostic significance of stability in slipped upper femoral epiphysis: a systematic review and meta-analysis. J Pediatr. 2010 Oct;157(4):674-80, 680.e1. SR: Lowndes S et al. Management of unstable slipped upper femoral epiphysis: a meta-analysis. Br Med Bull. 2009;90:133-46.	22. Physio (2), OS (18), Paediatrician (1), GP (1)	
SUFE.1B	**what are the best settings for management of SUFE**	Should all moderate and severe SCFEs be transferred to a specialised centre for open reduction, sub capital osteotomy and fixation? (os)	SR: Moriarity A et al. Levels of Evidence in the Treatment of Slipped Capital Femoral Epiphysis: A Systematic Review. Orthop Rev (Pavia). 2016 Jun 27;8(2):6303. RCT: Bono KT et al. A prospective comparison of computer-navigated and fluoroscopic-guided in situ fixation of slipped capital femoral epiphysis. J Pediatr Orthop. 2013 Mar;33(2):128-34.	1. OS (1)	
SUFE.1C	**should we pin the opposite site?**	Should we pin the opposite hip in SCFE? (os)	SR:Kocher MS et al. Prophylactic pinning of the contralateral hip after unilateral slipped capital femoral epiphysis. J Bone Joint Surg Am. 2004 Dec;86-A(12):2658-65. SR: Castro el al. Epidemiological perspective on prophylactic pinning in patients with unilateral slipped capital femoral epiphysis. J Pediatr Orthop. 2000 Nov-Dec;20(6):745-8.	1. OS (1)	
LL.1A.1 **LL.1A.2**	**miscellaneous - unclassified** **What is the risk of AVN in adolescent lateral entry femoral nails**	What are the long term results for individuals with lower limb orthopaedic conditions that are operated on? In particular do they suffer additional pain as a result of the operations? (p) What is the best treatment for internal snapping hip (psoas) (os)? How can we regenerate damaged/destroyed bone caused by infection? (P)		4. P (2), OS (1) Physio (1)	
LL.1B	**Is DVT prophulaxis required in children and what are the indications?**	What should we do in regard to DVT prophylaxis? (nurse) Should we use DVT prophylaxis in lower limb surgery children - what and when? (os) Need for thromboprophylaxis (os)	Guideline: Morgan et al. Prevention of perioperative venous thromboembolism in pediatric patients: Guidelines from the Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI). Pediatric Anesthesia. 2018;28:382–391	3. OS (2), Nurse (1)	
LL.1C	**What are the indications for metalwork removal in children?**	How often does any metal work need to be removed following surgery and for what reasons (physio) Should we remove metal work from children routinely? (os) Do children need to be on crutches/partial weight bearing to reduce the risk of fracture after removal of metalwork in the legs, and if so, for how long? (os)	SEARCH DONE. NO RELEVANT ARTICLES	3. Physio (1), OS (2)	

LL.1D	**What degree of lower limb anatomical VARIATION justifies treatment to prevent long-term problems (eg. knock knees, bow legs in-toeing)?**	does rotational mal-alignment lead to hip/knee/food arthritis? (os) Should we correct lower limb alignment in the asymptomatic patient? (os) Does correcting the anatomical axis of the lower limbs prevent arthritis in later life? (os) Assessment of rotational profile of lower limbs - Correlation of Clinical and radiological. Is radiological assessment accurate? (os) What the most effective way is to prevent bowing. (pt) the long term benefit and risk of future o/a /replacements (gp) Angular deformities (os) Corrective surgery in bow knees and knock knees vs conservative management (gp) How much of femoral anteversion improves spontaenously - what indicators in the child <8 years are there that it will improve (os) When does surgery produce better patient-centred outcomes than the natural history in genu valgum and genu varum? (os) Beneficial outcomes of derotation surgery for non-neuromuscular rotational malalignment (os) Does anatomical alignment prevent OA in later life in the foot? (os) Which children are suitable for bilateral osteotomies to correct intoeing gait? (Physio) Are bilateral femoral osteotomies effective for correcting intoeing gait? (physio) Does correcting the anatomical axis of the lower limbs prevent arthritis in later life? (os)	SR: Jumar S and Sonnanis SV et al. Growth modulation for coronal deformity correction by using Eight Plates-Systematic review. J Orthop. 2018 Feb 2;15(1):168-172.	15. Physio (2), OS (10), Pt (1), GP (2)	
LL.1E.1 **LL.1E.2**	**What is the outcome of hip replacement in a child compared to hip reconstruction. (eg. functionality, how long it lasts)** **How does the age and underlying diagnosis of a child having a hip replacement affect the outcome (eg. functionality, how long it lasts)**	How young can hip replacement be performed? (p) Anything to look at improvement in design of varus and valgus hip osteotomy plates (os) My son has Multiple Ephyseal Displasia but mainly in the hips, no organisations and no support, would a hip replacement help? (p) Is this the only option to stop his pain? (p) How long does a hip replacement last? (p)	SEARCH DONE. NO RELEVANT ARTICLES	10. P (4), OS (6)	
LL.1F.1 **LL.1F.2**	**what is the clinical effectiveness, best surgical technique and long-term results of ACL surgery** **What is the outcome of surgical vs non-surgical treatment**	Is physeal-sparing ACL surgery effective and better than waiting for skeletal maturity? (physio) ACL reconstruction / repair in the under 18's (os) Do ACL reconstructions reduce the incidence of arthritis of the knee in patients under 18 years of age? Should we correct lower limb alignment in the asymptomatic patient? (os) Direct repair of the ruptured ACL (os) ACL repairs in adolescents with open growth plate - post-op rehab (physio) What is the difference in ACL reconstructive surgery rehabilitation in children compared to adults (Physio) What is the best algorithm for treatment of ACL injuries in children? (os) The management of PCL injuries in children? (os) Best options for Anterior Cruciate Ruptures in Skeletally Immature Children. Optimum treatment for patella dislocation in the immature skeleton.(os) Who should perform the surgery (Adult knee surgeon/ Paediatric Orthopaedic surgeon) (os) Which tests would you use for ligament injury in paeds e.g. specificity and sensitivity of lachman's test in paeds (physio) What long term affect on growth will it have especially the avulsion injuries ie ACL in younger patient / althletes? (Physio) Best protocol for Acl rehab in paeds, including re starting sport specific training, single leg bias work, outcomes for those with only partial ruptures, the importance of any prehab and optimal duration , use of iroms with post op and for pre op patients. Effect of mood and motivation for children having ACL surgery and not being able to undertake sports for prolonged periods, selection criteria of children who do better i.e. Over the age of 10 . Also the impact on therapy services for these ops i.e. Approx cost of apts and if home ex with good compliance is worse than attending for actual therapy. Also would like more research on ITB stretches for AKP and on chronic pain and management options. Lastly would like more on EDS type 3/ hyper mobility group with prolonged concerns re pain and the benefits of joint working with mental health. (physio) What are the long term outcomes for children with ACL injuries - managed both conservatively and operatively? What restrictions should be placed on activities post-op ACL surgery and therefore what is the ideal protocol for rehabilitation - including when to test for return to sport and when to allow return to sport. Who is best to make these decisions - therapist or surgeons. (Physio) ACL outcomes in skeletally immature age (physio) What is the most effective post operative exercise regime after ACL reconstruction in paediatric patients. Specifically those who are skeletally immature. (Physio) Anterior cruciate ligament tear Achilles tendon tears Lateral ankle ligamentous complex (os)	SR: Dunn et al. Early Operative Versus Delayed or Nonoperative Treatment of Anterior Cruciate Ligament Injuries in Pediatric Patients. J Athl Train. 2016 May;51(5):425-7. SR: Ramski DE et al. Anterior cruciate ligament tears in children and adolescents: a meta-analysis of nonoperative versus operative treatment. Am J Sports Med. 2014 Nov;42(11):2769-76.	17. Physio (9), OS (8)	
LL.1G	**what is the best treatment for meniscal tears in childhood?**	Does menisceal transplant prevent late OA in children? (OS)	SR: Ferrari MB et al. Meniscus Repair in Children and Adolescents: A Systematic Review of Treatment Approaches, Meniscal Healing, and Outcomes. J Knee Surg. 2018 May 23.	4. OS (4)	

