**Online supplementary file 5: Narrative synthesis of CPG recommendations**

This table is a synthesis of MSK pain CPG recommendations. A common consensus statement was identified when recommendations were consistent across CPGs and strongly endorsed or not endorsed i.e. the majority of CPGs included “should do” or “do not do” recommendations.

“Should do” recommendations were defined as those that should generally be applied in all circumstances unless there is a rationale not to. These were usually based on a strong evidence e.g. a high level of evidence based on a number of high quality studies reporting a clinically relevant positive effects, with benefits that outweigh risks. However sometimes “should do” recommendations were based on the opinion of expert CPG development group members when there is a strong belief that the recommendation should be applied or its implementation was self-evident. CPGs terminology consistent with a “should do” recommendation includes “strong recommendation” e.g. 91, “offer” e.g. 34 35, and “should” occur e.g. 36 37.

A “do not do” recommendation is when there was no benefit and/or evidence that harms outweigh benefits. Two CPGs provide strong and weak “do not do” recommendations 38 40. For the purposes of our review we combined weak and strong “do not do” recommendations. Terminology used in CPGs included “do not offer” e.g. 34 38, “should refrain from” 41, “do not routinely offer” 38, “not appropriate” 42 and “should not” 41.

Consensus statements were not developed when recommendations were weaker i.e. predominantly “could do” or “uncertain” (see Table 1), or there were substantial conflicting recommendations in different CPGs. Where it was possible we identified common consensus recommendations across all MSK pain conditions. We also identified specific consensus recommendations for single MSK pain conditions.

