

Osteoarthritis: care and management

Clinical guideline

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www.nice.org.uk/guidance/cg177

Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

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This guideline replaces CG59.

This guideline is the basis of QS87.

This guideline should be read in conjunction with NG193.

Overview

This guideline covers assessing and managing osteoarthritis in adults. It covers both pharmacological and non-pharmacological treatments. It promotes effective treatment options to control joint pain and improve function in people with osteoarthritis.

Who is it for?

- Healthcare professionals
- Adults with osteoarthritis and their families and carers

Introduction

Osteoarthritis refers to a clinical syndrome of joint pain accompanied by varying degrees of functional limitation and reduced quality of life. It is the most common form of arthritis, and one of the leading causes of pain and disability worldwide. The most commonly affected peripheral joints are the knees, hips and small hand joints. Pain, reduced function and effects on a person's ability to carry out their day-to-day activities can be important consequences of osteoarthritis. Pain in itself is also a complex biopsychosocial issue, related in part to a person's expectations and self-efficacy (that is, their belief in their ability to complete tasks and reach goals), and is associated with changes in mood, sleep and coping abilities. There is often a poor link between changes visible on an X-ray and symptoms of osteoarthritis: minimal changes can be associated with a lot of pain, or modest structural changes to joints can occur with minimal accompanying symptoms. Contrary to popular belief, osteoarthritis is not caused by ageing and does not necessarily deteriorate. There are a number of management and treatment options (both pharmacological and non-pharmacological), which this guideline addresses and which represent effective interventions for controlling symptoms and improving function.

Osteoarthritis is characterised pathologically by localised loss of cartilage, remodelling of adjacent bone and associated inflammation. A variety of traumas may trigger the need for a joint to repair itself. Osteoarthritis includes a slow but efficient repair process that often compensates for the initial trauma, resulting in a structurally altered but symptom-free joint. In some people, because of either overwhelming trauma or compromised repair, the process cannot compensate, resulting in eventual presentation with symptomatic osteoarthritis; this might be thought of as 'joint failure'. This in part explains the extreme variability in clinical presentation and outcome that can be observed between people, and also at different joints in the same person.

There are limitations to the published evidence on treating osteoarthritis. Most studies have focused on knee osteoarthritis, and are often of short duration using single therapies. Although most trials have looked at single joint involvement, in reality many people have pain in more than one joint, which may alter the effectiveness of interventions.

Guideline update 2014

This guideline update was originally intended to include recommendations based on a review of new evidence about the use of paracetamol, etoricoxib and fixed-dose combinations of NSAIDs (non-steroidal anti-inflammatory drugs) plus gastroprotective agents in the management of osteoarthritis. Draft recommendations based on the evidence reviews for these areas were

presented in the consultation version of the guideline. Stakeholder feedback at consultation indicated that the draft recommendations, particularly in relation to paracetamol, would be of limited clinical application without a full review of evidence on the pharmacological management of osteoarthritis. NICE was also aware of an ongoing review by the MHRA (Medicines and Healthcare Products Regulatory Agency) of the safety of over-the-counter analgesics. Therefore NICE intends to commission a full review of evidence on the pharmacological management of osteoarthritis, which will start once the MHRA's review is completed, to inform a further guideline update.

Until that update is published, the original recommendations (from 2008) on the pharmacological management of osteoarthritis remain current advice. However, the Guideline Development Group (GDG) would like to draw attention to the findings of the evidence review on the effectiveness of paracetamol that was presented in the consultation version of the guideline. That review identified reduced effectiveness of paracetamol in the management of osteoarthritis compared with what was previously thought. The GDG believes that this information should be taken into account in routine prescribing practice until the planned full review of evidence on the pharmacological management of osteoarthritis is published (see the [NICE website for further details](#)).

The current update addresses issues around decision-making and referral thresholds for surgery, and includes new recommendations about diagnosis and follow-up. The update also contains recommendations based on new evidence about the use of nutraceuticals, hyaluronans and acupuncture in the management of osteoarthritis.

Drug recommendations

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

Key priorities for implementation

The following recommendations have been identified as priorities for implementation. The [full list of recommendations is in section 1](#).