		Parameters for success in meniscal repair in childhood (os) Do children develop premature osteoarthritis of the knee after meniscal repair? (os) Meniscal repair outcomes in children with tears (os)			
LL.1H.1 **LL.1H.2**	**What is the efficacy of treatment for patello-femoral instability?** **What is the best management protocol for anterior knee pain?**	Patellofemoral problems in younger patients (os) Does the patella tendon lengthen over time following patella pulldowns? (physio) Patella inestability (os) Best surgery for PFj instability (os) Do rotational anomalies if present need correcting on PFj instability treatment? (os) Does trochleoplasty protect against late OA of the pfj? (os) PFj instability: best assessment and treatment protocols (os) Surgery in patella instability using a soft tissue technique (os) When should patella subluxation/ pfd be a dressed surgically (physio) TREATMENT OF PATELLOFEMORAL INSTABILITY (os) Efficacy of patellofemoral proceedures. Long term outcomes for open tibial fractures (physio) Outcomes and options for surgical management of recurrent patella dislocations (Physio) surgery for adolescent knee problems - outcomes (Physio) Anterior knee pain - how much gets better spontaneously how many require MRIs - either for diagnosis or simply to be able to move on with physiotherapy how many get better with physiotherapy (os) How does physical therapy work in anterior knee pain - is it quads conditioning? (os) What is the most appropriate treatment for Osgood Schaltters (Physio)	SR: McNeilan RJ. Graft Choice in Isolated Medial Patellofemoral Ligament Reconstruction: A Systematic Review With Meta-analysis of Rates of Recurrent Instability and Patient-Reported Outcomes for Autograft, Allograft, and Synthetic Options. Arthroscopy. 2018 Apr;34(4):1340-1354. SR: Mindler GT et al. The unstable knee in congenital limb deficiency. J Child Orthop. 2016 Dec;10(6):521-528. Epub 2016 Nov 8. SR: Vavken et al. Treating patella instability in skeletally immature patient. Arthroscopy. 2013 Aug;29(8):1410-22	16. Physio (6), OS (10)	
LL.1I	**What is the most effective treatment for congenital tibial pseudarthrosis?**	management of pseudoarthrosis of the tibia (physio) What is the most effective form of treatment for congenital pesuadarthrosis of the tibia (os)	SEARCH DONE. NO RELEVANT ARTICLES	2. Physio (1), OS (1)	
LL.1K **LL.1L**	**Is surgical treatment for lateral ankle instability effective?** **what is the best way to treat idiopathic (unexplained) tip toe walking**	Does lateral ligament repair in children with chronic lateral ankle instability improve symptoms of pain and instability and prevent development of chronic pain/OA (Physio) What are the indications for tendo Achilles lengthening in an idiopathic tip toe walker? (physio) Tip toe walking and idiopathic heel cord tightness. What level correction is best? (os) What is the best treatment protocol for tip toe walking in children? (os) Toe walking - how should I treat these kids - what is an evidence-based pathway? (os) Causes of idiopathic tiptoe walking and long term outcome of surgical intervention (physio) What is the reoccurrence rate of tip toeing in children that undergo TA lengthening? (Physio) Effectiveness of TA lengthening for Autistic toe walkers (Physio) Is serial casting effective in the long term management of idiopathic Toe Walkers (physio) My niece is under going another round of serial casting, this will be the second lot she has had (she is 10) after the last round she could hardly stand up and had lost so much strength that had taken so long to build up with physio. Do the benefits really outweigh the setbacks? (p) At what stage should we give this up and have lengthening surgery? (casting) (p) How are we supposed to know when it's the right time for surgery when different opinions form different consultants? (p) My daughter had serial casting last year, now the private physio says she needs it again. How many times would you do this before thinking about surgery instead? (p) Can it also achieve the same lasting results? (p) How should tiptoeing be managed in primary care? (gp) What is the best treatment for idiopathic toe walking? (os) what are the appropriate investigations and management for toe walkers.(os) when is is best to treat tiptoe walking associated with autistic spectrum disorder? (os) When is the ideal time for surgical intervention for fixed contracture in idiopathic toe walkers and what would a threshold contracture be (physio)	RCT: Bozkurt M et al. Impact of fibular torsion and rotation on chronic ankle instability. Foot Ankle Surg. 2014 Jun;20(2):125-9. SR: Mulpuri K et al. Evidence-based Recommendations for Pediatric Orthopaedic Practice. J Pediatr Orthop. 2018 Apr;38(4):e225-e229. SR: Pomarino et al. Literature Review of Idiopathic Toe Walking: Etiology, Prevalence, Classification, and Treatment. Foot Ankle Spec. 2017 Aug;10(4):337-342. RCT: Herrin K et al. A comparison of orthoses in the treatment of idiopathic toe walking: A randomized controlled trial. Prosthet Orthot Int. 2016 Apr;40(2):262-9. SR: Pomarino et al. The 3-Step Pyramid Insole Treatment Concept for Idiopathic Toe Walking. Foot Ankle Spec. 2016 Sep 19. pii: 1938640016669794 SR: Ruzbarsky et al. Toe walking: causes, epidemiology, assessment, and treatment. Curr Opin Pediatr. 2016 Feb;28(1):40-6. RCT: Satila et al. Does Botulinum Toxin A Treatment Enhance the Walking Pattern in Idiopathic Toe-Walking? Neuropediatrics. 2016 Jun;47(3):162-8. SR: van Bemmel AF et al. Outcome after conservative and operative treatment of children with idiopathic toewalking: a systematic review of literature. Musculoskelet Surg. 2014 Aug;98(2):87-93. SR: van Kuijiik et al. Treatment for idiopathic toe walking: a systematic review of the literature. J Rehabil Med. 2014 Nov;46(10):945-57. SR:Williams CM et al. Idiopathic toe-walking: have we progressed in our knowledge of the causality and treatment of this gait type? J Am Podiatr Med Assoc. 2014 May;104(3):253-62. RCT: Engstrom P et al. Botulinum toxin A does not improve the results of cast treatment for idiopathic toe-walking: a randomized controlled trial. J Bone Joint Surg Am. 2013 Mar 6;95(5):400-7. SR: Solan M et al. Idiopathic toe walking and contractures of the triceps surae. Foot Ankle Clin. 2010 Jun;15(2):297-307. SR: Williams CM et al. Idiopathic toe walking and sensory processing dysfunction.J Foot Ankle Res. 2010 Aug 16;3:16.	1. Physio (1) 18. Physio (6), P (5), OS (6), GP (1)	
LL.1M.1 **LL.1M.2**	**what is the most effective treatment for tarsal coalition?** **What is the effectiveness of surgery for accessory navicular?**	pros and con of treating tarsal coalitions with surgery (os) What is the optimal treatment for tarsal co alitions (Physio) What are the PROMS scores in tarsal coalitions for operative and non operative treatment, in the longer term. (os) Resection of the accessory navicular bone with associated tibialis posterior (os) When would you surgically release a tarsal coalition in someone under 16 years? (Physio) I have pain following my triple arthrodesis, is this normal? (Pt)	No relevant articles	6. Physio (2), OS (3), Pt (1)	
LL.1N.1	**what are the indications and clinical effeciveness of adolescent hallux valgus treatment?**	Can adolescent hallux valgus be treated with guided growth (os)	SR: Harb Z et al. Adolescent hallux valgus: a systematic review of outcomes following surgery. J Child Orthop. 2015 Apr;9(2):105-12.	8. Physio (1), P (1), OS (6)	