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| **Management Principles**  | **Narrative Summary**  |
| Patient–centred care | All CPGs, from each of the MSK pain conditions, discussed factors consistent with patient-centred approaches to care. In nearly all CPGs patient centred care was discussed in the introduction, such as incorporated into introductory statements prefacing the recommendations, or as a principle underlying the CPG. Four CPGs included one or more aspects of a patient centred approach to care within their recommendations 33 36 41 45 for example “Clinicians should use a shared decision making process with the injured worker to develop a management plan” 41. Patient centre care included providing individualised care, appropriate communication, shared decision making, or explicitly described as “patient centred care”. Patient centred care most commonly related to providing individualised care that considered the context of the patient 33 35-42 45. For example “Treatment of hip and/or knee OA should be individualised according to the wishes and expectations of the individual, localisation of OA, risk factors (such as age, sex, comorbidity, obesity and adverse mechanical factors), presence of inflammation, severity of structural change, level of pain and restriction of daily activities, societal participation and quality of life” 36. Two CPGs for OA 45 58, one for LBP 37 and one for rotator cuff disorders 41 discussed the importance of effective patient-provider communication. The CPG for rotator cuff disorders, developed in Australia, described how communication must consider cultural and language diversity “to ensure effective and culturally appropriate communication with patients” 41. The NICE CPG focussed on “patient centred approach to communication” and the importance to shared goal setting and developing the therapeutic relationship 45. Three CPGs discussed shared decision making 37 41 45, for example “Clinicians should use a shared decision making process with the injured worker to develop a management plan” 41. Two CPGs explicitly discussed incorporating the principles of patient centred care 34 38.Consensus across MSK pain conditions: * Management should be patient centred. This includes care that is responsive to the individual context of the patient, employment of effective communication, and use of shared decision making processes.
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| **Assessment**  |  |
| Diagnosis: screen for serious pathology  | Seven CPGs, including three for LBP 35 37 38, two for neck pain 33 34, and single CPGs for OA 45 and rotator cuff disorders Hopman, 2013 #1990} strongly recommended screening for serious or structural pathology/‘red flag’ conditions during initial assessment. Screening should include targeted questioning and physical assessment, with imaging and pathology tests in those where there is clinical suspicion. Examples of serious/‘red flag’ conditions included suspicion of infection, malignancy, fracture, inflammatory causes of LBP, severe and progressive neurological deficit including cauda equina syndrome, and serious conditions that masquerade as MSK pain e.g. aortic aneurysm. The NICE OA CPG identifies important differential diagnoses as gout, other inflammatory arthritides, septic arthritis and malignancy (bone pain) 45. Consensus across MSK pain conditions: * Practitioners should screen patients to identify those with a higher likelihood of serious pathology/red flag conditions.
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| Diagnosis: Classification  | Two neck pain CPGs 33 34 strongly recommended classifying neck pain associated disorders (NAD) and whiplash associated disorders (WAD) according to the classification of the 2000-2010 Bone and Joint Decade Task Force on Neck Pain and its Associated Disorders; as grade I, II, III or IV 92. One CPG suggested classifying LBP according to severity (mild, moderate, severe) and/or duration (acute, subacute, chronic, recurrent) 37. In contrast the NICE LBP CPG has “moved away from the traditional duration-based classification of low back pain (acute, subacute and chronic) and have considered low back pain to be a continuum where risk of poor outcome at any time point is almost certainly more important than the duration of symptoms” p23 35. NICE and the Belgian CPG recommended risk stratification of LBP with or without sciatica to inform the type and intensity of management 35 38. Both of these CPGs suggested use of the STarTback tool, and the Belgian CPG also suggests the short version Orebro Musculoskeletal Pain Screening Questionnaire. The Belgian CPG recommended risk stratification at 2 weeks post onset and not within the first 48 hours of pain 38. Although the Danish CPG made no recommendations for classifying LBP, it recommended against offering targeted treatments to pre-specified subgroups based on modifiable physical or psychological prognostic factors 40. This included treatment based on clinical prediction rules. Consensus for one MSK pain condition: * Neck pain disorders should be classified as grade I-IV.
