Osteoarthritis: the care and management of osteoarthritis in adults

NICE guideline
Draft for consultation, July 2007

If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.
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Patient-centred care

This guideline offers best practice advice on the care of adults with osteoarthritis.

Treatment and care should take into account patients’ needs and preferences. People with osteoarthritis should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If patients do not have the capacity to make decisions, healthcare professionals should follow the Department of Health guidelines – ‘Reference guide to consent for examination or treatment’ (2001) (available from www.dh.gov.uk). Since April 2007 healthcare professionals need to follow a code of practice accompanying the Mental Capacity Act (summary available from www.dca.gov.uk/menincap/bill-summary.htm).

Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based written information tailored to the patient’s needs. Treatment and care, and the information patients are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

Families and carers should have the opportunity to be involved in decisions about the patient’s care and treatment, if the patient agrees to this.

Families and carers should also be given the information and support they need.
Key priorities for implementation

- Exercise should be a core component of therapy, irrespective of age, co-morbidity, pain severity and disability. Exercise should include:
  - Local muscle strengthening
  - General aerobic fitness

- Referral for arthroscopic lavage and debridement should not be used for treatment of OA. Referral should only be offered to people who have a clear history of mechanical locking (not gelling, “giving way” or x-ray reports of loose bodies).

- Topical NSAIDs should be a core treatment for knee and hand OA.

- When offering treatment with an oral NSAID / COX-2 inhibitor, for a patient aged under 65 with no increased GI risk factors, the first choice of treatment to offer the patient is a standard NSAID (not a COX-2 inhibitor), co-prescribed with a proton pump inhibitor. For a patient aged over 65, or a patient aged under 65 with any increased GI risk factors, a patient may be offered a COX-2 inhibitor (other than etoricoxib) co-prescribed with a proton pump inhibitor, or a standard NSAID with a proton pump inhibitor.

- Referral for joint replacement surgery should be considered for patients who experience joint symptoms (pain, stiffness, reduced function) that impact substantially on their quality of life and are refractory to non-surgical treatment. Referral should be made before there is prolonged and established functional limitation and severe pain.
1 Guidance

The following guidance is based on the best available evidence. The full guideline ([add hyperlink]) gives details of the methods and the evidence used to develop the guidance (see section 5 for details).

Where appropriate these guidelines have focused on patient-centred outcomes (often patient reported outcomes) concerning pain, function and quality of life. We also included some performance-based outcome measures, especially where there is some face validity that they may relate to function eg. proprioception outcome measures which may be relevant to the potential for falls. Unfortunately, many studies do not include a quality of life measure, and often the only non-pain outcomes reported may be a health utilities measure such as the SF36.

There are always limitations to the evidence on which such guidelines are based, and the recommendations need to be viewed in light of these limitations, including:

- The majority of the published evidence relates to OA of the knee. We have tried where possible to highlight where the evidence pertains to an individual anatomical location, and have presented these as related to knee, hip, hand or mixed sites.
- There are very limited data on the effects of combinations of therapies.
- Many trials have looked at single joint involvement when in reality many patients have multiple joint involvement which may well alter the reported efficacy of a particular therapeutic intervention.
- There is a major problem interpreting the duration of efficacy of therapies, since many studies, especially those including pharmacological therapies, are of short duration.
- Similarly, side-effects may only be detected after long-term follow-up; where possible therefore we have included toxicity data from long-term observational studies as well as randomised trials.
When looking at studies of pharmacological therapies, there is an added complexity to that of different duration of therapy, that of comparing different doses of drugs.

As well, we are aware that many studies do not reflect ‘real-life’ patient use of therapies or their compliance. Patients may not use pharmacological therapies on a daily basis or at the full recommended dosages. As well, the use of over-the-counter medications has not been well studied in osteoarthritis populations.

We are also aware that most studies have not included patients with very severe osteoarthritis (eg. severely functional compromised patients who cannot walk, or patients with severe structural damage such as grade 4 Kellgren Lawrence radiographic damage) and this may limit the extrapolation of the reported benefits of a therapy to these patients.

