NHS National Institute for Health and Clinical Excellence

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Osteoarthritis

The care and management of osteoarthritis in adults

NICE clinical guideline 59 Developed by the National Collaborating Centre for Chronic Conditions

NICE clinical guideline 59 Osteoarthritis: the care and management of osteoarthritis in adults

Ordering information

You can download the following documents from www.nice.org.uk/CG059

- The NICE guideline (this document) all the recommendations.
- A quick reference guide a summary of the recommendations for healthcare professionals.
- 'Understanding NICE guidance' information for patients and carers.
- The full guideline all the recommendations, details of how they were developed, and reviews of the evidence they were based on.

For printed copies of the quick reference guide or 'Understanding NICE guidance', phone NICE publications on 0845 003 7783 or email publications@nice.org.uk and quote:

- N1459 (quick reference guide)
- N1460 ('Understanding NICE guidance').

NICE clinical guidelines are recommendations about the treatment and care of people with specific diseases and conditions in the NHS in England and Wales

This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer and informed by the summary of product characteristics of any drugs they are considering.

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Contents

Ir	Introduction1			
Ρ	Patient-centred care2			
K	Key priorities for implementation3			
1 Guidance		dance	5	
	1.1	Holistic approach to osteoarthritis assessment and management	5	
	1.2	Education and self-management	9	
	1.3	Non-pharmacological management of osteoarthritis1	0	
	1.4	Pharmacological management of osteoarthritis1	2	
	1.5	Referral for specialist services1	4	
2	Note	es on the scope of the guidance1	5	
3	Imp	Implementation		
4 Research re		earch recommendations1	6	
	4.1	Adherence to therapies1	6	
4.2 4.3		Treatment options for very elderly people with osteoarthritis1	6	
		Combinations and scheduling of treatments1	7	
	4.4	Predicting the outcome of joint replacement surgery1	7	
	4.5	Treatments for multiple joint osteoarthritis1	7	
	4.6	Targeting treatments1	8	
5 Other versions of this guid		er versions of this guideline1	8	
	5.1	Full guideline1	8	
	5.2	Quick reference guide1	8	
	5.3	'Understanding NICE guidance'1	8	
6	Rela	ated NICE guidance1	9	
7	Upd	pdating the guideline20		
A	Appendix A: The Guideline Development Group20			
A	Appendix B: The Guideline Review Panel22			

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. Knees, hips and small hand joints are most commonly affected. Although pain, reduced function and participation restriction can be important consequences of osteoarthritis, structural changes often occur without accompanying symptoms. Contrary to popular belief, osteoarthritis is not caused by ageing and does not necessarily deteriorate. There are a number of treatment options, which this guideline addresses.

Osteoarthritis is a metabolically active repair process that takes place in all joint tissues and involves localised loss of cartilage and remodelling of adjacent bone. A variety of joint traumas may trigger the need to repair. Osteoarthritis is 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, either because of overwhelming trauma or compromised repair potential, the process cannot compensate, resulting in continuing tissue damage and eventual presentation with symptomatic osteoarthritis or 'joint failure'. This explains the extreme variability in clinical presentation and outcome that can be observed between people and also at different joints in the same person.

The majority of the published evidence relates to osteoarthritis of the knee. 'Osteoarthritis: the care and management of osteoarthritis in adults' has tried, where possible, to highlight where the evidence pertains to a particular joint. 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.

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

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 <u>www.dh.gov.uk</u>). Healthcare professionals should also follow a code of practice accompanying the Mental Capacity Act (summary available from <u>www.publicguardian.gov.uk</u>).

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.

If the patient agrees, families and carers should have the opportunity to be involved in decisions about treatment and care.

Families and carers should also be given the information and support they need.