Diagnosis

- Diagnose osteoarthritis clinically without investigations if a person:
 - is 45 or over and
 - has activity-related joint pain and
 - has either no morning joint-related stiffness or morning stiffness that lasts no longer than 30 minutes. [2014]

Holistic approach to osteoarthritis assessment and management

- Offer advice on the following core treatments to all people with clinical osteoarthritis.
 - Access to appropriate information (see [recommendation on patient information](#)).
 - Activity and exercise (see the [recommendation on exercise and manual therapy](#)).
 - Interventions to achieve weight loss if the person is overweight or obese (see the [recommendation on weight loss](#) and the [NICE guideline on obesity prevention](#)). [2008, amended 2014]

Education and self-management

- Offer accurate verbal and written information to all people with osteoarthritis to enhance understanding of the condition and its management, and to counter misconceptions, such as that it inevitably progresses and cannot be treated. Ensure that information sharing is an ongoing, integral part of the management plan rather than a single event at time of presentation. [2008]

- Agree individualised self-management strategies with the person with osteoarthritis. Ensure that positive behavioural changes, such as exercise, weight loss, use of suitable footwear and pacing, are appropriately targeted. [2008]

Non-pharmacological management

- Advise people with osteoarthritis to exercise as a core treatment (see [recommendation 1.2.5](#)), irrespective of age, comorbidity, pain severity or disability. Exercise should include:
 - local muscle strengthening and
 - general aerobic fitness.

It has not been specified whether exercise should be provided by the NHS or whether the healthcare professional should provide advice and encouragement to the person to obtain and carry out the intervention themselves. Exercise has been found to be beneficial but the clinician needs to make a judgement in each case on how to effectively ensure participation. This will depend upon the person's individual needs, circumstances and self-motivation, and the availability of local facilities. [2008]

Referral for consideration of joint surgery

- Base decisions on referral thresholds on discussions between patient representatives, referring clinicians and surgeons, rather than using scoring tools for prioritisation. [2008, amended 2014]
- Refer for consideration of joint surgery before there is prolonged and established functional limitation and severe pain. [2008, amended 2014]

Follow-up and review

- Offer regular reviews to all people with symptomatic osteoarthritis. Agree the timing of the reviews with the person (see also [recommendation 1.7.2](#)). Reviews should include:
 - monitoring the person's symptoms and the ongoing impact of the condition on their everyday activities and quality of life
 - monitoring the long-term course of the condition
 - discussing the person's knowledge of the condition, any concerns they have, their personal preferences and their ability to access services
 - reviewing the effectiveness and tolerability of all treatments
 - support for self-management. [2014]
- Consider an annual review for any person with one or more of the following:
 - troublesome joint pain
 - more than one joint with symptoms
 - more than one comorbidity
 - taking regular medication for their osteoarthritis. [2014]

1 Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in [NICE's information on making decisions about your care](#).

[Making decisions using NICE guidelines](#) explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Diagnosis