Similarly, studies often include patients who are not at high risk of drug side-effects. Many studies have not included very elderly patients.

There is a bias inherent related to the time-related improvement in design of studies: there tends to be better designs with more recent studies, and often with pharmaceutical company funding.

1.1 Holistic approach to osteoarthritis assessment and management

1.1.1 Patient experience and perceptions

1.1.1.1 Healthcare professionals should assess the effect of osteoarthritis on the individual’s function, quality of life, occupation, mood, relationships, and leisure activities.

1.1.1.2 People with symptomatic osteoarthritis should have periodic review tailored to their individual needs.
1.1.1.3 Co-morbidities that compound the effect of OA should be addressed as part of the management plan.

1.1.1.4 The management plan should be formulated in partnership with the person with OA.

1.1.1.5 The risks and benefits of treatment options, taking into account co-morbidities, should be communicated to the patient in ways that can be understood.
1.1.1.6 All people with clinically symptomatic osteoarthritis should be advised on the following core treatments:

- Access to appropriate information
- Activity and exercise therapy
- Interventions to effect weight loss if overweight or obese
- Analgesia with paracetamol and/or topical NSAIDs if pain is a problem.
Supporting text: Use the principles of good pain management:

- **Tackle pain early and effectively to prevent the development of chronic pain.** For painful joints this means careful examination to assess the likely source of the pain - it can originate from bone, periostium, joint capsule stretching, ligaments, tendon insertions, bursae, synovitis or muscle. The pain can also be referred pain from elsewhere.

- **Many processes and pathways are involved and because of this complexity it is usual to use a number of analgesics or pain relieving strategies together, each working on different components of the pain response in order to achieve a synergistic or complementary effect:** this is a technique often known as multi-modal or balanced analgesia.

- **Timing of analgesia is important. Regular analgesia will be appropriate if pain is constant. Pain with exercise can be helped by taking analgesia before the exercise.**

- **In the absence of any clear indicators for disease exacerbation assess contributing factors that may affect patient perceived pain levels (for example changes in functional issues related to work or social psychological factors).**
1.2 *Education and self-management*

1.2.1 **Patient information**

1.2.1.1 Accurate verbal and written information should be offered to enhance understanding of OA and its management, and to counter misconceptions, such as that OA inevitably progresses and cannot be treated.

1.2.2 **Patient self-management interventions**

1.2.2.1 Individualised self-management strategies should be agreed, between healthcare professionals and the person with osteoarthritis, targeting positive behaviour changes such as appropriate use of exercise, weight loss, footwear, and pacing.

1.2.2.2 Individual self-management and group programmes should emphasise the recommended core treatments, especially exercise.

1.2.3 **Rest, relaxation and pacing**

No recommendations made.

1.2.4 **Thermotherapy**

1.2.4.1 The use of local heat or cold should be considered as an adjunct to core treatment.

1.3 *Non-pharmacological management of osteoarthritis*

1.3.1 **Exercise and manual therapy**

1.3.1.1 Exercise should be a core component of therapy, irrespective of age, co-morbidity, pain severity and disability. Exercise should include:

- Local muscle strengthening
- General aerobic fitness

1.3.1.2 Manipulation and stretching should be considered as an adjunct to core treatment particularly for hip OA.
1.3.2 **Weight loss**

1.3.2.1 Interventions to effect weight loss should be a core treatment for the obese and overweight.

1.3.3 **Electrotherapy**

1.3.3.1 Consider the use of TENS as an adjunct to core treatment for pain relief. Currently there is insufficient evidence to recommend the use of other electro-therapies (ultrasound, interferential, pulsed short wave, laser).

1.3.4 **Acupuncture**

1.3.4.1 Consider the use of acupuncture (but not electro-acupuncture) as an adjunct to core treatment for pain relief.

1.3.5 **Aids and devices**

1.3.5.1 Advice on appropriate footwear (including shock absorbing properties) should be offered as core therapy for lower limb OA.

1.3.5.2 People with biomechanical joint pain or instability should be considered for assessment for bracing/joint supports/insoles as an adjunct to core therapy.