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| Psychosocial factors  | Nine CPGs strongly recommended assessing psychosocial factors, including four LBP 35 37 38 40, two neck pain 33 34, two OA 36 45 and one rotator cuff disorders 41 CPGs. No CPGS recommended against assessing psychosocial factors. The two CPGs that did not address the assessment of psychosocial factors only made recommendations related to treatment, not assessment 42 58.Psychosocial factors described included “yellow flags”, mood and emotions (depression, anxiety), fear, kinesiophobia, and recovery expectations. The LBP CPGs from NICE 35 and Belgium 38 (which was based largely on the NICE LBP CPG) integrate psychosocial factors into the assessment of modifiable prognostic risk factors. They suggested utilising the STarT Back or Orebro Musculoskeletal Screening tools to identify prognostic risk factors, including psychosocial factors, to assist in patient risk stratification.Consensus across MSK pain conditions: * Psychosocial factors should be assessed.
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| Diagnostic work up: Radiological imaging  | Six CPGs, including four for LBP 35 37 38 40, one for OA 45, and one for rotator cuff disorders 41 strongly discouraged routine use of radiological imaging. In the case of LBP, imaging is discouraged initially unless serious pathology is suspected. Radiological imaging can be considered for LBP with or without leg pain if it is likely to “change management”, for example epidural or spinal surgery 35 38, or if there has been a limited response to conservative care 37. The chiropractic CPG also recommended prudent use of imaging including post-trauma or in the case of worsening symptomatology, although differs from other CPGs by considering imaging if there is “suspicion of an underlying anatomical anomaly, such as spondylolisthesis, moderate to severe spondylosis” 37. The NICE CPG encouraged clinical diagnosis of OA without imaging 45. The rotator cuff CPG recommended against imaging in the first 4-6 weeks in suspected rotator cuff syndrome, but suggested MRI and plain film x-ray if there is significant continuing limitation and pain and no response to an active treatment program after this time period 41. Consensus across MSK pain conditions: * Radiological imaging is discouraged unless:
1. serious pathology is suspected
2. there has been an unsatisfactory response to conservative care or unexplained progression of signs and symptoms or,
3. it is likely to change management.
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| Physical Assessment/Examination | Seven CPGs described or recommended physical examination of MSK pain conditions. Two CPGs for OA recommended clinical examination including “mobility; strength; joint alignment; proprioception and posture” 36. Alongside clinical history, the NICE CPG described examination as the most important feature of diagnosing OA 45. Similarly a CPG for rotator cuff syndrome recommended physical assessment including “active and passive range of motion; resisted (isometric) strength testing; and evaluation of the cervical and thoracic spine (as indicated)” 41.One CPG for neck pain emphasises neurological screening in order to classify neck pain disorders into grades I-III 34. Similarly, LBP physical assessments emphasise testing of neurological function in order to differentiate radicular pain 37 38. The lack of empirical support for physical assessments for LBP versus patient expectations regarding examination were noted by NICE; “the repercussions of not performing an examination would lead to dissatisfaction and unwarranted demand for tests or further referrals 35. Consensus across MSK pain conditions: * Undertake a physical examination, which could include neurological screening tests, assessment of mobility, and/or muscle strength.