LL.1N.2	What is the role of casting in metatarsus adductus?	Up to what age can one expect improvement in terms of in-toeing due to excessive femoral anteversion. What is the ideal age for surgery taking into consideration the natural history and post-op recovery. (Os)	RCT: Eamsobhana, P et al. Does the parental stretching programs improve metatarsus adductus in newborns? J Orthop Surg (Hong Kong). 2017 Jan;25(1):2309499017690320		
LL.1N.3	What is the role of stretching in hammertoes?	Does guided growth prevent recurrence of juvenile hallux valgus surgery. (os) Timing of hallux valgus correction. (os) Paed hallux valgus: scarf or lapidus? (os) Should adolescents have surgery for hallux valgus (os) Can early serial casting =/- bracing to treat metatarsus adductus avoid the need for surgery later? (Physio) Hammer toes - is stretching ever sufficient? When he is older might he HAVE to have a corrective op. (p)	RCT: Herzenberg, J. E. et al. Resistant metatarsus adductus: prospective randomized trial of casting versus orthosis. J Orthop Sci. 2014 Mar;19(2):250-6.		
LL.1O.1	What are the indications and most effective treatment for relapsed clubfoot? What is the role of tendon transfer?	Some children have managed to avoid the tendon transfer surgery by using the ADM brace through growth spurts post bracing. Would that be something the NHS would consider looking into as CF relapse seems linked to growth spurts and children keep growing until they're around 16-18 for girls and 18-20 for boys, however the boots and bar can't possibly be worn at night that long without causing hips and knees problems. (p)		34. Physio (5), P (13), OS (12), ANP (2), GP (1), Charity (1)	
LL.1O.2	What is the role of tendon transfer?	Is the use of a button for Tib ant transfer for dysnamic supination any better or worse than an interference screw? (os)	RCT: Van Praag et al. Casting Is Effective for Recurrence Following Ponseti Treatment of Clubfoot. J Bone Joint Surg Am. 2018 Jun 20;100(12):1001-1008.		
LL.1O.3	Is the use of an orthosis as effective as the boots and bar in preventing relapsed club foot?	Does wearing the boots and bar for 5 years really reduce the risk of surgery? Studies show an average 40% children will end up having the Tendon transfer operation. Does bracing longer actually work to reduce this rate or does it have the opposite effect as it doesn't teach the child to hold the correction, but only seems to hold it for him/her and quite a lot of relapses seem to occur within 6 months of the brace coming off (based on FB discussions) (p)			
		The effectiveness of the Ankle Dorsiflexion Mechanism (ADM) in the short term and long term for treatment of clubfoot, as an alternative to the boots and bar. (ANP) Following Ponseti with Achilles Tenotomy which is the effective type of splintage: Boots on bar or ADM? (ANP) What are the key indicators for tibialis anterior tendon transplant? at what age most successful? (PHYSIO)	SR: Ganesan et al. Ponseti method in the management of clubfoot under 2 years of age: A systematic review. PLoS One. 2017 Jun 20;12(6):e0178299. SR: HE JP et al. Comparison of different conservative treatments for idiopathic clubfoot: Ponseti's versus non-Ponseti's methods. J Int Med Res. 2017 Jun;45(3):1190-1199. SR: Zhao D et al. Results of clubfoot management using the Ponseti method: do the details matter? A systematic review. Clin Orthop Relat Res. 2014 Apr;472(4):1329-36		
		Is there an optimum time/age to carry out TA lengthening. (physio) Is there an optimum age for Achilles lengthening for patients with Talipes to avoid re-tightening? (p)	SR: Lykissas MG et al. Ponseti method compared with soft-tissue release for the management of clubfoot: A meta-analysis study. World J Orthop. 2013 Jul 18;4(3):144-53.		
		Does the use of an untested brace (such as the Cunningham device) improve outcomes for children with unilateral clubfoot (such as a reduction in calf muscle wastage and knee problems) or does it increase the need for additional surgeries (in addition to tenotomy)? (work for a charity)			
		Would using the DTKAFO / Cunningham brace reduce the surgery rate post bracing for children with talipes? This brace is newer (about 13 yo) and hasn't been used on as many children as the boots and bar but for now there's only been ONE report of tendon transfer surgery. The brace is a dynamic brace and helps strengthen the child's ankle and calf muscle, could a well-developed calf muscle be the missing piece to avoid relapse and surgery on talipes children? (p)			
		Will there ever be any less invasive ways to repair severe bilateral talipies? (p)	SR: Jowett CR et al. Management of congenital talipes equinovarus using the Ponseti method: a systematic review. J Bone Joint Surg Br. 2011 Sep;93(9):1160-4.		
		Best treatment of recurrent equinus and flat top talus in CTEV (os)	RCT: Harnett P et al. An accelerated Ponseti versus the standard Ponseti method: a prospective randomised controlled trial. J Bone Joint Surg Br. 2011 Mar;93(3):404-8.		
		What age is optimal for foot correction surgery.? Can it be done at a young age? (p) Why do some patients with CTEV have flat-topped talus, and why? Is it part of a sub-group or a result of treatment differences? (os)	SR: Digge V. Expanded Age Indication for Ponseti Method for Correction of Congenital Idiopathic Talipes Equinovarus: A Systematic Review. J Foot Ankle Surg. 2018 Jan - Feb;57(1):155-158. RCT: Cummings RJ. The effectiveness of botulinum A toxin as an adjunct to the treatment of clubfeet by the Ponseti method: a randomized, double blind, placebo controlled study. J Pediatr Orthop. 2009 Sep;29(6):564-9.		
		Surgical options in talipes equinovarus in the neonate and best age to operate (os) Ctev-rct of conventional vs adm brace (os)	RCT: Maripuri SN et al. Ponseti casting for club foot - above- or below-knee?: A prospective randomised clinical trial. Bone Joint J. 2013 Nov;95-B(11):1570-4.		
		Ankle equinus deformities in children with treated CTEV. Residual ankle equinus seems common at the time of Ponseti-treated CTEV relapse. What is the best management for this at first relapse? What is the best management in later childhood - repeat tenotomy, aggressive posterior release, wait until maturity and then do supramalleolar osteotomy? (physio) Tibialis Anterior transfer in clubfoot - best age and surgical technique (position and type of fixation) (physio) Relapsing club foot- does active supination need to be treated? (os)			
			BAR		
		How should we approach a relapsed clubfoot? (os) does a mild/moderate tight achilles tendon (foot dorsiflexes only to 0 degrees) lead to foot pain? (os) Is Reverse Ponseti casting followed by Talonavicular stabilisation an effective strategy in Congenital Oblique Talus? (os) my daughter was treated using the Ponseti method, beginning a few months after birth. it was only partially successful, and at 10, she is now wearing an Ilizarov frame. What are the long term benefits and outcome of the various procedures to correct clubfoot? (p) What is the relapse rate of ponseti after a full (and complied with) treatment regime (os) what would be the youngest age to effectively perform a Tibialis Anterior Tendon Transfer? (physio)	RCT: Chong DY et al. Prospective evaluation of the use of Mitchell shoes and dynamic abduction brace for idiopathic clubfeet. J Pediatr Orthop B. 2014 Nov;23(6):501-4. RCT: Hemo Y et al. The influence of brace type on the success rate of the Ponseti treatment protocol for idiopathic clubfoot. J Child Orthop. 2011 Apr;5(2):115-9. SR: Tustin K et al. Ponseti method compared with soft-tissue release for the management of clubfoot: A meta-analysis study. Physiother Res Int. 2017 Jan;22(1).		
			TT TENDON RCT:Gintautiene J et al. Comparison of the Ponseti method versus early tibialis anterior tendon transfer for idiopathic clubfoot: A prospective randomized study. Medicina (Kaunas). 2016;52(3):163-70.		