Key priorities for implementation

- Exercise^{*} should be a core treatment (see recommendation 1.1.5) for people with osteoarthritis, irrespective of age, comorbidity, pain severity or disability. Exercise should include:
 - local muscle strengthening, and
 - general aerobic fitness.
- Referral for arthroscopic lavage and debridement[†] should not be offered as part of treatment for osteoarthritis, unless the person has knee osteoarthritis with a clear history of mechanical locking (not gelling, 'giving way' or X-ray evidence of loose bodies).
- Healthcare professionals should consider offering paracetamol for pain relief in addition to core treatment (see figure 2); 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.
- Healthcare professionals should consider offering topical NSAIDs for pain relief in addition to core treatment (see figure 2) for people with knee or hand osteoarthritis. Topical NSAIDs and/or paracetamol should be considered ahead of oral NSAIDs, COX-2 inhibitors or opioids.
- 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, these should be co-prescribed with a proton pump inhibitor (PPI), choosing the one with the lowest acquisition cost.
- Referral for joint replacement surgery should be considered for people with osteoarthritis who experience joint symptoms (pain, stiffness and reduced

^{*} 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 patient 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 patient participation. This will depend upon the patient's individual needs, circumstances, self-motivation and the availability of local facilities.

[†] This recommendation is a refinement of the indication in 'Arthroscopic knee washout, with or without debridement, for the treatment of osteoarthritis' (NICE interventional procedure guidance 230). This guideline has reviewed the clinical and cost-effectiveness evidence, which has led to this more specific recommendation on the indication for which arthroscopic lavage and debridement is judged to be clinically and cost effective.

function) that have a substantial impact 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 (<u>www.nice.org.uk/CG059fullguideline</u>) gives details of the methods and the evidence used to develop the guidance (see section 5 for details).

1.1 Holistic approach to osteoarthritis assessment and management

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. Figure 1 should be used as an aid to prompt questions that should be asked as part of the holistic assessment of a person with osteoarthritis.



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. Within each topic are a few suggested specific points worth assessing. Not every topic will be of concern for everyone with osteoarthritis, and there are other specifics which may warrant consideration for particular people.

- 1.1.2 People with symptomatic osteoarthritis should have periodic review tailored to their individual needs.
- 1.1.3 Healthcare professionals should formulate a management plan in partnership with the person with osteoarthritis.
- 1.1.4 Comorbidities that compound the effect of osteoarthritis should be taken into consideration in the management plan.
- 1.1.5 Healthcare professionals should offer all people with clinically symptomatic osteoarthritis advice on the following core treatments.
 - Access to appropriate information (see section 1.2.1).
 - Activity and exercise (see section 1.3.1).
 - Interventions to achieve weight loss if person is overweight or obese (see section 1.3.2 and 'Obesity' [NICE clinical guideline 43]).
- 1.1.6 The risks and benefits of treatment options, taking into account comorbidities, should be communicated to the patient in ways that can be understood.



Figure 2 Targeting treatment: a summary of the treatments recommended in sections 1.2 to 1.5

Starting at the centre and working outward, the treatments are arranged in the order in which they should be considered for people with osteoarthritis, given that individual needs, risk factors and preferences will modulate this approach. In accordance with the recommendations in the guideline, there are three **core treatments** that should be considered for every person with osteoarthritis – these are given in the central circle. Some of these may not be relevant, depending on the person. Where further treatment is required, consideration should be given to the second ring, which contains **relatively safe pharmaceutical options**. Again, these should be considered in light of the person's individual needs and preferences. A third outer circle gives **adjunctive treatments**. These treatments all meet at least one of the following criteria: less well-proven efficacy, less symptom relief or increased risk to the patient. The outer circle is further divided into four groups: pharmaceutical options, self-management techniques, surgery and other non-pharmaceutical treatments.

1.2 Education and self-management

1.2.1 Patient information

1.2.1.1 Healthcare professionals should 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. Information sharing should be an ongoing, integral part of the management plan rather than a single event at time of presentation.

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. Positive behavioural changes, such as exercise, weight loss, use of suitable footwear and pacing, should be appropriately targeted.
- 1.2.2.2 Self-management programmes, either individually or in groups, should emphasise the recommended core treatments (see recommendation 1.1.5) for people with osteoarthritis, especially exercise.

1.2.3 Thermotherapy

1.2.3.1 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 treatment (see recommendation 1.1.5) for people with osteoarthritis, 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 patient 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 patient participation. This will depend upon the patient's individual needs, circumstances, self-motivation and the availability of local facilities.

1.3.1.2 Manipulation and stretching should be considered as an adjunct to core treatment, particularly for osteoarthritis of the hip.