1.1.1 Diagnose osteoarthritis clinically without investigations if a person:

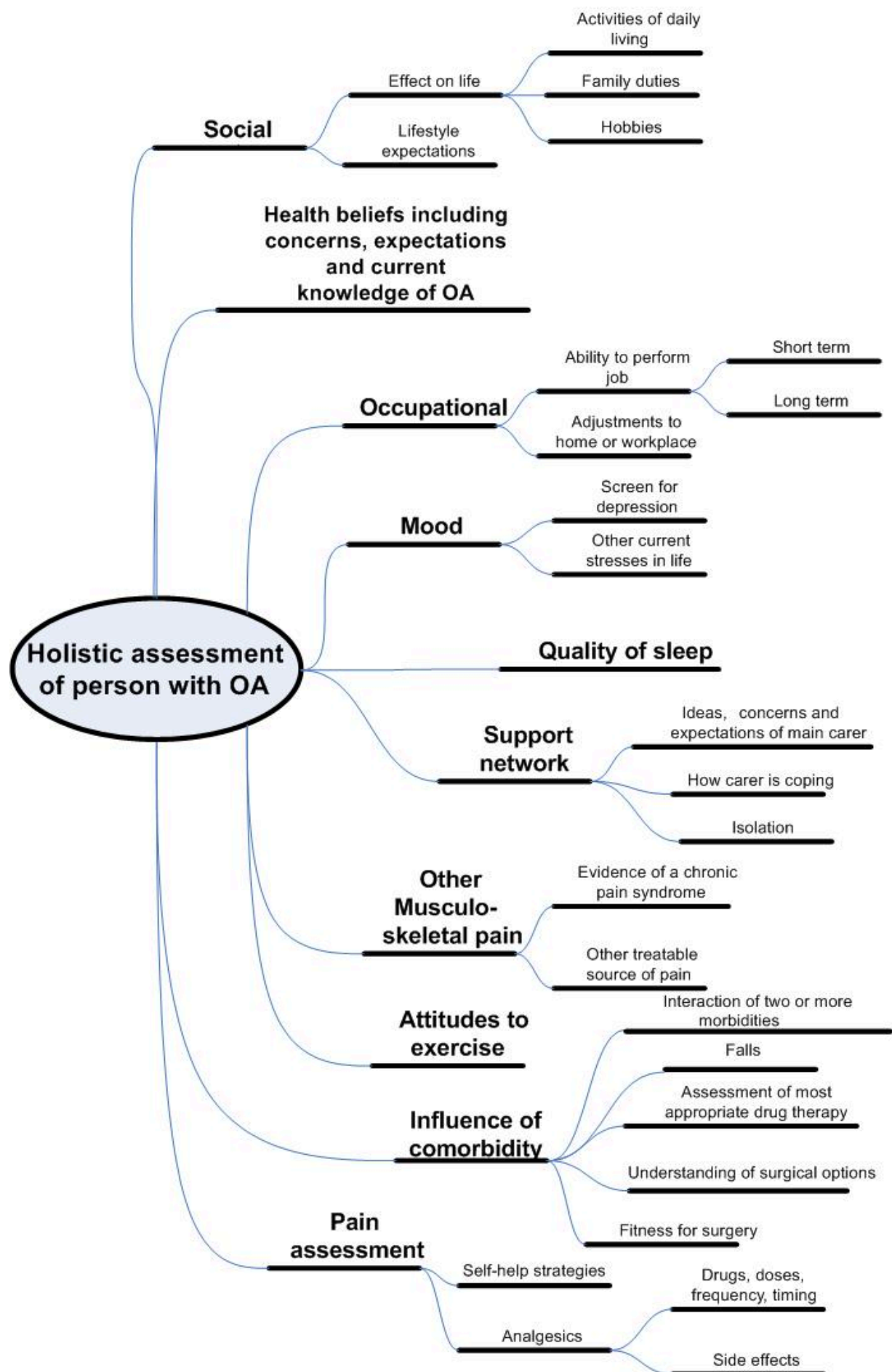
- is 45 or over and
- has activity-related joint pain and
- has either no morning joint-related stiffness or morning stiffness that lasts no longer than 30 minutes. [2014]

1.1.2 Be aware that atypical features, such as a history of trauma, prolonged morning joint-related stiffness, rapid worsening of symptoms or the presence of a hot swollen joint, may indicate alternative or additional diagnoses. Important differential diagnoses include gout, other inflammatory arthritides (for example, rheumatoid arthritis), septic arthritis and malignancy (bone pain). [2014]

1.2 Holistic approach to osteoarthritis assessment and management

1.2.1 Assess the effect of osteoarthritis on the person's function, quality of life, occupation, mood, relationships and leisure activities. Use figure 1 as an aid to prompt questions that should be asked as part of the holistic assessment of a person with osteoarthritis. [2008]

Figure 1 Holistic assessment of a person with osteoarthritis (OA)



This figure is intended as an 'aide memoir' to provide a breakdown of key topics that are of common concern when assessing people with osteoarthritis. For most topics there are a few suggested specific points that are worth assessing. Not every topic will be of concern for everyone with osteoarthritis, and there are other topics that may warrant consideration for particular people.

- 1.2.2 Agree a plan with the person (and their family members or carers as appropriate) for managing their osteoarthritis. Apply the principles in the [NICE guideline on shared decision making](#). [2014]
- 1.2.3 Take into account comorbidities that compound the effect of osteoarthritis when formulating the management plan. [2008]
- 1.2.4 Discuss the risks and benefits of treatment options with the person, taking into account comorbidities. Ensure that the information provided can be understood. [2008]
- 1.2.5 Offer advice on the following core treatments to all people with clinical osteoarthritis.
 - Access to appropriate information (see recommendation 1.3.1).
 - Activity and exercise (see recommendation 1.4.1).
 - Interventions to achieve weight loss if the person is overweight or obese (see recommendation 1.4.3 and the [NICE guideline on obesity: identification, assessment and management](#)). [2008, amended 2014]