		What happens if over time curvature re-occurs after a tendon transfere? (P) Whats the long term success rate of a tendon transfere?(P) what are long term prospects arthritis/ joint/ mobility after early surgery? (P) Clubfoot and tendon transfer success rates in cases with unossified bones (P) Is tibialis anterior tendon transfer an effective prophylaxis for recurrent clubfoot? (OS) Degree of and cause of connection between clubfoot and hip dysplasia (P) What causes lower limb orthopaedic conditions such as clubfoot? (P) what age to operate for common conditions e.g. talipes role of physio post op patient/parent expectations of surgery (GP) Is a unilateral ADM as good as boots and bar? (os)	SR: Gray K et al. Interventions for congenital talipes equinovarus (clubfoot). Cochrane Database Syst Rev. 2012 Apr 18;(4):CD008602. **DDH** Ibrahim T. et al. The prevalence of developmental dysplasia of the hip in idiopathic clubfoot: a systematic review and meta-analysis. Int Orthop. 2015 Jul;39(7):1371-8.		
LL.1P.1 **LL.1P.2** **LL.1P.3**	**What is the role of insoles in management of flat feet** **Is surgical treatment of flat feet better than insole management.** **What are the indications for surgical treatment of flatfeet (including implants) and what are the long term results of surgery**	Is Reverse Ponseti casting followed by Talonavicular stabilisation an effective strategy in Congenital Oblique Talus? (os) Do subtler implants help flatfeet? (os) Do subtler implants work? (pt) Use of subtalar arthrorheisis for flat foot (os) When are subtalar implants appropriate for flat foot in children (os) Pes Planovalgus has shown to reduce quality of life, but what should we do about it? (os) Do Arthroresis implants for plano valgus feet work and are patient satisfied with the outcome (os) Anterior knee pain Flat feet Femoral anteversion (os) Flat feet - how many need orthotics and if so, which sort - what sort of physio (if any) helps - Does pain from flat feet persist after puberty What role does flat foot surgery have (the arthroeresis screw in particular) (os) Are arthoresis implants beneficial in flatfoot resistant to painful insoles? (os) Painful Bunions and flat feet in children (os) are insoles effective in managing symptoms in children with flatfeet (os) Should surgery be done for flatfeet? (p) Best method of flat foot correction (OS) Long term outcome following Calcaneal lengthening surgery for severe flexible flat foot deformity ? evidence for early arthritis (os) When doing a lateral column lengthening for symptomatic planovalgus foot in 'normal' children, is it necessary to do plication of talonavicular capsule and the tibialis posterior tendon. Mosca says yes, others traditionally have said no. (os) What is the ideal surgical management of spastic flatfoot deformity? (os) Is there a role for arthroereisis in the second decade in the correctable symptomatic flat foot? (os) Any advantage on hysteresis screws in the sinus tarsi for moderate to severe flexible flat feet? (os) sinus tarsi implants for improvement of symptomatic planovalgus feet (os) had tendon transfer to improve cavovarus feet (turning in + walking on side of the foot). How effective is this long term? (p) What is the best stage fr maximum benefit long term (p) What are the foot development stages? (p) What is the youngest age that a titanium metal mesh implant (Biofoam) could safely be used in the foot for corrective surgery in adolescents and children. The point being to avoid the morbidity of autograft from the iliac crest and the reliance on the availability of human cadaveric bone allograft. (os) Isolated hindfoot fusions vs standard triple fusion (os) When does surgery produce better patient-centred outcomes than the natural history in flat feet? (os) Foot deformities in Marfan's syndrome are common - planovalgus feet, skew foot for example. Should they be managed in the same way as non-Marfan children? (os)	**FOOT ORTHOSIS** SR: Dars S et al. The effectiveness of non-surgical intervention (Foot Orthoses) for paediatric flexible pes planus: A systematic review: Update. PLoS One. 2018 Feb 16;13(2):e0193060. SR: Bauer K et al.What's New in Pediatric Flatfoot?.J Pediatr Orthop. 2016 Dec;36(8):865-869 SR: Mackenzie A et al. The efficacy of nonsurgical interventions for pediatric flexible flat foot: a critical review. J Pediatr Orthop. 2012 Dec;32(8):830-4. d SR: Rome K et al. Non-surgical interventions for paediatric pes planus Cochrane Database Syst Rev. 2010 Jul 7;(7):CD006311. RCT: Yurt Y et al. The effect of different foot orthoses on pain and health related quality of life in painful flexible flat foot: a randomized controlled trial. Eur J Phys Rehabil Med. 2018 Mar 16. RCT: Hsieh RL et al. Short-term effects of customized arch support insoles on symptomatic flexible flatfoot in children: A randomized controlled trial. Medicine (Baltimore). 2018 May;97(20):e10655. RCT: Sinha S et al. Medial arch orthosis for paediatric flatfoot. J Orthop Surg (Hong Kong). 2013 Apr;21(1):37-43. Evans AM et al. A Cochrane review of the evidence for non-surgical interventions for flexible pediatric flat feet. Eur J Phys Rehabil Med. 2011 Mar;47(1):69-89. **SURGERY** RCT: Moraleda L et al. Comparison of the calcaneo-cuboid-cuneiform osteotomies and the calcaneal lengthening osteotomy in the surgical treatment of symptomatic flexible flatfoot. J Pediatr Orthop. 2012 Dec;32(8):821-9. SR: Metcalfe S et al. Subtalar joint arthroereisis in the management of pediatric flexible flatfoot: a critical review of the literature. Foot Ankle Int. 2011 Dec;32(12):1127-39. **FOOT POSTURE** SR: Uden H et al. The typically developing paediatric foot: how flat should it be? A systematic review. J Foot Ankle Res. 2017 Aug 15;10:37.	27. P (4), OS (22), Pt (1)	
LL.1Q.1 **LL.1Q.1**	**What is the effectiveness of growing nails compared with external fixation in management of leg length discrepancy** **What is the effectiveness of limb reconstruction compared with surgery to maximize prosthetic use in longitudinal limb deficiency**	Should all patients with limb recon need vitD supplementation (os) Spina Bifida and growth spurts, will he have leg length discrepancies and could dragging limbs be temporary or permanent? (p) 8-plates: success in different age groups and different pathologies, situations where a poor result can be anticiapted, growth after removal of plate. (os) Last June my boy had corrective leg surgery & had 8 plates put in to his knees. He had them both removed in Nov due them straightening his legs. I noticed last night from his knees downwards are starting to splay out again (his feet no longer touch when standing straight) would a child have this procedure repeated due to reoccurring knock-knees? (p) - Reformatted into this question: Can guided groeth b used for recurrent genu valgum What can be done to minimise the chances of the operation failing at a later stage (p)	**Diet and bone growth** SR: Bueno AL et al. The importance for growth of dietary intake of calcium and vitamin D. J Pediatr (Rio J). 2008 Sep-Oct;84(5):386-94. **Lengthening**	40. Physio (1), P (19), OS (14), ANP (1), Nurse (1), GP (1), Charity (1)	

	hat is the short and long term patient satisfaction of a child who has undergone limb lengthening? i.e PROMS (ANP) Which is better in the long term? stopping the leg from growing or lengthening the shorter leg? (p) Which leg lengthening option (different types of nail, different types of frame) gives the best results looking at function, complications, infections, pain, psychological impact, impact on child's educational attainment and patient satisfaction. Which is the best age to start lengthening. Does starting in early childhood mean more lengthenings are required overall. What psychological support would benefit children before and after lengthening. What are the factors that pre-dispose to successful lengthening (e.g. length needed, bone affected, joints, strength of muscle, physio before and after, strength of family support.) What impact does the experience of having been through lengthening have on patients' lives in the short, medium and long term. Which centre (in the U.K. and worldwide) is achieving the best results and how are they doing it. What difference does good communication with patients and families make and how can it be improved. (p) All in box above (P) What diet is best for successful bone growth in leg lengthening? Are more calories required? (P) What factors influence the choice between an external device or intermedullary device for lengthening the leg?(works for a charity) How important are social and psychological factors to success in leg lengthening? (p) Why is leg lengthening not started prior to the age of 5 unlike other countries such as the USA and the impact of this on the final outcome if any? (p) How much and what sports are appropriate in the leg lengthening process and when? (p) What is the optimal amount of physio for leg lengthening to be successful? (p) What is the best technique for lengthening as it seems different surgeons follow different lines (p) Will there ever be a lengthening procedure without the need of external fixator? (P) For leg length differences, should orthotics be used routinely to protect muscles nerves etc or does it make no difference? (p) Would the precise nail be better used in some LLD patients? (nurse) Can we lengthen by placing an intramedullary device across a normal physis? (eg retrograde through the distal femur, antegrade through the proximal tibia) (OS) Use of 8 plates for epiphysiodesis for leg length discrepancy - do they work as well as drill epiphysiodesis. (os) control of limb length using guided growth. (os) Currently PRECISE nails, patients must be NWB. Is there any complications for patients undergoing femoral IM nail lengthening who are PWB following surgery? Could we use Alter-G treadmill (control weightbearing percentage) or hydrotherapy as a way of maintaining strength during lengthening process? (physio) Epiphyseodesis for. LLD plates versus drill. LLD equalisation. Joint deformities (os). HA coated vs non-HA coated pins for deformity correction in children (loosening, infection) (os) Should pins be removed after surgery? / Why do pins need removing? (p) What exercise should be undertaken whilst undertaking leg lengthening, either with an external or internal device? How does this affect recovery? (works with a charity) Can children grow out of lengthening and it needs to be performed again? (p) Long term outcomes for congenital limb length discrepancy vs acquired deformity (os) The success rate of different lengthening techniques (the last report was from Dr Paley 10 years ago) (p) Would minor limb length discrepancy corrected in childhood benefit MSK issues in childhood? (GP) Limb lengthening does it increase risk of arthritis in joints above and below lengthen segment (os) How do use of painkillers by children affect the leg lengthening process? (p) Reconstriuction Lengthening in Severe PFFD (>20%) Long term outcome (os) What is the cause PFFD? (p) What factors, other than predicted leg length difference at maturity, affect the choice between lengthening and amputation in cases of fibular hemimelia or PFFD? Is amputation/ lengthening always the preferred option or can the natural limb fit into a prosthetic - what is the long term outcome of this? (charity) Non surgical interventions for pffd, what is the impact on the body especially the pelvis and spine? (p) Fibular hemimelia: when is best to advise early amputation (os) Lengthening in Ollier's disease - why does "normal bone" formwhen lengthening is through disease affected bone? (os)	SR: Xu WG. Comparison of Intramedullary Nail Versus Conventional Ilizarov Method for Lower Limb Lengthening: A Systematic Review and Meta-Analysis.Orthop Surg. 2017 May;9(2):159-166. SR: Jauregui J et al. Regenerate bone stimulation following limb lengthening: a meta-analysis. BMC Musculoskelet Disord. 2016 Sep 29;17(1):407. SR:Jain S et al. Does the use of an intramedullary nail alter the duration of external fixation and rate of consolidation in tibial lengthening procedures? A systematic review. Strategies Trauma Limb Reconstr. 2012 Nov;7(3):113-21 SR: Kim SJ et al. The etiology of short stature affects the clinical outcome of lower limb lengthening using external fixation. A systematic review of 18 trials involving 547 patients. Acta Orthop. 2014 Apr;85(2):181-6. RCT: Lee DH et al. Botulinum toxin a does not decrease calf pain or improve ROM during limb lengthening: a randomized trial. Clin Orthop Relat Res (2014) 472:3835–3841 RCT: Park H et al.Is Botulinum Toxin Type A a Valuable Adjunct During Femoral Lengthening? A Randomized Trial. Clin Orthop Relat Res. 2016 Dec;474(12):2705-2711.		