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| Evaluation/Re-evaluation and measurement  | Five CPGs, including two for OA 36 45 and one apiece for LBP 37, NAD 34, and rotator cuff disorders 41, provided ‘should do’ recommendations for re-evaluation and measurement of patient progress. The OPTIMa NAD CPG recommended using a seven-point self-rated patient recovery question 34. Other CPGs recommend evaluating pain intensity 37, functional capacity 37 41, quality of life 45 or “evaluation” 36. Consensus across MSK pain conditions: * Patient progress should be evaluated including the use of outcome measures.
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| **Management** |  |
| Education/Information  | Ten CPGs strongly recommended providing education or information either to i) encourage self-management and/or, ii) inform patients about the condition or management (e.g. prognosis, psychosocial aspects). CPG recommendations for neck pain education to promote self-management included advising patients to maintain activity and movement 33 34, “postural advice” (which is not specified) 33 and continuation of prescribed medication 33. Recommendations for condition-related information included educating patients about the benign and self-limiting nature of neck pain associated disorders 34. The chiropractic oriented CPG for neck pain and associated disorders (NAD) and whiplash associated disorders (WAD) also recommended education in acute and subacute NAD and WAD, however not as a stand-alone strategy, rather as part of a multimodal care package including e.g. manual therapy and exercise 33. Providing education/information was integral to all OA CPGs including both self-management and condition related information. The EULAR and NICE CPGs recommended that education/information should be individualised and incorporated at all stages of management 36 45. Education should include the nature, causes, consequence and prognosis of OA and reinforced by written, audio-visual or peer groups 36. Weight loss education should be offered for people who are overweight 36. The OARSI CPG noted that group-based or telephone education sessions may be more feasible to implement in primary care 42. All CPGs for LBP recommended education/information to address psychosocial issues (e.g. reduce fear and increase self-efficacy 40), encourage normal activity, and address participation in exercise. The NICE, Danish and Belgian CPGs emphasised education that is individualised to patient needs 35 38 40. One CPG for rotator cuff disorders 41 and the Belgian LBP CPG 38 specifically recommended educating patients about radiological imaging; its limitations and explaining to patients that imaging may not be indicated. The rotator cuff disorder CPG also recommended education on the risks and benefits of corticosteroid injection 41.Consensus across MSK pain conditions: * All patients should be provided with education/information about their condition and/or management options.
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| Physical activity/exercise  | All CPGs included recommendations relating to activity/exercise. The strength of recommendation, and types of recommended activity/exercise, varied between different MSK conditions. Physical activity/exercise included recommendations for general exercise/activity, specific exercise (for example for a body part), and supervised exercise. General physical activity/exercise CPGs for OA 36 39 42 45, LBP 35 37 38 40 and neck pain 33 34 recommended physical activity including maintenance of activity/normal physical activity, aerobic exercises, ‘exercise’ and/or ‘general exercise’. For OA the strength of recommendation was strong. Two LBP CPGs recommended that all patients should receive advice about activity, such as continuing with normal activity 35 40. Two neck pain CPGs recommended advising patients to maintain activity and movement 33 34, whilst the chiropractic CPG recommended considering “general and/or specific exercise programs” as a possible adjunct to core manual therapy treatments 37.Specific exercise Again, OA CPGs strongly recommended specific exercises which was most commonly strengthening exercises 36 42 45 58. Most OA CPGs did not specify an optimal type of strength training with the exception of the EULAR CPG that recommended home isometric strengthening exercises 36. Other forms of exercise recommended included mobility (e.g. range of motion, stretching) 36 42, water-based exercises 42 36, neuromuscular education 39 or tai chi 42. Two CPGs emphasised consideration of the patient’s context on exercise selection and delivery type e.g. group vs individual 36 45. LBP CPGs had weak recommendations for specific exercises. The Danish LBP CPG development group made a consensus-based recommendation for directional and motor control exercise for lumbar radiculopathy 40. The NICE and Belgium LBP CPGs recommended biomechanical, aerobic, mind-body or a combination of these exercise approaches 35 38. The chiropractic CPG recommended considering “general and/or specific exercise programs” as a possible adjunct to core manual therapy treatments 37, whereas in the NICE CPG exercise was a central part of multimodal care that could also include psychological therapies and manual therapy 35. Tailoring exercise according to individual needs and preferences was recommended by the NICE and Belgian CPGs 35 38. For NAD recommendations for specific exercise were “weak”, based on low to moderate evidence 33 or “to be considered” based one or more studies with low risk of bias or systematic reviews 34. Patients with recent onset NAD could consider range of movement exercises or exercise as part of multimodal care (grades I-II) 33 34. For persistent NAD (Grade I-II) specific exercise recommendations included stretching or self-mobilisation or, for grades I-III NAD, cervical retraction, deep neck flexor strengthening, and cervical rotation ROM 33. Other specific exercises for persistent NAD, including Iyengar yoga, qigong, and strengthening, were recommended to be undertaken under supervision (discussed below) 33 34, although a mix of supervised and unsupervised high intensity strength training was recommended for workers with persistent neck and shoulder pain 33. The CPG for rotator cuff disorders recommended that patients should be treated initially with prescribed exercise, such as range of motion, stretching and flexibility, and strengthening techniques 41. If there is an established problem, patients should also be advised to maintain activity within the limits of pain and function of the shoulder 41. Supervised exerciseThe NICE CPG for OA recommended offering supervised or independent exercise based on individual needs, circumstances, motivation and service availability 45. Three LBP CPGs made weak recommendations for supervised exercise programs. The chiropractic CPG suggests supervised exercise as a possible addition to spinal manual therapy 37. The NICE CPG suggests individualising a supervised exercise program that could include biomechanical, aerobic, mind-body or a combination of approaches 35. The Danish LBP CPG made a weak recommendation for supervised exercise for LBP and lumbar radiculopathy 40. This was in accordance with the NICE LBP CPG that also recommended group exercise for people with recent onset lumbar nerve compression or LBP 35. Neck pain CPGs recommended supervised exercises for patients with persistent NAD including; supervised graded neck strengthening (grade III) 33 34, strengthening, range of movement, qigong, Iyengar yoga or exercise as part of multimodal care (grade I-II) 33 34. For persistent WAD supervised exercise could be offered with advice or advice alone (grade I-II) 33.Consensus across MSK pain conditions: * Patients should receive management addressing physical activity and/or exercise.