1.3.2 Weight loss

 1.3.2.1 Interventions to achieve weight loss¹ should be a core treatment (see recommendation 1.1.5) for people who are obese or overweight.

1.3.3 Electrotherapy

1.3.3.1 Healthcare professionals should consider the use of transcutaneous electrical nerve stimulation (TENS)² as an adjunct to core treatment for pain relief.

¹ See 'Obesity: guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children' (NICE clinical guideline 43). ² TENS machines are consciluted as the unit of the second secon

² TENS machines are generally loaned to the patient by the NHS for a short period, and if effective the patient is advised where they can purchase their own.

1.3.4 Acupuncture

1.3.4.1 Electro-acupuncture should not be used to treat people with osteoarthritis³.

1.3.5 Aids and devices

- 1.3.5.1 Healthcare professionals should offer advice on appropriate footwear (including shock-absorbing properties) as part of core treatment (see recommendation 1.1.5) for people with lower limb osteoarthritis.
- 1.3.5.2 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 treatment.
- 1.3.5.3 Assistive devices (for example, walking sticks and tap turners) should be considered as adjuncts to core treatment for people with osteoarthritis who have specific problems with activities of daily living. Healthcare professionals may need to seek expert advice in this context (for example, from occupational therapists or Disability Equipment Assessment Centres).

1.3.6 Nutraceuticals

1.3.6.1 The use of glucosamine or chondroitin products is not recommended for the treatment of osteoarthritis.

1.3.7 Invasive treatments for knee osteoarthritis

1.3.7.1 Referral for arthroscopic lavage and debridement⁴ should not be offered as part of treatment for osteoarthritis, unless the person has knee osteoarthritis with a clear history of mechanical locking (not gelling, 'giving way' or X-ray evidence of loose bodies).

³ There is not enough consistent evidence of clinical or cost effectiveness to allow a firm recommendation on the use of acupuncture for the treatment of osteoarthritis.

⁴ This recommendation is a refinement of the indication in 'Arthroscopic knee washout, with or without debridement, for the treatment of osteoarthritis' (NICE interventional procedure guidance 230). This guideline has reviewed the clinical and cost-effectiveness evidence, which has led to this more specific recommendation on the indication for which arthroscopic lavage and debridement is judged to be clinically and cost effective.

1.4 Pharmacological management of osteoarthritis

1.4.1 Oral analgesics

- 1.4.1.1 Healthcare professionals should consider offering paracetamol for pain relief in addition to core treatment (see figure 2); 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.
- 1.4.1.2 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 elderly people.

1.4.2 Topical treatments

- 1.4.2.1 Healthcare professionals should consider offering topical NSAIDs for pain relief in addition to core treatment (see figure 2) for people with knee or hand osteoarthritis. Topical NSAIDs and/or paracetamol should be considered ahead of oral NSAIDs, COX-2 inhibitors or opioids.
- 1.4.2.2 Topical capsaicin should be considered as an adjunct to core treatment for knee or hand osteoarthritis.
- 1.4.2.3 Rubefacients are not recommended for the treatment of osteoarthritis.

1.4.3 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 continue to use the two terms for clarity, and because of the differences in side-effect profile. The recommendations in this section are derived from extensive health-economic modelling, which included December 2007 NHS drug tariff costs. This guideline replaces the osteoarthritis aspects only of NICE technology appraisal guidance 27. The guideline recommendations are based on up-to-

date evidence on efficacy and adverse events, current costs and an expanded health-economic analysis of cost effectiveness. This has led to an increased role for COX-2 inhibitors, an increased awareness of all potential adverse events (gastrointestinal, liver and cardio-renal) and a recommendation to coprescribe a proton pump inhibitor (PPI).

- 1.4.3.1 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.
- 1.4.3.2 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.
- 1.4.3.3 Oral NSAIDs/COX-2 inhibitors should be used at the lowest effective dose for the shortest possible period of time.
- 1.4.3.4 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, these should be co-prescribed with a PPI, choosing the one with the lowest acquisition cost.
- 1.4.3.5 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, healthcare professionals should 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.
- 1.4.3.6 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.

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 in people with osteoarthritis.
- 1.4.4.2 Intra-articular hyaluronan injections are not recommended for the treatment of osteoarthritis.