		Do we have standard validated protocols for management of major lower limb abnormalities? (os) Can these be implemented so as to produce a uniform approach to management of these conditions? (os)			
LL.1R	**What is the best management for the extranl fixator pin sites?**	Best cleaning techniques/dressings to use on reconstructive frames. (nurse) pin site cleaning protocol - what is best evidence based practice for cleaning pin sites on a frame. (ortho clinci nurse specialist) Aspects of pin site care (nurse educator)	SR: Georgiades DS. A Systematic Integrative Review of Pin Site Crusts.Orthop Nurs. 2018 Jan/Feb;37(1):36-42. SR: Kazmers NH et al. Prevention of pin site infection in external fixation: a review of the literature. Strategies Trauma Limb Reconstr. 2016 Aug;11(2):75-85. SR:Ktistakis I et al. Pin-site care: can we reduce the incidence of infections? Injury. 2015 Sep;46 Suppl 3:S35-9. SR: Lethaby A et al. Pin site care for preventing infections associated with external bone fixators and pins.Cochrane Database Syst Rev. 2013 Dec 3;(12):CD004551. RCT: Camathias C et al. Routine pin tract care in external fixation is unnecessary: a randomised, prospective, blinded controlled study. Injury. 2012 Nov;43(11):1969-73. RCT: Cavusoglu AT et al. Pin site care during circular external fixation using two different protocols. J Orthop Trauma. 2009 Nov-Dec;23(10):724-30.	3. Nurse (1), Nurse Specialist (1), Nurse educator (1)	
LL.1S	**What is the best prevention of phantom limb pain following lower limb amputations**	Revision surgery on amputations are based on what factors? (p) Symes vs boyd amputation for the treatment of legs-imagine which provides the greater function with the minimal disadvantages (P) Is it better to have an amputation done when my child is young or allow them choice? (P) How do they decide to amputate? What are criteria for this decision. (P) How do you stop the heel pad slipping once you've done an amputation?(P) When is leg lengthening a better option than amputation? (P) Why is there little evidence to suggest that amputation is better than leg lengthening? (P) Why is phantom limb pain not considered in children after amputation? (P)	SR: Pirowska A et al. Phantom phenomena and body scheme after limb amputation: a literature review. Neurol Neurochir Pol. 2014 Jan-Feb;48(1):52-9. RCT: Wang X et al. Gabapentin as an Adjuvant Therapy for Prevention of Acute Phantom-Limb Pain in Pediatric Patients Undergoing Amputation for Malignant Bone Tumors: A Prospective Double-Blind Randomized Controlled Trial. J Pain Symptom Manage. 2018 Mar;55(3):721-727.	8. P (8)	
LL.1U	**What are the best techniques for bone deformity prevention and/or correction in Osteogenesis imperfecta (brittle bone disease) ?**	Has there been OI specific research into the use of BMP? (pt) In an OI pt, is the femur strong enough to withstand a full hip replacement. (p) The best way to deal with narrow bone canals when inserting a rod. (pt) The effect of rods on joints (pt) Long term risks after bisphosphinate treatment. Does healing process after surgery take longer? (p)	SR: Scollan JP et al. The Outcomes of Nonelongating Intramedullary Fixation of the Lower Extremity for Pediatric Osteogenesis Imperfecta Patients: A Meta-analysis. J Pediatr Orthop. 2017 Jul/Aug;37(5):e313-e316. SR: Dwan K et al. Bisphosphonate therapy for osteogenesis imperfecta. Cochrane Database Syst Rev. 2014 Jul 23;(7):CD005088. SR: Sinikumpu JJ et al. Severe osteogenesis imperfecta Type-III and its challenging treatment in newborn and preschool children. A systematic review. Injury. 2015 Aug;46(8):1440-6. SR: Castillo et al. Effects of bisphosphonates in children with osteogenesis imperfecta: an AACPDM systematic review. Dev Med Child Neurol. 2009 Jan;51(1):17-29. RCT:Hald JD et al. Bisphosphonates for the prevention of fractures in osteogenesis imperfecta: meta-analysis of placebo-controlled trials. J Bone Miner Res. 2015 May;30(5):929-33. RCT: Bishop N et al. Risedronate in children with osteogenesis imperfecta: a randomised, double-blind, placebo-controlled trial. Lancet. 2013 Oct 26;382(9902):1424-32. RCT: Bishop N et al. A randomized, controlled dose-ranging study of risedronate in children with moderate and severe osteogenesis imperfecta.J Bone Miner Res. 2010 Jan;25(1):32-40.	5. Pt (3), P (2)	
LL.1V	**What is the role of lower limb orthopaedic surgery in children with peripheral neuropathies**	What is the prevalence multiple / repeated lower limb orthopaedic surgery in children with peripheral neuropathies (physio) Is there any benefit to soft tissue lengthening in children with muscular dystrophy / fibrous muscle? (physio)	SEARCH DONE. NONE RELEVANT	2. Physio (2)	
LL.1W.1	**Can the material used in limb salvage surgery have an impact on recovery and prognosis following bone tumor surgery**	outcomes of treating osteochondral defects in the knee and ankle with surgery (OS) Does the use of a hyaluronic acid impregnated Poly L-lactic acid (PLLA) felt (Chondrotissue) give better outcome compared to curettage for the treatment of osteochondral defects of the talus (OLT) in adolescent (os) OCL in the ankle/knee - should surgery be more minimalist in children (os) Do you need serial mri to follow up osteochondral defects in ankles and knees or is close follow up and clinical symptoms enough. (OS) 1. What is the best way to treat osteochondritis dissecans affecting the knee and ankle? (OS) RETROGRADE OR ANTEGRADE DRILLING FOR OSTEOCHONDRAL DEFECTS (OS) What is/are the best surgical treatment(s) for talar osteochondritis dissecans? (os) Does retrograde curettage and insertion of bone graft substitute of stable large (>10mm) painful osteochondral lesions of the knee give more reliable relief of pain and earlier return to activity compared to standard non-operative management. (os) Does the use of a hyaluronic acid impregnated Poly L-lactic acid (PLLA) felt (Chondrotissue) give better outcome compared to curettage for the treatment of osteochondral defects of the talus (OLT) in adolescents. (OS)	RCT: Gudas R et al. A prospective, randomized clinical study of osteochondral autologous transplantation versus microfracture for the treatment of osteochondritis dissecans in the knee joint in children. J Pediatr Orthop. 2009 Oct-Nov;29(7):741-8.	6. P(3), OS (1), Pt (1), Physio (1)	
LL.1W.2	**What is the best treatment for simple and aneurysmal bone cysts of the femur?**				
LL.1W.3	**What are the short and long term clinical effects of rotationplasty vs limb salvaging implants**				
LL.1Y.1	**Septic arthrtis / osteomyelitis: What are the advantages of arthrotomy vs aspiration in septic arthritis**	arthrotomy vs aspiration in septic arthritis and role of steroids or other modifiers of inflammatory response (OS)		5. P (3), OS (2)	
LL.1Y.2	**Septic arthrtis / osteomyelitis: When is surgery required in osteomyelitis**	Did the strep A infection with the original septic arthritis in the hip age 18 months increase the likelihood of the need for hip shelf osteotomy aged 12? (P) What is the optimal balance between risk of infections versus activity? (P) Can bone strengthening be done at the same time as the other procedures to prevent fracture infections and other risks from occuring? (P) 5. When is surgery required in osteomyelitis of femur and tibia? (os)	SR: Dartnell J et al.Haematogenous acute and subacute paediatric osteomyelitis: a systematic review of the literature. J Bone Joint Surg Br. 2012 May;94(5):584-95 SR: Howard-Jones AR et al. Systematic review of duration and choice of systemic antibiotic therapy for acute haematogenous bacterial osteomyelitis in children. J Paediatr Child Health. 2013 Sep;49(9):760-8. SR: Mooney ML et al. Hematogenous Calcaneal Osteomyelitis in Children. Foot Ankle Spec. 2017 Feb;10(1):63-68.		
G.1A	**Why is there geographical variation in the management of lower limb orthopaedic conditions**	What is taken into account when deciding to either watch and wait or operate? (P)	SEARCH DONE. NO RCTs or SRs	4. Physio (1), P (3)	