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| Self-management | For a number of CPGs self-management was closely related to the provision of patient education and exercise advice (discussed above). Other CPGs referred to self-management as a formal approach, such as participation in self-management programs, or involving patients attending to their own care e.g. through exercise and rehabilitation. Three CPGs for OA made strong recommendations for participation in formal self-management programs, such as programs led by “rheumatologists, nurses, physical and occupational therapists, and health educators” 39, completed in groups, individually 45, or with telephone support 42. Not all CPGs specified the content of self-management programs for OA although the NICE CPG emphasised that such programs include the core elements of information, activity and exercise, and weight loss if overweight or obese 45. CPGs for neck pain 33 34 and LBP 37 made weaker recommendations for patient self-management, and emphasised patient self-care, such as exercise. One CPG for persistent NAD grades I to II made a weak recommendation, based on patient preference, for “stress self-management”, consisting of relaxation, balance and body awareness exercises, pain and stress self-management lectures, and discussion 33. Consensus for one MSK pain condition: * Self-management programs should be offered to patients with osteoarthritis.

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| Lifestyle changes  | Weight loss for OAThree CPGs for OA strongly recommended weight loss for people with OA who are overweight or obese 36 42 45 and one CPG made a ‘could do’ recommendation based on moderate evidence 39. Alongside the provision of information, activity, and exercise, weight loss is one of the core recommendations of the NICE OA CPG 45. Consensus for one MSK pain condition: * Interventions targeting weight loss should be offered to people with OA who are overweight or obese.
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| Pharmacological | Simple Analgesia Most CPGs emphasised simple analgesics for the initial pharmacological management of MSK pain. Three CPGs for OA recommended non-steroidal anti-inflammatory drugs (NSAIDS) for initial pharmacological pain relief 39 42 45. The NICE and OARSI CPGs recommended topical NSAIDS prior to oral forms. The NICE CPG recommended co-prescription of NSAIDS with a proton pump inhibitor (PPI) 45 whereas the OARSI CPG recommended co-prescription of a PPI when patients were at high co-morbidity risk, although advised against oral NSAIDS in this patient group 42. Acetaminophen/paracetamol was recommended by the OARSI (amongst patients without co-morbidities) 42 and NICE CPGs 45 with no recommendation made by the AAOS due to uncertainty 39. NICE recommended first line pharmacological management with paracetamol and topical NSAIDS before consideration of adding an oral NSAIDS to paracetamol. CPGs recommended against paracetamol as a stand-alone treatment for LBP 35 38 40. Oral NSAIDS were the preferred pharmacological management for LBP although all CPGs recommended judicious prescribing, giving due consideration to risk factors, gastro protective treatment, and using the lowest effective dose for the shortest possible time 35 38. The Danish LBP CPG weakly recommended against adding NSAIDS to usual care (information and advice about activity disease progression, prognosis and possible medical pain management) as evidence suggested no short term effect 40. Two neck pain CPGs had differing recommendations regarding simple analgesia. For recent onset NAD the chiropractic CPG included a weak recommendation for NSAIDS or acetaminophen 33. The OPTIMA guidelines recommended against stand-alone acetaminophen for both recent and persistent NAD grade I-II and NSAIDS only for persistent NAD grades I-II 34. The single rotator cuff CPG strongly recommended paracetamol initially for acute pain, progressing to topical or oral NSAIDS alone or in conjunction with paracetamol if required 41. Opioids Two of three CPGs for OA were uncertain regarding the use of opioids due to a lack of relevant studies 39 or uncertainties of risks versus benefits 42. The NICE OA CPG recommended considering weak opioids if paracetamol or NSAIDS provide insufficient relief 45. CPGs recommended against routine use of opioids for LBP. For acute LBP two CPGs recommended considering weak opioids only if a NSAID is contraindicated, not tolerated or ineffective 35 38. The Danish LBP CPG recommended opioid use only after careful consideration noting that evidence indicated no short-term effect 40. Both NICE and Belgium CPGs strongly recommended against opioids for persistent LBP 35 38.CPGs for NAD 33 and rotator cuff 41 made no recommendations for opioid use. Both noted a lack of evidence for their use, with the NAD CPG describing associated risks including “dose-dependent risk for serious harms, including increased risk for overdose, dependence, and myocardial infarction” 33. Muscle RelaxantsTwo CPGs made weak recommendations for muscle relaxants as part of multimodal care for recent onset NAD grade I-II although the specific medications were not described 33 34. The Belgian LBP CPG offered a strong recommendation against muscle relaxants for LBP 38. The NICE CPG noted a lack of evidence and listed investigation of the efficacy of muscle relaxants in treating LBP a research priority 35. OtherTwo OA CPGs strongly recommended against using glucosamine and chondroitin for OA 39 45. A third CPG also strongly recommended against glucosamine and chondroitin for OA disease modification, but had an uncertain recommendation for pain relief, noting mixed findings from systematic reviews 42. Two CPGs recommended topical capsaicin for knee OA 42 45 and one also for hand OA 45. The OARSI CPG recommended Duloxetine for multiple joint OA but not knee OA alone 42. Single CPGs recommended against rubefacients 45 and Risedronate 42. The NICE and Belgian CPGs strongly recommended against selective serotonin reuptake inhibitors for LBP or radicular pain 35 38. The NICE LBP CPG also strongly recommended against serotonin– norepinephrine reuptake inhibitors or tricyclic antidepressants 35 and Belgian LBP CPG recommended against their use in acute pain, and a weaker recommendation against routine use for patients with chronic LBP 38. These CPGs also recommended against the use of anticonvulsants for LBP 35 38. Consensus for single MSK pain conditions:OA:* do not use Glucosamine or Chondroitin for disease modification

LBP:* Do not offer paracetamol as a single medication
* Avoid opioids for CLBP
* Do not offer selective serotonin reuptake inhibitors, serotonin– norepinephrine reuptake inhibitors, tricyclic antidepressants or anticonvulsants for LBP