1.3.5.3 Assistive devices (eg walking sticks and tap turners) should be considered as adjuncts to core therapy for specific problems with activities of daily living. Expert advice may be needed in this context (eg occupational therapy or Disability Equipment Assessment Centres).

1.3.6 **Nutraceuticals**

1.3.6.1 Consider a trial of glucosamine sulphate 1,500mg daily for symptom relief, but not structure modification, in knee OA as an adjunct to core treatment. The use of other glucosamine and chondroitin products is not recommended.
1.3.7 **Invasive treatments for knee osteoarthritis**

Readers should be aware that NICE are currently preparing Interventional Procedures guidance on arthroscopic lavage and debridement.

1.3.7.1 Referral for arthroscopic lavage and debridement should not be used for treatment of OA. Referral should only be offered to people who have a clear history of mechanical locking in knee osteoarthritis (not gelling, “giving way” or x-ray reports of loose bodies).

1.4 **Pharmacological management of osteoarthritis**

1.4.1 **Oral analgesics**

1.4.1.1 Paracetamol should be a core treatment, and regular dosing may be required.

1.4.1.2 Where paracetamol or topical NSAIDS are insufficient then addition of opioid analgesics should be considered. Risks and benefits should be considered, particularly in the elderly.

1.4.2 **Topical treatments**

1.4.2.1 Topical NSAIDs should be a core treatment for knee and hand OA.

1.4.2.2 Topical capsaicin should be considered as an adjunct to core therapy for knee and hand OA; rubefacients are not recommended.

1.4.3 **NSAIDs and highly selective COX-2 inhibitors**

Although NSAIDs and COX-2 inhibitors are increasingly regarded as a single drug class of NSAIDs, these recommendations use the terms for clarity, because of the differences in side effect profile. The recommendations in this section are derived from extensive health economic modelling, which included
BNF53 drug costs to the NHS*. Readers should bear in mind that future changes in drug costs, or cheaper local supply arrangements, will affect the quantitative cost-effectiveness of each treatment option, and may possibly affect the qualitative conclusions embodied in these recommendations.

1.4.3.1 Where paracetamol or topical NSAIDs are insufficient, then the addition of an oral NSAID / COX-2 inhibitor to paracetamol should be considered.

1.4.3.2 Where paracetamol or topical NSAIDs are ineffective, then substitution with an oral NSAID / COX-2 inhibitor should be considered.

1.4.3.3 When offering treatment with an oral NSAID / COX-2 inhibitor, for a patient aged under 65 with no increased GI risk factors, the first choice of treatment to offer the patient is a standard NSAID (not a COX-2 inhibitor), co-prescribed with a proton pump inhibitor. For a patient aged over 65, or a patient aged under 65 with any increased GI risk factors, a patient may be offered a COX-2 inhibitor (other than etoricoxib) co-prescribed with a proton pump inhibitor, or a standard NSAID with a proton pump inhibitor.

* The model included the following treatments at the doses and costs shown. The literature search included etodolac or meloxicam, but insufficient data were available to allow their inclusion in the model. Other NSAIDs were not sought because of the comparative rarity of their prescription.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost (£) per 3 month treatment period</th>
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<tr>
<td>Paracetamol</td>
<td>5.82</td>
</tr>
<tr>
<td>Diclofenac 100mg</td>
<td>9.70</td>
</tr>
<tr>
<td>Diclofenac 150mg</td>
<td>14.55</td>
</tr>
<tr>
<td>Naproxen 750mg</td>
<td>17.51</td>
</tr>
<tr>
<td>Naproxen 1000mg</td>
<td>14.68</td>
</tr>
<tr>
<td>Ibuprofen 1200mg</td>
<td>8.24</td>
</tr>
<tr>
<td>Ibuprofen 2400mg</td>
<td>16.48</td>
</tr>
<tr>
<td>Celecoxib 200mg</td>
<td>65.59</td>
</tr>
<tr>
<td>Lumiracoxib 100mg</td>
<td>52.47</td>
</tr>
<tr>
<td>Etoricoxib 60mg</td>
<td>74.88</td>
</tr>
<tr>
<td>PPI – Omeprazole 20mg</td>
<td>13.99</td>
</tr>
</tbody>
</table>

Readers should bear in mind that changes to licensed dosages and/or costs in the future could change the conclusions of the model.
1.4.3.4 Oral NSAID / COX-2 inhibitors should be used at the lowest effective dose for the shortest possible period of time.

