Arthritis Research UK

Practical advice for GPs on management of rheumatic disease

Hands On

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Osteoarthritis: a modern approach to diagnosis and management

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Editorial

Our understanding of osteoarthritis has moved forward considerably over recent years. In recognition of this Hands On and Topical Reviews have joined together to give a comprehensive overview of this important and common problem.

Hands On focuses on the sea change in the way that we think about osteoarthritis. We have moved on from the concept of joint degeneration and affected patients need a holistic approach. As well as an update about core treatments the authors give very practical advice on how to approach explanation and provision of information. Patients tell us that what they want is greater support with self-management.

Topical Reviews* gives a detailed account of current surgical approaches and delves into the basic biology of osteoarthritis as a process of 'tear, flare and repair'. The authors examine how a better understanding of cell biology and biomechanics may lead to better medical and surgical treatments.

Together, these publications shift the emphasis from passive, symptomatic treatment to active, patient-focused management underpinned by sound evidence.

Simon Somerville (Medical Editor, Hands On)
Neil Snowden (Medical Editor, Topical Reviews)

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* Birrell F, Howells N, Porcheret M. Osteoarthritis: pathogenesis and prospects for treatment. Reports on the Rheumatic Diseases (Series 6), Topical Reviews 10. Arthritis Research UK; 2011 Autumn. www.arthritisresearchuk.org/medical-professional-info.

The aim of this issue of Hands On is to bring you a series of short knowledge and skills updates – each one posed as a question – on osteoarthritis (OA) and its management. For those who want to know more, some further reading is indicated at the end of the report.

What is OA and how should we think about it?

For clinicians OA is best regarded as a chronic pain syndrome and not a disease defined by the pathological changes in the joint. The National Institute for Health and Clinical Excellence (NICE) OA guidance defines it as a syndrome of 'joint pain accompanied by varying degrees of functional limitation and reduced quality of life'. It most commonly affects the knee, hip, hand and foot, and is a major cause of pain and disability. For example, in the UK in people aged 50 and over, one-quarter report knee pain lasting for more than 3 months in the previous year and one-third report pain, at any site, that interferes with their normal activities.

The impact of OA is best understood using a biopsychosocial, rather than a disease, model. The disease model (a direct correlation between pathology and symptoms) does not reflect its impact in many people with the condition. The biopsychosocial model, in which the psychological and social aspects are considered along with the pathology, captures the impact on the individual of factors such as mood, work status and income. The initial approach using this model focuses on helping patients to manage and cope with their pain and restricted activity. The biopsychosocial model is used to describe the assessment and treatment of OA in this report.

How does the pathology arise in a joint?

OA is often described as 'wear and tear' but this is not an accurate reflection of the pathogenesis of OA. It is a metabolically active process which, in response to various insults, involves all joint tissues: cartilage, bone, synovium, ligaments and muscles. In the associated issue of Topical Reviews the term 'tear, flare and repair' has been proposed