		Why depending on where you like and which hospital you come under, you are treated very differently. (p) THE BIG ONE - WHY DO SO MANY CHILDREN HAVE DIFFERENT TREATMENTS... many want an answer to this! (p) what is considered as best practice for planning procedures for children with neurodisability (physio)			
G.1B.1 **G.1B.2**	**What is the role of pre-operative rehabilitation?** **Does vitamin D supplementation or other diet supplements increase recovery rates following bone surgery, such as osteotomy or leg lengthening?**	Importance/effect of pre-hab on surgical outcomes (physio) What physio would improve outcomes before after surgery? (p) Is deficient Vitamin D a reason for poor bone healing? (OS) Does vitamin D supplementation increase recovery rates following bone surgery, such as osteotomy or leg lengthening? (P)	SR: Bueno AL et al. The importance for growth of dietary intake of calcium and vitamin D. J Pediatr (Rio J). 2008 Sep-Oct;84(5):386-94.	4. Physio (1), P (2), OS (1)	
G.1C	**What are the best strategies to optimise communication of information to patient and carers to enable shared decision making.**	How effective will the surgery be? (Grandparent) Do hospitals consider the best time for surgery to ensure the best post op results from physiotherapy to regain function ? (physio) What are the potential long term implications of carrying out that particular type of operation? (physio) How much communication is there with community physiotherapists pre and post op ? (physio) what is the communication between the community team & the orthopaedic team. (physio) How quick does operative details and post op plans get communicated to those involved with post op care in the community? (physio) How can we communicate better between teams who are not on site or share IT systems to improve outcomes for children (physio) how is clinical decision making made? (physio) who should be involved in clinical decision making? (physio) Is there an MDT discussion with more complex surgery Does the patient attend an AHP pre-admission clinic if having complex surgery (physio) Effective liaison with community teams (physio) What are the best tools enabling assessment of the cost (in the broadest sense) of a surgical or no -surgical intervention during childhood vs the benefits both during childhood and through maturity? This question is fundamental to everything Paediatric Orthopaedic Surgeons do, yet these tools are infrequently used in research, and rarely in clinical (surgical or non-surgical) practice. (os) Pre operative assessment in orthopaedics - what is needed? How best to provide service (ANP or medic?) (nurse) What are the risks of surgery? (P) the process of the operation (Pt) How does timing of surgical interventions work with adolescent growth patterns/sports? (P) When is the timing best for successful outcomes? What speed is intervention best performed (small stages or bigger steps) Why? When? (P) How long does the operation take? (P) What happens during surgery? (P) What will be the benefit to my child? (Grandparent) What is the average recovery time post surgery/stay in hospital? (Grandparent) How will the surgery improve my child's mobility? (Grandparent) When is the optimum time to complete? (Physio) Is there an optimal age for surgery? (P) What is the best technique and age for surgery? (p) what is the optimal age range for certain procedures? (P) Does optimal age differ depending on specific procedures? (P) The optimum age to carry out surgery (p) What nutrients can be supplemented to avoid issues, both post and pre surgery, in regards to cognition, depleted Glutithione levels, blood flow (during immobilization) and to support mitochondrial function. (p) We are in great need of knowing a child's gene status prior to these orthopedic surgeries during adolescence. MTHFR, to pinpoint more compatible pharmaceuticals, nutrient supplements and nerve support! I am betting that if our son had a more thorough pre surgery workup we could have cut down his suffering by many months. (p) Effectiveness of pre-op assessment on parental / patient concerns (physio) Indications for surgical intervention (physio) management of the condition both conservative and surgical (physio) evidence based rehab/management after surgery (physio) Will surgery need repeating due to growth? (P) Will I need physio throughout my life? (Pt) Is data being collected nationally? (OS) What evidence is there that this operation works? (P) How do I know as a parent that this operation is worth doing? (P) Do the benefits out-way the risks? (P) Has there been any cases of erythema nodosum in children post loer- limb surgery? (P) Are detailed operations on the feet possible to position the feet better? (Pt) If child was not 'mobile' would the surgery still be offered and would surgery results be affected? (P)	SEARCH DONE. NO RCTs or SRs	49.Physio (16), P (20), OS (3), Pt(5), Grandparent (4), OT (1)	

		If different growth paths of lower limbs are positively or negatively influenced by operations? (Pt) What would help the children prepare for surgery (OT) How does surgery affect children psychologically? (OS) what impact did the surgery have on family dynamics,social and physical impact (physio) Expected recovery period? (P) How long does it take for a full recovery? (Pt) what sort of aftercare will be available for patient and carers after major surgery to lower limb? (p)			
G.1D	**What are the success rates of surgery, optimal post-operative care, the risk/benefit balance, the outcome to be expected and the potential complications?**	Success (P) How is surgery determined (p) If it actually works (P) Risks and benefits (GP) Outcomes of different operations (p) Clinical Help groups available (p) Will they need additional operations as they grow(physio) If repeat surgery is ever needed, is there a specific age for it to be done? (pt) How do I know how many of these operations surgeons do, and do surgeons who do lots have better results? (pt) muscle and bone strengthening for a child who could walk but can no longer (p) Outcomes and long term follow up results for procedures done. (OS) Non operative results (OS) Will further surgery be required? (Other: Grandparent) Are there risks of increasing the disability/mobility post surgery? (Other: Grandparent) How much variation is set at point of post op instruction/follow up, for standardised surgery methods? (Physio) What alternative are available should the surgeries be unsuccessful? (P) How long to heal? (P) What complications would be likely to occur? (Pt) How do potential surgical complications, eg: scar tissue, infection, .. affect QOL compared to other treatment options i, including no action? (P) Can we determine how much/little of any given period orthotics are worn? (Like the spinal brace and FAO for CTEV studies) (os) How much function is improved post Op (physio) Long term effects of surgical intervention (physio) How often does surgery need to be repeated (physio) More about the timeframe of recovery. Why and how do the specific surgeries effect the outcome (p) Are there any scans or X-rays that can be done as a baby to determine what level of movements they will have when they get older? (P) What precautions can be taken to reduce the risk of infection following surgery? (P)	SEARCH DONE. NO RCTs or SRs	26.P (12) GP (1) pt (3) physio (5) os (3) grandparent (2)	
G.1E	**What should rehab following surgery include, how long is it expected to last and how does it affect the result of treatment?**	What is the best rehab post op (Carer) What will help to give the fastest recovery? (P) Is there an optimum amount of rehabilitation and timing of input for different site, soft tissue vs bony surgeries to enable the best outcome? (ie could a matrix be created for the minimum a child should receive to help support local MSK/community teams resource to see these children) (Physio) What will I have to do after the surgery to aid recovery? Physio etc, how long for (p) expected timelines for rehab (Physio) Recovery time (P) What is the most appropriate rehabilitation for children post-operatively? i.e. timeframes? Protocols? Guidelines? (Physio) What's the best way to recover. (P) best practice guidelines for pre and post surgery rehab (Physio) How easy is it to get social housing changes done if the surgery means our home is no good... doors not big enough, wet rooms needed etc (P) How long is it going to take for me to heal? (Pt) For how long can't I go to school? (Pt) Do I have to use crutches? (Pt) What can I do to help my child develop muscle growth? (P) After operation(s), will my child be able to walk soon / ever (P) some quantification of the amount of rehab- so this can be properly funded in the community. (physio) quantification of the type of rehab/ length of expected change in function post operatively (PHYSIO) Recover time (p) Recover time and regaining of strength and mobility (p) Who responds best? How long does it take to recover? Qualitative and quantative outcomes? What's the optimal post operative management? Does physiotherapy improve outcome? (physio) Would greater integration between community and inpatient therapies help optimize recovery in all cases of lower limb surgeries? (physio) How to make rehabilitation most effective post surgery (os)	SEARCH DONE. NO RCTs or SRs	26. Physio (11), P (9), OS (2), Pt (3), Carer (1)	