1.4.3.5 All oral NSAIDs / COX-2 inhibitors have analgesic effects of a similar magnitude but vary in their potential GI and cardio-renal toxicity and therefore the choice of agent and dose should take into account individual patient risk factors.

1.4.3.6 If the patient needs to take low dose aspirin, consider other analgesics prior to considering an NSAID / COX-2 inhibitor.

1.4.4 Intra-articular injections

1.4.4.1 Intra-articular corticosteroid injections should be considered as an adjunct to core treatment for the relief of moderate to severe pain.

1.4.4.2 Intra-articular hyaluronan injections are not recommended.

1.5 Referral for specialist services

1.5.1 Referral criteria for surgery

1.5.1.1 Clinicians with responsibility for referring people with OA for consideration of joint surgery should ensure that patients are offered at least the core (non-surgical) treatment options.

1.5.1.2 Referral for joint replacement surgery should be considered for patients who experience joint symptoms (pain, stiffness, reduced function) that impact substantially on their quality of life and are refractory to non-surgical treatment. Referral should be made before there is prolonged and established functional limitation and severe pain.

1.5.1.3 Patient-specific factors (including age, gender, smoking, obesity and co-morbidities) should not be a barrier to referral.

1.5.1.4 Decisions on referral thresholds should be based on discussions between patient representatives, referring clinicians and surgeons, rather than using current scoring tools for prioritisation.
2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from www.nice.org.uk/download.aspx?0=430981

How this guideline was developed

NICE commissioned the National Collaborating Centre for Chronic Conditions to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence and developed the recommendations. An independent Guideline Review Panel oversaw the development of the guideline (see appendix B).

There is more information in the booklet: ‘The guideline development process: an overview for stakeholders, the public and the NHS’ (second edition, published April 2006), which is available from www.nice.org.uk/guidelinesprocess or by telephoning 0870 1555 455 (quote reference N****).

3 Implementation

The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the Department of Health in ‘Standards for better health’, issued in July 2004. Implementation of clinical guidelines forms part of the developmental standard D2. Core standard C5 says that national agreed guidance should be taken into account when NHS organisations are planning and delivering care.

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CGXXX).

[NICE to amend list as needed at time of publication]

- Slides highlighting key messages for local discussion.
- Costing tools
4 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 (see section 5).

4.1 Adherence to therapies

What are the factors influencing, and methods of improving, adherence to osteoarthritis therapies?

Why this is important

Many therapies for OA, for example paracetamol or muscle strengthening, will have benefits but are often only used by people for a limited duration. For example, when using muscle strengthening there is little information on how optimal contact with a physiotherapist can be achieved, and how this can be sustained over the long-term for a chronic condition like OA.

4.2 Treatment options for very elderly people with osteoarthritis

What are the short and long-term benefits of non-pharmacological and pharmacological osteoarthritis therapies in the very elderly?

Why this is important

There is very little data on the use of all OA therapies (non-pharmacological and pharmacological) in the very elderly. This is of increasing concern with our ageing population. For example, exercise therapies may need to be tailored, and use of opioids requires more careful titration.
4.3 **Combinations and scheduling of treatments**

What are the benefits of combination (non-pharmacological and pharmacological) OA therapies and how can they be included in clinically useful, cost-effective algorithms for long-term use?

**Why this is important**

Most people with OA get a combination of non-pharmacological and pharmacological therapies, but most of the trial evidence only evaluates single therapies. Often trials are of short duration (e.g., 6 weeks) when people may live with OA for more than 30 years!

4.4 **Predicting the outcome of joint replacement surgery**

What are the predictors of good outcome following total and partial joint replacement?

**Why this is important**

Although joint replacement provides very good pain relief for many people with OA, it does not provide a good outcome in a substantial number of people. It would be very useful to have pre-operative tools to help choose people who would derive most benefit.