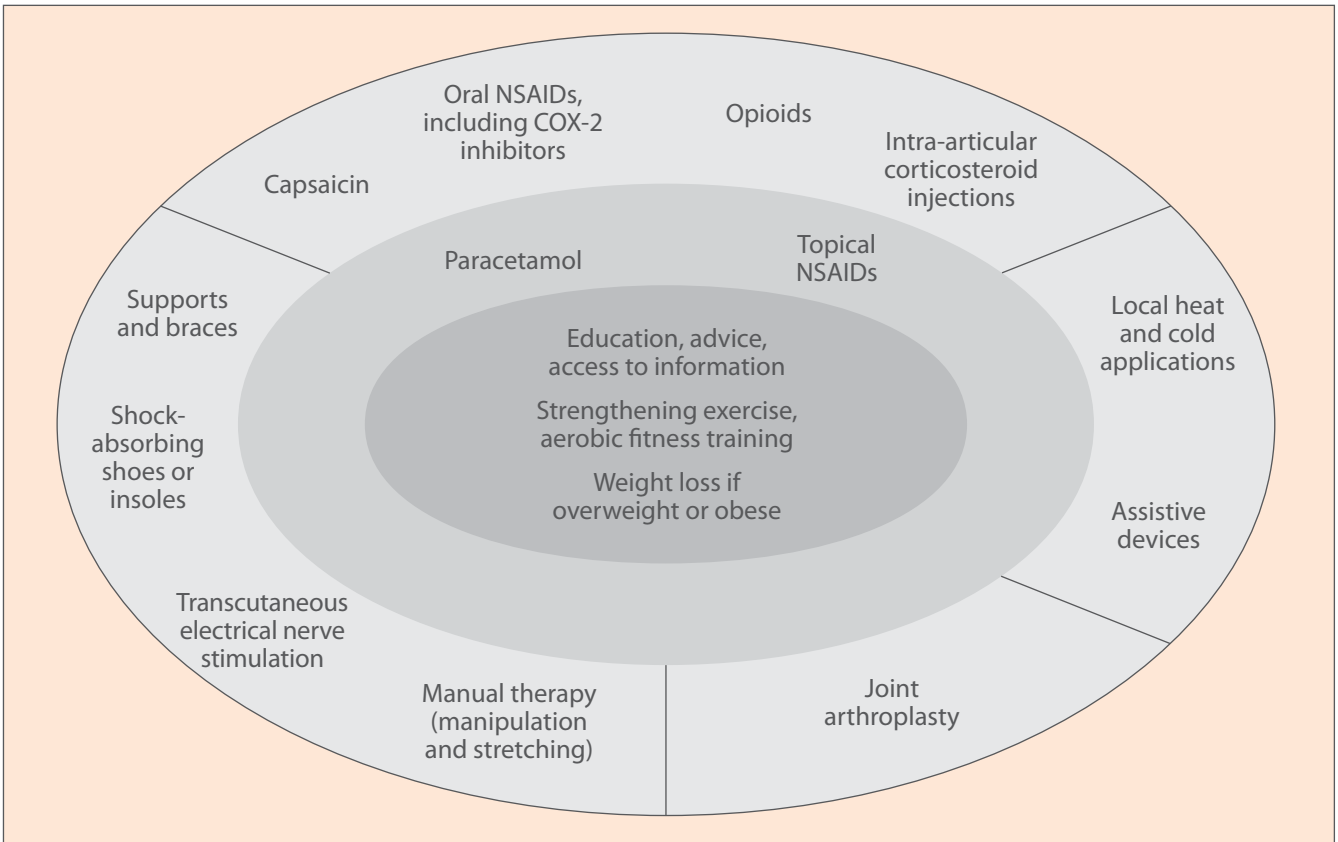

FIGURE 1. Treatments for osteoarthritis in adults. The core treatments (centre) should be considered first for every person with osteoarthritis. If further treatment is required, consider the drugs in the second circle before the drugs in the outer circle. The outer circle shows other treatments to be considered if there is persistent pain or disability.
(Reproduced from Conaghan PG et al. BMJ 336(7642):502-3 © 2008, with permission from BMJ Publishing Group Ltd.)

as a better representation of the pathology – the 'tear' representing aetiological factors such as overuse, obesity or malalignment, the 'flare' the role of inflammation in OA, and 'repair' the repair processes in and around the joint. These repair processes can lead to a structurally altered but symptom-free joint. However, the repair processes may be suboptimal, and the 'tear' insults may be ongoing, resulting in the symptomatic OA with persistent pain and disability that many of the patients come to us for help with.

How well are we managing OA?