		When do kids actually return to school and when do parents get back to work.. when does life get back to normal after surgery? (os) Why, when the importance of post op rehab is well recognised, is it not better funded (physio) Evidence for post op immobilisation timeframe (physio) Benefits of full or partial weightbearing (physio)			
G.1F	**what are the best ways to measure outcome in lower limb orthopaedic surgery in children.**	Are there better outcomes if there are species added to diet? (p) More definite length of recovery times due top procedure performed? (P) what are standard outcome measure of success best timing of operation to maximise benefit of operatio (Physio)n Are there adequate validated outcome tools used in children undergoing surgery for the most common conditions? (OS) The risk of the treatment relapsing (p) Are there likely to be problems I older age? (P) Success rates (P) What are the outcomes of surgery in terms of improvement in QoL and function? What is the difference between capacity to function and actual function? (os) What the prognosis is after each type of surgery (p) Alternatives (P) Recovery times (P) What future problems will occur that will require surgery? (P) What are the long term effects of the surgery (P) How do you know surgery is successful? (P) How to measure the result of surgery before and after? (P) How will this particular surgery improve the outcome for my child (P) 20year follow up of children who have had surgical intervention and outcome or other complication (physio) How many surgical intervention did the children have overran and what effect did the surgery have on their quality of life (physio) Does a standardized routine pre-op Physiotherapy program decrease LOS/improve post op outcomes for example range of motion/function/pain/QOL/return to school/sport/ADL's (Physio) Alternatives to surgery using various orthosis and physio (P) How much your movement is limited from this operation Whether you can still engage in sexual intercourse and have children (p)	SEARCH DONE. NO RCTs or SRs	21. Physio (4), P (15), OS (2),	

More detailed information to be shown on the JLA website for the questions discussed at the final workshop.

PSP unique identifier (to be allocated by JLA team on receipt of final priorities from PSP)	Record ID (the unique identifier of the uncertainty. To be allocated by JLA team on receipt of final priorities from PSP)	PSP Name	Total number of verified uncertainties identified by the PSP	Uncertainty (PICO formatted indicative uncertainty where possible. Advised minimum requirements are 'Population' and 'Intervention'. Not all submissions may be suitable for PICO structure, but they should be in a format that will ultimately be of value to the research community)	Explanatory note (a plain language summary of up to 150 words, explaining key points of the uncertainty and why it is important, for research funders to begin working on. PSPs may wish to include examples of the original survey submissions here)	Date of the priority setting workshop	Rank of the uncertainty at the final workshop. (If no rank was agreed, please indicate)	Evidence (reference, and weblink where available, to the most recent relevant systematic review identified by the PSP, plus a maximum of 2 other systematic reviews, including protocols for future systematic reviews, that the PSP considers relevant.)	Health Research Classification System (high level HRCS code to be allocated by the JLA team unless the PSP prefers to complete this)
	G.1F	*JLA PLLS PSP*	21	What are the best ways to measure outcome in lower limb orthopaedic surgery in children?	How will this particular surgery improve the outcome for my child - what are standard outcome measure of success best timing of operation to maximise benefit of operatio n- Are there adequate validated outcome tools used in children undergoing surgery for the most common conditions?	*17-Nov-18*	1	SEARCH DONE. NO RCTs or SRs	
	G.1E	*JLA PLLS PSP*	26	Following orthopaedic surgery to the lower limbs, what should children's rehabilitation include, how long is it expected to last and how does it affect the result of treatment?	What is the best rehab post op- What will help to give the fastest recovery? - Is there an optimum amount of rehabilitation and timing of input for different site, soft tissue vs bony surgeries to enable the best outcome? (ie could a matrix be created for the minimum a child should receive to help support local MSK/community teams resource to see these children	*17-Nov-18*	2	SEARCH DONE. NO RCTs or SRs	

	CP.1C.2	*JLA PLLS PSP*	63	What is the short-term and long-term clinical and cost effectiveness of orthopaedic lower limb surgery (including best timing and technique) for children with Cerebral Palsy who can walk?	what is the optimum time to operate on lower limbs in CP - Optimum surgical intervention for CP maifestations in the lower limb - what are the best treatments for long term gain, either surgical or not, for children and adults with spastic diplegia cerebral palsy - Which procedures are of most benefit?	*17-Nov-18*	3	SR: Shih et al. Economic evaluation and cost of interventions for cerebral palsy: a systematic review. Dev Med Child Neurol. 2018 Jun;60(6):543-558.	
	Example:	*JLA PLLS PSP*	*89*	What are the short term and long term outcome of surgery compared to non-surgical care in the treatment of Perthes Disease?	*Do operations for Perthes disease of hip work? - What is the best way to treat Perthes? - Which surgeries used to treat perthes have the best outcomes long term?*	*17-Nov-18*	*4*	*SR: Hanna et al. Systematic review of the outcome of total hip arthroplasty in patients with sequelae of Legg–Calve´–Perthes disease. Arch Orthop Trauma Surg. 2017. 137:1149–1154*	
	G.1B.1	*JLA PLLS PSP*	4	What is the clinical and cost effectiveness of pre-operative rehabilitation in children presenting with lower limb orthopaedic conditions?	Importance/effect of pre-hab on surgical outcomes - What physio would improve outcomes before after surgery?	*17-Nov-18*	5	SEARCH DONE. NO RCTs or SRs	
	CP.1D	*JLA PLLS PSP*	12	**What is the short-term and long-term clinical and cost effectiveness of Selective Dorsal Rhizotomy (SDR) in children with Cerebral Palsy who can walk?**	Role for SDR and multilevel surgery in optimising function during growth - Results of SDR in ambulant CP children - Does SDR help children with Cp long term?	*17-Nov-18*	6	Nicolini-Panisson et al. SELECTIVE DORSAL RHIZOTOMY IN CEREBRAL PALSY: SELECTION CRITERIA AND POSTOPERATIVE PHYSICAL THERAPY PROTOCOLS. Rev Paul Pediatr. 2018 Jan 15;36(1):9.	
	CP.1A.1	*JLA PLLS PSP*	53	7. Can surveillance and non-surgical treatment (e.g. physiotherapy, botulinum toxin injections, functional electrical stimulation, orthotics, casting) prevent the development of deformity requiring surgery in children with Cerebral Palsy?	Can splinting prevent knee contractures and foot deformity in cerebral palsy? - FES versus Orthotics - Are AFO's beneficial in CP	*17-Nov-18*	7	Novak et al. A systematic review of interventions for children with cerebral palsy: state of the evidence. Dev Med Child Neurol. 2013 Oct;55(10):885-910.	
	DDH.1A	*JLA PLLS PSP*	20	What is the best method of screening for Developmental Dysplasia of the Hip (DDH) in terms of clinical and cost effectiveness?	DDH - should we do nationalultrasound screening? - Can we scan all babies with hip dysplasia to avoid the need for surgeryin the future? - is there a better way to screenfor DDH other than ultrasound and clinical examination?	*17-Nov-18*	8	Systematic review: Shorter D, Hong T and Osborn DA. Screening programmes for developmental dysplasia of the hip in newborn infants (Review). Evid.-Based Child Health. 2013; 8:1: 11–54	