Notes: although we were unable to identify a consensus for opioids nearly all CPGs identify the risks associated with opioids and limitations and uncertainty of evidence for their use. Opioids should not be used routinely, not first-line, their use should be time limited and at the lowest possible dose.  |
| Passive Interventions – non-invasive  | Manual TherapyWith the exception of the chiropractic CPG, LBP CPGs offered weak recommendations for manual therapy 35 38 40. The chiropractic CPG made a stronger recommendation with spinal manipulation/mobilisation a core aspect of management 37. However, if utilised CPGs recommended manual therapy be used as a component of multimodal care, in conjunction with other management strategies including exercise, psychological therapy, information, and activity advice 35 37 38 40. Two CPGs made weak recommendations for manual therapy for recent NAD grade I-II, generally as part of multimodal treatment that also included exercise or soft tissue therapy 33 34. For persistent NAD Grade I-II CPGs recommended high dose or clinical massage, and not relaxation massage 33 34.One CPG for knee OA did not make a recommendation due to uncertainty 39. Alternatively the NICE CPG made a weak recommendation to include manual therapy as an adjunct to core treatments, especially for hip OA 45. The rotator cuff CPG made a weak recommendation to include manual therapy in conjunction with prescribed exercise 41. Consensus across MSK pain conditions: * Apply manual therapy only as an adjunct to other evidence based treatments.

Electrotherapy The majority of CPGs recommended against or offered no recommendations for the use of electrotherapeutic agents. The exceptions were consideration of transcutaneous electrical nerve stimulation (TENS) for pain relief in knee OA 45, therapeutic pulsed ultrasound or low level laser therapy for persistent NAD, grade III and I-II respectively 33 34, or based on clinician judgement and patient preference 37. In contrast other CPGs recommended against TENS for LBP care 35 38, electrotherapy for recent-onset NAD 34, ultrasound for rotator cuff disorders 41, electrotherapy for knee OA 42 and ultrasound for LBP 35 38. Notes: While we were unable to generate a consensus, use of electrotherapy was generally discouraged and there were no ‘should do’ recommendations. Braces/Orthoses and Assistive DevicesOA CPGs recommended considering appropriate footwear 36 45 and knee braces 42 45, although one CPG noted inconsistent findings and a lack of appropriate research with respect to valgus directing force knee braces 58. Two CPGs recommended against lumbar belts or corsets for LBP 35 38. Another recommended against routine use of lumbar supports although suggested cautious consideration based on clinician judgment, patient presentation, and preferences 37. Two CPGs recommended against rocker shoes or foot orthotics for LBP care 35 38. One CPG recommended against use of a cervical collar for recent onset NAD grade I-II, or recent or persistent NAD grade III 34, whilst another CPG for NAD did not recommend against cervical collar use for recent onset NAD grade III 33. Assistive aids such as walking sticks or frames should be considered to reduce pain when walking in knee/hip OA 36 42 45. Consensus for one MSK pain condition: Rocker shoes or foot orthotics should not be used to manage LBP. |
| Psychological therapies | Psychological therapies were only recommended in the management of LBP and NAD. All LBP CPGs offered weak recommendations for psychological therapies. Three CPGs discussed offering a cognitive behavioural approach 35 38, combined psychological and physical approach 35, or “consider psychosocial aspects of LBP” 40 based on individual needs and/or risk stratification. The chiropractic CPG recommended considering cognitive behavioural programs or psychosocial counselling in addition to spinal manipulation 37. For persistent NAD grades I-II, one CPG included a weak recommendation for stress-management programs that included relaxation, balance and body awareness exercises, pain and stress management lectures, and discussion 33. In contrast another CPG recommended against stand-alone relaxation training in isolation for persistent NAD grades I-II 34. |
| Passive Interventions – invasive  | SurgeryTwo CPGs for OA discussed surgery. Both CPGs recommended strongly against knee arthroscopic lavage and debridement for knee OA 39 45 with the exception being a clear history of mechanical locking 45. The NICE CPG strongly recommended ensuring patients have been offered core non-surgical treatments for OA prior to consideration of surgery 45. The NICE CPG also makes several recommendations about the surgical decision making process, including; basing referral decisions on discussion rather than priority scoring tools, that there is a substantial impact on patient quality of life and limited response to non-surgical care, that referrals occur before there is longstanding functional limitations and pain, and ensuring that patient-specific factors such as age, sex, smoking, obesity and comorbidities do not act as barriers for surgical referral 45. The AAOS CPG also provided a weak recommendation for valgus producing proximal tibial osteotomy, and not to use the freefloating (un-fixed) interpositional device in patients with symptomatic medial compartment knee OA (consensus) 39.Two LBP CPGs included recommendations regarding surgery. Both NICE 35 and Belgian 38 CPGs recommended against disc replacement for LBP. Similarly they recommended that spinal fusion for LBP should only be considered if part of a randomised control trial 35, or, if multimodal conservative care has not changed the outcome, following evaluation in a multidisciplinary consultation, and preferably registered in a data registry 38. Both CPGs weakly recommended spinal decompression for sciatica if conservative care has been unsuccessful and radiological and clinical findings are concordant. Lastly, the NICE CPG recommended not allowing a person’s BMI, smoking status or psychological distress to influence surgical referral decisions 35. The CPG for rotator cuff disorders recommended seeking surgical review if three months of conservative care has been unsuccessful and/or following a period of conservative care there is a symptomatic full thickness rotator cuff tear on review 41. Further, clinicians should be aware of factors that influence post-rotator cuff surgery recovery such as age, rotator cuff atrophy and fat degeneration on MRI, body mass index, compensation status, psychosocial factors and duration of complaints 41.Consensus across MSK pain conditions: * Unless specifically indicated (e.g. red flag condition), offer evidence-informed non-surgical care prior to surgery.