1.3 Education and self-management

Patient information

- 1.3.1 Offer accurate verbal and written information to all people with osteoarthritis to enhance understanding of the condition and its management, and to counter misconceptions, such as that it inevitably progresses and cannot be treated. Ensure that information sharing is an ongoing, integral part of the management plan rather than a single event at time of presentation. [2008]

Patient self-management interventions

- 1.3.2 Agree individualised self-management strategies with the person with osteoarthritis. Ensure that positive behavioural changes, such as exercise, weight loss, use of suitable footwear and pacing, are appropriately targeted. [2008]
- 1.3.3 Ensure that self-management programmes for people with osteoarthritis, either individually or in groups, emphasise the recommended core treatments (see recommendation 1.2.5), especially exercise. [2008]

Thermotherapy

- 1.3.4 The use of local heat or cold should be considered as an adjunct to core treatments. [2008]

1.4 Non-pharmacological management

Exercise and manual therapy

- 1.4.1 Advise people with osteoarthritis to exercise as a core treatment (see [recommendation 1.2.5](#)), irrespective of age, comorbidity, pain severity or disability. Exercise should include:

- local muscle strengthening and
- general aerobic fitness.

It has not been specified whether exercise should be provided by the NHS or whether the healthcare professional should provide advice and encouragement to the person to obtain and carry out the intervention themselves. Exercise has been found to be beneficial but the clinician needs to make a judgement in each case on how to effectively ensure participation. This will depend upon the person's individual needs, circumstances and self-motivation, and the availability of local facilities. [2008]

- 1.4.2 Manipulation and stretching should be considered as an adjunct to core treatments, particularly for osteoarthritis of the hip. [2008]

Weight loss

- 1.4.3 Offer interventions to achieve weight loss as a core treatment (see recommendation 1.2.5) for people who are obese or overweight. [2008]

Electrotherapy

- 1.4.4 Healthcare professionals should consider the use of transcutaneous electrical nerve stimulation (TENS) as an adjunct to core treatments for pain relief.

TENS machines are generally loaned to the person by the NHS for a short period, and if effective the person is advised where they can purchase their own. [2008]

Nutraceuticals

- 1.4.5 Do not offer glucosamine or chondroitin products for the management of osteoarthritis. [2014]

Acupuncture

- 1.4.6 Do not offer acupuncture for the management of osteoarthritis. [2014]

Aids and devices

- 1.4.7 Offer advice on appropriate footwear (including shock-absorbing properties) as part of core treatments (see recommendation 1.2.5) for people with lower limb osteoarthritis. [2008]
- 1.4.8 People with osteoarthritis who have biomechanical joint pain or instability should be considered for assessment for bracing/joint supports/insoles as an adjunct to their core treatments. [2008]
- 1.4.9 Assistive devices (for example, walking sticks and tap turners) should be considered as adjuncts to core treatments for people with osteoarthritis who have specific problems with activities of daily living. If needed, seek expert advice in this context (for example, from occupational therapists or Disability Equipment Assessment Centres). [2008]

Invasive treatments for knee osteoarthritis

- 1.4.10 Do not refer for arthroscopic lavage and debridement as part of treatment for osteoarthritis, unless the person has knee osteoarthritis with a clear history of mechanical locking (as opposed to morning joint stiffness, 'giving way' or X-ray evidence of loose bodies). [2008, amended 2014]

1.5 Pharmacological management

NICE intends to undertake a full review of evidence on the pharmacological management of osteoarthritis. This will start after a review by the MHRA (Medicines and Healthcare Products Regulatory Agency) of the safety of over-the-counter analgesics is completed. For more information, see the [introduction](#).

In the meantime, the original recommendations (from 2008) remain current advice. However, the Guideline Development Group (GDG) would like to draw attention to the findings of the evidence review on the effectiveness of paracetamol that was presented in the consultation version of the guideline. That review identified reduced effectiveness of paracetamol in the management of osteoarthritis compared with what was previously thought. The GDG believes that this information should be taken into account in routine prescribing practice until the planned full review of evidence on the pharmacological management of osteoarthritis is published (see the [NICE website for further details](#)).