The short answer is not as well as we might be. OA has a prevalence comparable to diabetes – in a practice with a list size of 10,000 about 500 people consult annually with OA compared with about 450 with diabetes (K Jordan, pers comm), but it is not being managed in the systematic way we now take for granted for people with diabetes. In 2008 NICE recommended a systematic approach to treatment: (1) three core treatments (education, advice and written information; exercise and physical activity; and interventions to achieve weight loss) to be offered to all people with OA, (2) paracetamol and topical non-steroidal anti-inflammatory drugs (NSAIDs) as first-line analgesia, and (3) a range of options when there is persisting pain and/or disability (Figure 1).

However, surveys have shown that many patients with OA are not being offered these core treatments and that pharmacological treatments are being favoured over non-pharmacological ones. In addition, patients often report that their problems are dismissed or not fully addressed. In a recent survey by the British Society for Rheumatology of 800 people with OA, less than half reported that the GP had initially given (1) any information about OA or (2) any advice about exercise, and only about a third reported having received advice from the GP on weight loss.

How should we diagnose OA?

The diagnosis of OA in the knee, hip, hand or foot is best made clinically (Box 1).

It is important to recognise that it is a working diagnosis that is being made, and so it may need to be reviewed over time and if symptoms change or worsen. Although OA is more prevalent in older adults the diagnosis should be considered in anyone over the age of 45 years with knee, hip, hand or foot pain with characteristics 2 and 3 listed in Box 1.

BOX 1. The working diagnosis of OA.
(Adapted with permission from National Collaborating Centre for Chronic Conditions. *Osteoarthritis: national clinical guideline for care and management in adults.* London: Royal College of Physicians; 2008 [= NICE CG59 full guidance].)

A working diagnosis of OA can be made without an x-ray if:

1. The person is aged 45 years or over.
2. There is chronic (lasting 3 months or more) joint pain that is worse with use.
3. Any morning stiffness lasts no more than half an hour.
4. An alternative diagnosis is unlikely.

What is the differential diagnosis of OA?

The diagnosis of OA is often one of exclusion, i.e. with alternative diagnoses being considered and ruled out.

Knee and hip

The serious, or common, alternative diagnoses that need to be ruled out are listed in Box 2 for pain presenting in the knee and hip.

Hand

Alternative diagnoses to be considered in hand pain are: (1) carpal tunnel syndrome, (2) tenosynovitis and (3) inflammatory arthritis (rheumatoid arthritis, psoriatic arthritis and gout).

Note: the diagnosis of OA affecting the small joints of the hand can often be made positively from the history and examination – for example, chronic pain at the base of the thumb due to OA of the 1st carpometacarpal joint and the typical nodes associated with OA in the distal and proximal interphalangeal joints (Heberden's and Bouchard's respectively), especially when there is a family history of nodes. It should be remembered that people with polyarticular hand OA are at increased risk of knee, hip and generalised OA and these diagnoses should be sought for.

BOX 2. Alternative diagnoses to be excluded at hip and knee.

Both hip and knee

- Red flags
  - Fracture
  - Sepsis
  - Cancer
- Referred pain
  - To the hip from the back
  - To the knee from the hip
- Bursitis
- Fibromyalgia

Knee only

- Inflammatory arthritis
- (Pseudo) gout
- Meniscal disease

Hip only

- Polymyalgia rheumatica
- Avascular necrosis of the femoral head
- Meralgia paraesthetica (entrapment of the lateral cutaneous nerve of the thigh)

Foot

There are many causes of pain in the foot that are not due to OA and cannot be covered here, but OA commonly affects the 1st metatarsophalangeal joint (hallux rigidus).

When should we image a joint?

The approach taken in this report is that OA should be diagnosed clinically and not on the basis of an x-ray. One of the reasons for adopting this approach is the mismatch of x-ray findings and symptoms. Degenerative disease is a common finding on x-rays of older people, even in the absence of symptoms. It is also possible to have typical OA symptoms without typical x-ray changes. And even when symptoms and radiological evidence of OA are present in the same person in the same joint they may tell different stories: severe pain with minimal x-ray changes and severe radiological OA with minimal symptoms. It is therefore important to correlate x-ray findings with the clinical presentation and the evidence suggests that practice should be guided by symptoms and not radiographic appearances. However, there are times when imaging can be helpful.