	G.1C	*JLA PLLS PSP*	49	What are the best strategies to optimise communication of information between patients/carers and clinicians in order to enable shared decision-making?	How much communication is there with community physiotherapists pre and post op ? -what is the communication between the community team & the orthopaedic team - How can we communicate better between teams who are not on site or share IT systems to improve outcomes for children	*17-Nov-18*	9	SEARCH DONE. NO RCTs or SRs	
		JLA PLLS PSP		What is the best management for hip displacement in children with Cerebral Palsy?		*17-Nov-18*	10		
	DDH.1D	*JLA PLLS PSP*	38	11. What are the most effective interventions (including type and timing of the procedure) for late presenting Developmental Dysplasia of the Hip (DDH)?	what is the best surgical treatment for late presenting DDH - Outcome of treatment in late presentations of DDH versus treatment of early presentations of DDH (<3 months) - At what stage does research show that late diagnosis leads to difficulties in correcting DDH? (p)	*17-Nov-18*	11	SR: Wang et al., 2016	
	G.1B.2	*JLA PLLS PSP*	4	**Does vitamin D supplementation or other diet supplements increase recovery rates following lower limb bone surgery, such as osteotomy or leg lengthening?**	Is deficient Vitamin D a reason for poor bone healing? - Does vitamin D supplementation increase recovery rates following bone surgery, such as osteotomy or leg lengthening?	*17-Nov-18*	12	SR: Bueno AL et al. The importance for growth of dietary intake of calcium and vitamin D. J Pediatr (Rio J). 2008 Sep-Oct;84(5):386-94.	
	CP.1C.3	*JLA PLLS PSP*	63	What is the clinical and cost effectiveness of gait analysis in surgical decision making in children with Cerebral Palsy who can walk?	Can we artificial intelligence to use gait analysis more effectively - Can we have a set of agreed gait/funtional outcome measures, which are standardised nationally? - Should a gait analyses be done before any orthopaedic surgery? - What level of gait imporvement should be expected by the various surgical procedures on offer?	*17-Nov-18*	13	RCT: Wren TA et al. Impact of gait analysis on correction of excessive hip internal rotation in ambulatory children with cerebral palsy: a randomized controlled trial. Dev Med Child Neurol. 2013 Oct;55(10):919-25.	
	LL.1O.1	*JLA PLLS PSP*	34	What are the indications and most effective treatment for relapsed clubfoot?	Relapsing club foot- does active supination need to be treated? - How should we approach a relapsed clubfoot - What is the relapse rate of ponseti after a full (and complied with) treatment regime	*17-Nov-18*	14	SR: Miller SD et al. Prevention of hip displacement in children with cerebral palsy: a systematic review. Dev Med Child Neurol. 2017 Nov;59(11):1130-1138.	
	SUFE.1.A	*JLA PLLS PSP*	22	What is the optimal surgical treatment and timing of surgery for unstable Slipped Upper/Capital Femoral Epiphysis (SUFE/SCFE)?	How should we treat unstable SUFE to optimise hip function throughout life course - What is the best treatment for severe unstable SUFE? Is surgical dislocation via ganz osteotomy any better or worse than cuneiform osteotomy? -What is the optimum treatment for an acute or acute on chronic unstable slipped epiphysis	*17-Nov-18*	15	SR: Lorder RT et al. What is the best evidence for the treatment of slipped capital femoral epiphysis? J Pediatr Orthop. 2012 Sep;32 Suppl 2:S158-65	

	SUFE.1A.2	*JLA PLLS PSP*	22	What is the optimal management for severe stable Slipped Upper/Capital Femoral Epiphysis (SUFE/SCFE)?	Initial operative management of Severe SUFE - already in progress - What is the best treatment for severe stable SCFE. Fixation insitu and later osteotomy or primary intra articular osteotomy - What is the optimum treatment for an acute or acute on chronic unstable slipped epiphysis	*17-Nov-18*	16	SR: Tosounidis T et al. Prognostic significance of stability in slipped upper femoral epiphysis: a systematic review and meta-analysis. J Pediatr. 2010 Oct;157(4):674-80, 680.e1.	
	LL.1H.1	*JLA PLLS PSP*	16	What is the best treatment for patello-femoral instability (an unstable knee-cap) in children?	Patellofemoral problems in younger patients- PFj instability: best assessment and treatment protocols - Surgery in patella instability using a soft tissue technique	*17-Nov-18*	17	SR: McNeilan RJ. Graft Choice in Isolated Medial Patellofemoral Ligament Reconstruction: A Systematic Review With Meta-analysis of Rates of Recurrent Instability and Patient-Reported Outcomes for Autograft, Allograft, and Synthetic Options. Arthroscopy. 2018 Apr;34(4):1340-1354.	
	LL.1P.2	*JLA PLLS PSP*	27	1. What are the indications for surgical treatment of flatfeet (including implants) and what are the long-term results of surgery?	When does surgery produce better patient-centred outcomes than the natural history in flat feet? - Flat feet - how many need orthotics and if so, which sort - what sort of physio (if any) helps - Does pain from flat feet persist after puberty What role does flat foot surgery have (the arthroeresis screw in particular) -Flat feet - how many need orthotics and if so, which sort - what sort of physio (if any) helps - Does pain from flat feet persist after puberty What role does flat foot surgery have (the arthroeresis screw in particular)	*17-Nov-18*	18	SR: Metcalfe S et al. Subtalar joint arthroereisis in the management of pediatric flexible flatfoot: a critical review of the literature. Foot Ankle Int. 2011 Dec;32(12):1127-39.	
	LL.1E.1	*JLA PLLS PSP*	10	What is the outcome of hip replacement in a child compared to hip reconstruction (eg. functionality, how long it lasts, how it is affected by age and underlying diagnosis)?	What psychosocial risk factors are identified that attribute to a less successful outcome of surgery/ ability to participate in rehabilitation? (Physio)	*18-Nov-18*	19	SR: Adelani MA, Keeney JA, Palisch A, Fowler SA, Clohisy JC. Has total hip arthroplasty in patients 30 years or younger improved? A systematic review. Clin Orthop Relat Res 2013;471:2595–2601.	

	P.1B.2	*JLA PLLS PSP*	*89*	*Which operation leads to best results in the treatment of Perthes disease?*	*What is the best treatment for Perthes at different ages and stages? - Consensus for protocols for management of common conditions such as Perthes - What treatment has the most favourable outcomes for Perthes Disease? - Clarification on the treatment of perthes*	*17-Nov-18*	*20*	SR: Nguyen N et al. Operative Versus Nonoperative Treatments for Legg-Calvé-Perthes Disease: A Meta-Analysis. Journal of Pediatric Orthopaedics. 2012. Vol 32(7) p 697-705	
	LL.1L	*JLA PLLS PSP*	18	What is the best way to treat idiopathic (unexplained) tip toe walking?	What are the indications for tendo Achilles lengthening in an idiopathic tip toe walker? - Tip toe walking and idiopathic heel cord tightness. What level correction is best? - What is the best treatment protocol for tip toe walking in children?	*17-Nov-18*	21	SR: van Bemmel AF et al. Outcome after conservative and operative treatment of children with idiopathic toewalking: a systematic review of literature. Musculoskelet Surg. 2014 Aug;98(2):87-93.	
	DDH.1E	*JLA PLLS PSP*	20	What are the long-term outcomes of treatment in Developmental Dysplasia of the Hip (DDH) presenting late?	long term evidence for what surgery benefits perthes and ddh - Long term results, multicentre, prospective data in CTEV, DDH surgery (including surgical outcomes) - Long term results, multicentre, prospective data in CTEV, DDH surgery (including surgical outcomes)	*17-Nov-18*	22	SEARCH DONE. NO RCTs or SRs	

	CP.1F	*JLA PLLS PSP*	4	What is the effect of surgeon and centre experience on the outcome of orthopaedic lower limb surgery in cerebral palsy children?	If surgery is going to be performed on children especially those with rare or relatively rare and complex conditions like CP and SB should that surgery only be determined and performed by a limited number of consultants who are high trained in the condition and the surgical and other options for management of those conditions. In this way the children and families get the best opinions and treatment and outcomes can be monitored, and the centres of excellence can coordinate easily to improve the national standards of care for children and families. This happens in other highly complex conditions requiring surgery eg heart surgery. (Physio) What is the best way to record patient outcomes after hip surgery and multilevel surgery - outcome measures are poor - CP child not patient friendly. (physio) Would be very important also to develop and use child and parent related functional outcome scores to allow the outcomes of surgery in this group to be assessed (os)	*17-Nov-18*	23	Schiariti V et al. Comparing contents of outcome measures in cerebral palsy using the International Classification of Functioning (ICF-CY): a systematic review. Eur J Paediatr Neurol. 2014 Jan;18(1):1-12.	
	LL.1D	*JLA PLLS PSP*	15	What degree of lower limb anatomical variation (eg. knock knees, bow legs, in-toeing) justifies treatment to prevent long-term problems?	Should we correct lower limb alignment in the asymptomatic patient? - Does correcting the anatomical axis of the lower limbs prevent arthritis in later life? - How much of femoral anteversion improves spontaenously - what indicators in the child <8 years are there that it will improve (os)	*17-Nov-18*	24	SR: Jumar S and Sonnanis SV et al. Growth modulation for coronal deformity correction by using Eight Plates-Systematic review. J Orthop. 2018 Feb 2;15(1):168-172.	
	LL.1B	*JLA PLLS PSP*	3	What are the indications for metalwork removal in children who have previously undergone lower limb orthopaedic surgery?	How often does any metal work need to be removed following surgery and for what reasons - Should we remove metal work from children routinely? - Do children need to be on crutches/partial weight bearing to reduce the risk of fracture after removal of metalwork in the legs, and if so, for how long?	*17-Nov-18*	25	SEARCH DONE. NO RCTs or SRs	
	G.1A	*JLA PLLS PSP*	4	Why is there geographical variation in the management of lower limb orthopaedic conditions?	What is taken into account when deciding to ei	*17-Nov-18*	26	SEARCH DONE. NO RCTs or SRs	