Consensus for one MSK pain condition: OA:* Knee arthroscopic lavage and debridement for knee OA should not be used unless there is a rationale (such as mechanical knee locking).

LBP:* Disc replacement for LBP should not be offered.
* Spinal fusion should only be considered if part of a randomised controlled trial.

Injections For OA, two CPGs recommended considering intra-articular corticosteroid injection for knee OA 42 45 whilst one CPG was uncertain 39. Two CPGs recommended against intra-articular injection of hyaluronic acid 39 45 and one was uncertain for single joint knee OA (not recommended for multiple joint OA) 42.For LBP, two CPGs strongly recommended against spinal injections for LBP; including facet joint injections, medical branch blocks, intradiscal injections, prolotherapy and trigger point injections 35 38. The same CPGs offered a weak a recommendation for epidural injection of local anaesthetic and steroid for acute, severe radicular pain, whereas the Danish CPG provided a weak recommendation against this procedure 40. Two CPGs provided a weak recommendation for radiofrequency denervation for persistent LBP for moderate to severe pain, when there is a positive response to medial branch block, and a lack of improvement following conservative care 35 38. The NICE CPG recommended against epidural injections for neurogenic claudication in people who have central spinal canal stenosis 35. One neck pain CPG recommended against botulinum toxin injections 34. For rotator cuff disorders one CPG recommended consideration of subacromial corticosteroid injection with local anaesthetic, administered by suitably skilled clinicians, after the risks and benefits have been explained, with no more than two administered if there is no clinical improvement 41. Consensus for one MSK pain condition: * Spinal injections should not be used for LBP.
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| Complementary medicine: Acupuncture | The majority of CPGs recommended against acupuncture, including for OA 39 45 and LBP 35 40. One CPG for LBP 38 and one for OA were uncertain 42. Two CPGs recommended considering acupuncture as part of multimodal care; with exercise for rotator cuff disorders 41, or in addition to spinal manipulation and a range of other possible interventions in the treatment of LBP 37.  |
| MSK pain and work  | Seven CPGs included recommendations relevant to MSK pain and work, one of which specifically targeted the management of rotator cuff syndrome in the workplace 41. Five CPGs offered a ‘should do’ recommendation for engagement or continuation of work for patients with MSK pain, including neck pain 34, OA 36, rotator cuff syndrome 41 and LBP 35 38. One CPG for LBP offered a ‘could do’ recommendation to advice patients to stay active, avoid inactivity and gradually increase activity levels, including work involvement 40. Three CPGs emphasised early return to work 38 including engagement of vocational rehabilitations services, communication between worker, employer and health provider, and planning processes to facilitate return to work 41. One another CPG included workers with injuries, although recommendations were only made in relation to specific questions about the efficacy of interventions for workers e.g. comparing supervised and unsupervised high intensity strength training versus only advice for workers with persistent neck and shoulder pain 33. Consensus across MSK pain conditions: * Facilitate continuation or resumption of work.
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