Oral analgesics

- 1.5.1 Healthcare professionals should consider offering paracetamol for pain relief in addition to core treatments (see [recommendation 1.2.5](#)); regular dosing may be required. Paracetamol and/or topical non-steroidal anti-inflammatory drugs (NSAIDs) should be considered ahead of oral NSAIDs, cyclo-oxygenase 2 (COX-2) inhibitors or opioids. [2008]
- 1.5.2 If paracetamol or topical NSAIDs are insufficient for pain relief for people with osteoarthritis, then the addition of opioid analgesics should be considered. Risks and benefits should be considered, particularly in older people.

To support discussions with patients about the benefits and harms of opioid treatment, and safe withdrawal management, see:

- the [NICE guideline on shared decision making](#)

- the [NICE guideline on medicines optimisation for recommendations on structured medication reviews](#)
- the [key therapeutic topic on medicines optimisation in chronic pain](#), the [opioids aware website](#) and the [section in the BNF on controlled drugs and drug dependence](#). [2008, amended 2020]

Topical treatments

- 1.5.3 Consider topical NSAIDs for pain relief in addition to core treatments (see recommendation 1.2.5) for people with knee or hand osteoarthritis. Consider topical NSAIDs and/or paracetamol ahead of oral NSAIDs, COX-2 inhibitors or opioids. [2008]
- 1.5.4 Topical capsaicin should be considered as an adjunct to core treatments for knee or hand osteoarthritis. [2008]
- 1.5.5 Do not offer rubefacients for treating osteoarthritis. [2008]

NSAIDs and highly selective COX-2 inhibitors

Although NSAIDs and COX-2 inhibitors may be regarded as a single drug class of 'NSAIDs', these recommendations use the two terms for clarity and because of the differences in side-effect profile.

- 1.5.6 Where paracetamol or topical NSAIDs are ineffective for pain relief for people with osteoarthritis, then substitution with an oral NSAID/COX-2 inhibitor should be considered. [2008]
- 1.5.7 Where paracetamol or topical NSAIDs provide insufficient pain relief for people with osteoarthritis, then the addition of an oral NSAID/COX-2 inhibitor to paracetamol should be considered. [2008]
- 1.5.8 Use oral NSAIDs/COX-2 inhibitors at the lowest effective dose for the shortest possible period of time. [2008]
- 1.5.9 When offering treatment with an oral NSAID/COX-2 inhibitor, the first choice should be either a standard NSAID or a COX-2 inhibitor (other than etoricoxib 60 mg). In either case, co-prescribe with a proton pump inhibitor (PPI), choosing the one with the lowest acquisition cost. [2008]

- 1.5.10 All oral NSAIDs/COX-2 inhibitors have analgesic effects of a similar magnitude but vary in their potential gastrointestinal, liver and cardio-renal toxicity; therefore, when choosing the agent and dose, take into account individual patient risk factors, including age. When prescribing these drugs, consideration should be given to appropriate assessment and/or ongoing monitoring of these risk factors. [2008]
- 1.5.11 If a person with osteoarthritis needs to take low-dose aspirin, healthcare professionals should consider other analgesics before substituting or adding an NSAID or COX-2 inhibitor (with a PPI) if pain relief is ineffective or insufficient. [2008]

Intra-articular injections

- 1.5.12 Intra-articular corticosteroid injections should be considered as an adjunct to core treatments for the relief of moderate to severe pain in people with osteoarthritis. [2008]
- 1.5.13 Do not offer intra-articular hyaluronan injections for the management of osteoarthritis. [2014]

1.6 Referral for consideration of joint surgery

- 1.6.1 Clinicians with responsibility for referring a person with osteoarthritis for consideration of joint surgery should ensure that the person has been offered at least the core (non-surgical) treatment options (see [recommendation 1.2.5](#)). [2008]
- 1.6.2 Base decisions on referral thresholds on discussions between patient representatives, referring clinicians and surgeons, rather than using scoring tools for prioritisation. [2008, amended 2014]
- 1.6.3 Consider referral for joint surgery for people with osteoarthritis who experience joint symptoms (pain, stiffness and reduced function) that have a substantial impact on their quality of life and are refractory to non-surgical treatment. [2008, amended 2014]
- 1.6.4 Refer for consideration of joint surgery before there is prolonged and

established functional limitation and severe pain. [2008, amended 2014]

1.6.5 Patient-specific factors (including age, sex, smoking, obesity and comorbidities) should not be barriers to referral for joint surgery. [2008, amended 2014]