4.5 **Treatments for multiple joint osteoarthritis**

What are the benefits of individual and combination osteoarthritis therapies in people with multiple joint region pain?

**Why this is important**

Most people over 55 have more than one painful joint, for example it is common to have OA in both knees, and there may be excess strain put on the upper limbs if painful knee OA is present. Most trials of OA therapies have examined efficacy of therapies on a single joint.
5 Other versions of this guideline

5.1 Full guideline

The full guideline, "Osteoarthritis: National clinical guideline for the care and management of osteoarthritis in adults" contains details of the methods and evidence used to develop the guideline. It is published by the National Collaborating Centre for Chronic Conditions, and is available from [NCC website details to be added], our website (www.nice.org.uk/CGXXXfullguideline) and the National Library for Health (www.nlh.nhs.uk). [Note: these details will apply to the published full guideline.]

5.2 Quick reference guide

A quick reference guide for healthcare professionals is available from www.nice.org/CGXXXquickrefguide.

For printed copies, phone the NHS Response Line on 0870 1555 455 (quote reference number N1XXX). [Note: these details will apply when the guideline is published.]

5.3 ‘Understanding NICE guidance’

Information for patients and carers ('Understanding NICE guidance') is available from www.nice.org.uk/CGXXXpublicinfo.

For printed copies, phone the NHS Response Line on 0870 1555 455 (quote reference number N1XXX). [Note: these details will apply when the guideline is published.]

6 Related NICE guidance


NICE is developing the following guidance (details available from www.nice.org.uk):

7 Updating the guideline

NICE clinical guidelines are updated as needed so that recommendations take into account important new information. We check for new evidence 2 and 4 years after publication, to decide whether all or part of the guideline should be updated. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.
Appendix A: The Guideline Development Group

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Appendix B: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The Panel includes members from the following perspectives: primary care, secondary care, lay, public health and industry.

[NICE to add]

[Name; style = Unnumbered bold heading]
[job title and location; style = NICE normal]
Appendix C: The algorithms

Holistic assessment of person with OA

Pain assessment

- Pain assessment
  - Effect on life
  - Lifestyle expectations

Co-morbidity

- Co-morbidity
  - Interaction of morbidities
  - Fitness for surgery
  - Falls
  - Most appropriate drug therapy
  - Effect on life
  - Lifestyle expectations

Social

- Social
  - Ability to perform job
  - Long term

Occupational

- Occupational
  - Adjustments to home or workplace
  - Concerns
  - Expectations
  - Short term

Existing attitudes

- Existing attitudes
  - Current knowledge about OA
  - Attitudes to exercise

State of mind

- State of mind
  - Screen for depression
  - Overall coping
  - Other current stresses in life
  - Identify psychosocial barriers to recovery

Quality of sleep

- Quality of sleep
  - Isolation
  - How carer is coping

Support network

- Support network
  - Ideas, concerns and expectations of main carer

Activities of daily living

- Activities of daily living
  - Family duties
  - Hobbies

Lifestyle expectations

- Lifestyle expectations
  - Fitness for surgery
  - Falls
  - Most appropriate drug therapy

Effect on life

- Effect on life
  - Ability to perform job
  - Long term
Supporting text: Use the principles of good pain management:

- **Tackle pain early and effectively to prevent the development of chronic pain.** For painful joints this means careful examination to assess the likely source of the pain - it can originate from bone, periostium, joint capsule stretching, ligaments, tendon insertions, bursae, synovitis or muscle. The pain can also be referred pain from elsewhere.

- **Many processes and pathways are involved and because of this complexity it is usual to use a number of analgesics or pain relieving strategies together, each working on different components of the pain response in order to achieve a synergistic or complementary effect: this is a technique often known as multimodal or balanced analgesia.**

- **Timing of analgesia is important.** Regular analgesia will be appropriate if pain is constant. Pain with exercise can be helped by taking analgesia before the exercise.

- **In the absence of any clear indicators for disease exacerbation assess contributing factors that may affect patient perceived pain levels (for example changes in functional issues related to work or social psychological factors).**