1.5 Referral for specialist services

1.5.1 Referral criteria for surgery

- 1.5.1.1 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 1.1.5 and figure 2).
- 1.5.1.2 Referral for joint replacement surgery should be considered 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. 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 comorbidities) should not be barriers to referral for joint replacement surgery.
- 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' (third edition, published April 2007), which is available from <u>www.nice.org.uk/guidelinesprocess</u> or from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote reference N1233).

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 (<u>www.nice.org.uk/CG059</u>).

- Slides highlighting key messages for local discussion.
- Costing tools:
 - costing report to estimate the national savings and costs associated with implementation

- costing template to estimate the local costs and savings involved.
- Audit support for monitoring local practice.

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 osteoarthritis, such as paracetamol or muscle strengthening, will have benefits, but they 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 osteoarthritis.

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 very elderly patients?

Why this is important

There are very little data on the use of osteoarthritis therapies (nonpharmacological and pharmacological) in very elderly patients. 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) osteoarthritis therapies, and how can they be included in clinically useful, cost-effective algorithms for long-term use?

Why this is important

Most people with osteoarthritis are offered a combination of nonpharmacological and pharmacological therapies, but most of the trial evidence only evaluates single therapies. Often trials are of short duration (for example, 6 weeks), whereas people may live with osteoarthritis 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 osteoarthritis, it does not provide a good outcome in a substantial number of cases. It would be very useful to have pre-operative tools to help choose the 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 older than 55 years have more than one painful joint; for example, it is common to have osteoarthritis in both knees, and there may be excess strain put on the upper limbs if knee osteoarthritis is present and painful. Most trials of osteoarthritis therapies have examined efficacy of therapies on a single joint.

4.6 Targeting treatments

Is it possible to identify subsets of people with osteoarthritis in whom existing treatments are more beneficial and cost effective (for example, acupuncture or hyaluronans)?

Why this is important

Osteoarthritis is complex in terms of pain and range of structural pathology. It may be that certain treatments have increased efficacy if targeted to subsets of the general osteoarthritis population. At present, there are few useful subclassifications of osteoarthritis.

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 www.rcplondon.ac.uk/college/NCC-CC/index.asp, our website (www.nice.org.uk/CG059fullguideline) and the National Library for Health (www.nlh.nhs.uk).

5.2 Quick reference guide

A quick reference guide for healthcare professionals is available from <u>www.nice.org/CG059quickrefguide</u>.

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1459).

5.3 'Understanding NICE guidance'

Information for patients and carers ('Understanding NICE guidance') is available from <u>www.nice.org.uk/CG059publicinfo</u>.

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1460).

We encourage NHS and voluntary sector organisations to use text from this booklet in their own information about osteoarthritis.

6 Related NICE guidance

Published

Obesity: guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children. NICE clinical guideline 43 (2006). Available from <u>www.nice.org.uk/CG043</u>

Depression: management of depression in primary and secondary care. NICE clinical guideline 23 (2004). Available from <u>www.nice.org.uk/CG023</u>

Guidance on the use of cyclo-oxygenase (Cox) II selective inhibitors, celecoxib, rofecoxib, meloxicam and etodolac for osteoarthritis and rheumatoid arthritis. NICE technology appraisal guidance 27 (2001 – being updated in part by this guideline). Available from <u>www.nice.org.uk/TA027</u>

Arthroscopic knee washout, with or without debridement, for the treatment of osteoarthritis. NICE interventional procedure guidance 230 (2007). Available from <u>www.nice.org.uk/IPG230</u>

Single mini-incision hip replacement. NICE interventional procedure guidance 152 (2006). Available from <u>www.nice.org.uk/IPG152</u>

Mini-incision surgery for total knee replacement. NICE interventional procedure guidance 117 (2005). Available from <u>www.nice.org.uk/IPG117</u>

Minimally invasive two-incision surgery for total hip replacement. NICE interventional procedure guidance 112 (2005). Available from www.nice.org.uk/IPG112

Artificial trapeziometacarpal joint replacement for end-stage osteoarthritis. NICE interventional procedure guidance 111 (2005). Available from <u>www.nice.org.uk/IPG111</u>

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.

Professor Mike Drummond (Chair)

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Mr Barry Stables Patient/Lay Representative

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