1.6.6 When discussing the possibility of joint surgery, check that the person has been offered at least the core treatments for osteoarthritis (see recommendation 1.2.5), and give them information about:

- the benefits and risks of surgery and the potential consequences of not having surgery
- recovery and rehabilitation after surgery
- how having a prosthesis might affect them
- how care pathways are organised in their local area. [2014]

1.7 Follow-up and review

1.7.1 Offer regular reviews to all people with symptomatic osteoarthritis. Agree the timing of the reviews with the person (see also recommendation 1.7.2). Reviews should include:

- monitoring the person's symptoms and the ongoing impact of the condition on their everyday activities and quality of life
- monitoring the long-term course of the condition
- discussing the person's knowledge of the condition, any concerns they have, their personal preferences and their ability to access services
- reviewing the effectiveness and tolerability of all treatments
- support for self-management. [2014]

1.7.2 Consider an annual review for any person with one or more of the following:

- troublesome joint pain
- more than one joint with symptoms
- more than one comorbidity

- taking regular medication for their osteoarthritis. [2014]

1.7.3 Apply the principles in the [NICE guideline on patient experience in adult NHS services](#) with regard to an individualised approach to healthcare services and patient views and preferences. [2014]

2 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline.

2.1 Treatments for osteoarthritis in very old people

What are the short-term and long-term benefits of non-pharmacological and pharmacological treatments for osteoarthritis in very old people (for example, aged 80 years and older)?

Why this is important

Very little data exist on the use of pharmacological and non-pharmacological treatments for osteoarthritis in very old people. This is highly relevant, not only because of the ageing population but also because of the high incidence of comorbidities in this population – osteoarthritis may be one of many health problems affecting function, and this may influence the appropriateness of management options. The acceptability, nature and setting for exercise strategies for this population is one area suggested for further study. Any non-pharmacological intervention for which a reduction in the need for drug treatment can be demonstrated is desirable. NSAIDs are frequently contraindicated in older people with comorbidities (such as renal failure, cardiovascular or gastrointestinal intolerance), and effective pharmacological options for this group warrant further study. Outcome and intervention studies are also needed for very old people in whom joint replacement surgery is not recommended because of risks associated with comorbidities.

2.2 Combinations of treatments for osteoarthritis

What are the benefits of combinations of treatments for osteoarthritis, and how can these be included in clinically useful, cost-effective algorithms for long-term care?

Why this is important

Most people with osteoarthritis have symptoms for many years, and over this time they will receive several treatments, sometimes in combination. This may involve a combination of non-pharmacological and pharmacological treatments, such as using a walking stick and taking analgesics at the same time. Perhaps more commonly, a person may take different analgesics at the same time (for example, NSAIDs and opioids). However, most of the osteoarthritis trial evidence

only evaluates single treatments, and often such trials are of short duration (for example, 6 weeks). We need to understand the benefits of combination treatments relevant to particular anatomical sites of osteoarthritis (for example, hand compared with knee) and whether particular combinations provide synergistic benefit in terms of symptom relief. Also needed is an understanding of how combinations of treatments can be included in algorithms (for example, dose escalation or substitution designs) for use in clinical practice. Trials to address this area may need to utilise complex intervention methodologies with health economic evaluations, and will need to stratify for comorbidities that affect the use of a particular intervention.

2.3 Treating common presentations of osteoarthritis for which there is little evidence

What are effective treatments for people with osteoarthritis who have common but poorly researched problems, such as pain in more than one joint or foot osteoarthritis?

Why this is important

Although people with osteoarthritis typically have symptoms that affect one joint at any particular time, there are still many people, especially older people, who have more than one painful joint. For example, it is common for osteoarthritis to affect both knees, or for a person to have pain in one knee and in one or more small joints such as the base of the thumb or the big toe. The mechanisms that cause pain may differ in people with one affected joint compared with those who have pain in several joints. For example, altered use because of pain in one joint often leads to increased mechanical stress and pain at other sites, and having chronic pain at one site can influence the experience of pain elsewhere in the body. However, almost all trials of treatments for osteoarthritis focus on a single joint, and if a participant has bilateral symptoms or additional symptoms at a different joint site only one 'index' joint (the most painful) is assessed. Whether systemic treatments for osteoarthritis work less well if a person has more than one painful site, and whether local treatment of one joint (for example, injection of corticosteroid into a knee) can lead to benefits at other sites (for example, the foot) remains unknown. A further caveat to current research evidence is that most trials focus on treatment of knee osteoarthritis, and to a lesser extent hip or hand osteoarthritis, but there are very few trials that examine other prevalent sites of osteoarthritis such as the first metatarsophalangeal (bunion) joint, the mid-foot joints, the ankle or the shoulder. Trials should be undertaken to determine the efficacy of available treatments, both local and systemic, at such sites. New outcome instruments to measure pain, stiffness and function specific to osteoarthritis at each site may need to be developed and validated for use in such trials.

2.4 Biomechanical interventions in the management of

osteoarthritis

Which biomechanical interventions (such as footwear, insoles, braces and splints) are most beneficial in the management of osteoarthritis, and in which subgroups of people with osteoarthritis do they have the greatest benefit?

Why this is important

In many people, osteoarthritis is made worse by weight-bearing or biomechanical forces through an affected joint. For example, base of thumb pain may be worse with grabbing and lifting items. Local support for the joint, in this case via a thumb splint, may improve pain and function. A large range of devices are available to help people with osteoarthritis in different joints, but there are very few trials to demonstrate their efficacy, and in particular little data to guide healthcare professionals on which people would benefit most from these aids. For example, there are many knee braces available, but few well designed randomised controlled trials of their efficacy, and few suggestions for clinicians on which patient subgroups might benefit from their use. Trials in the device area require careful attention to design issues such as the selection of control or sham interventions, blinded assessments and the choice of validated outcome measures that reflect the specific joint or functional ability being targeted.

2.5 Treatments that modify joint structure in people with osteoarthritis

In people with osteoarthritis, are there treatments that can modify joint structure, resulting in delayed structural progression and improved outcomes?

Why this is important

There is evidence from observational studies that factors affecting structural joint components, biomechanics and inflammation in and around the joint influence the progression of osteoarthritis. Symptoms appear to be more closely linked to structure than was once thought, so preventing progression of the structural deterioration of a joint is expected to deliver symptomatic benefits for people with osteoarthritis, as well as delaying joint replacement in some. There have been published randomised controlled trials with interventions targeting structural components of cartilage (glucosamine sulphate) and bone (strontium ranelate). However, several limitations have been identified with the glucosamine sulphate studies, and it is unclear whether cardiovascular concerns will prevent approval of strontium ranelate for treating osteoarthritis. Randomised, placebo-controlled trials of adequate power and duration (related to the structural end point under

consideration) should be undertaken to determine the benefits and side effects of agents with disease-modifying osteoarthritis drug potential for treating both hip and knee osteoarthritis (separately). Appropriate structural end points may include progression of radiographic joint space narrowing or MRI features of osteoarthritis. Associated clinical end points could include measures of pain, function and health-related quality of life. Studies should also include rates of subsequent joint replacement (preferably maintaining original blinding, even if extensions are open label). Later phase trials should include a health economic evaluation.

Finding more information and committee details

You can see everything NICE says on this topic in the [NICE Pathway on osteoarthritis](#).

To find NICE guidance on related topics, including guidance in development, see the [NICE webpage on arthritis](#).

For full details of the evidence and the guideline committee's discussions, see the [full guideline and appendices](#). You can also find information about [how the guideline was developed](#), including details of the committee.

NICE has produced [tools and resources to help you put this guideline into practice](#). For general help and advice on putting our guidelines into practice, see [resources to help you put NICE guidance into practice](#).

Update information

December 2020: we reviewed our guidance on opioids for non-cancer pain in response to a [Public Health England evidence review on dependence on, and withdrawal from, prescribed medicines](#). We added links in recommendation 1.5.2 to other NICE guidelines and resources that support discussion with patients about opioid prescribing, and safe withdrawal management.

February 2014: We have reviewed the evidence and made new recommendations on diagnosis, follow up, referral for surgery, nutraceuticals hyaluronan and acupuncture. These recommendations are marked [2014].

We have also made some changes without an evidence review to clarify terms. These recommendations are marked [2008, amended 2014].

Recommendations marked [2008] last had an evidence review in 2008. In some cases minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

Minor changes since publication

October 2021: We added a link to NICE's guideline on shared decision making in recommendations 1.2.2 and 1.5.2.

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Accreditation