When diagnosing OA

X-raying the knee and hip can be helpful when there is diagnostic uncertainty about the cause of the pain – for example, when hip OA is suspected as the cause of knee pain, or when it is difficult to disentangle hip pain that is due to a back problem from that due to OA in the hip.

When referring

An x-ray of the knee or hip prior to referral for consideration of arthroplasty is probably warranted to avoid referring patients with knee or hip pain who do not have significant pathology in the joint.

Future imaging methods Currently plain film radiography is the imaging modality most commonly used in the assessment of OA. However, both magnetic resonance imaging (MRI) and ultrasound have the ability to demonstrate synovitis in OA and are beginning to be used in clinical practice. Ultrasound in particular is becoming more available both as an outpatient investigation and at the bedside in clinic. In the future it may well form part of the assessment of patients with OA.

How should we give and explain the diagnosis of OA?

Once the diagnosis of OA has been made patients need to be given the diagnosis in a way that is meaningful to them.

- Ask the patient what they think their problem is due to and address these ideas or concerns when giving the diagnosis.
- Use the phrase 'wear and repair' and not 'wear and tear' when giving the diagnosis of OA. Explain that, although we commonly refer to OA as wear and tear, OA is a metabolically active condition and not the simple mechanical wearing out of a joint, and so is about **wear and repair**.
- Tell the patient your reasoning behind making the diagnosis.
- Ask what ideas and thoughts the patient has about OA and give advice about OA tailored to these.
- Many patients confuse OA with rheumatoid arthritis, so it is best to directly say that you can't find anything to suggest they have rheumatoid arthritis.
- Many patients also believe that OA is inevitably progressive and disabling, and that 'nothing can be done'. It is important to paint a positive,

though realistic, picture of prognosis (some of the facts in Box 3 may help you with this).

- Say that although OA is not curable there are many options for helping with the pain and for helping people to manage the problem themselves (self-management).

Why should we provide support for self-management?

OA is a prime example of a condition that people can, and do, self-manage. The symptoms of OA – pain, stiffness and altered function – allow the condition to be monitored without the need for medical testing. This can be used (1) to assess the benefit of treatments and (2) as a trigger to seeking help when symptoms worsen. In addition, many of the treatments for OA do not need a prescription and rely on the commitment of the person to undertake them, for example weight loss and exercise.

But, despite the fact that patients self-manage OA, they also would like help from healthcare professionals in supporting them to self-manage.

How should we provide support for self-management?

The role of the healthcare professional is to:

- elicit and understand how OA affects the patient's life and how they are currently self-managing
- help the patient identify what aspects of self-management they would like help with and what support they need
- agree with the patient what goals they would like to set and how they are going to achieve them (which may include identifying obstacles and ways to overcome them)
- increase the patient's confidence and the skills they need to achieve these goals
- provide evidence-based advice on effective treatments for OA when asked for it
- provide treatment or a referral for treatment if needed.

It is not about simply giving advice or issuing a prescription. One example of how to put into practice the approach outlined above is 'motivational interviewing' and the reader is recommended, if they have not already done so, to consider adopting this consulting style when supporting self-management. Rollnick et al have written a very practical book on this for healthcare professionals (see 'Further reading').

BOX 3. Facts about the prognosis of OA.

OA does not inevitably get worse and in many patients the symptoms improve.

- Pain in hand OA of the interphalangeal joints often improves after a few years, but patients are left with permanent nodes.
- Pain in knee OA can improve and only about a third of patients develop progressive disease.
- About a quarter of patients with hip OA will have had a hip replacement 4 years after first going to see their GP, but three-quarters won't.

What information and advice should we provide in the consultation?

Having understood how the problem is currently affecting the patient's life, and in what way they would like help managing it, you may need to provide information and advice on what treatments have been shown to be effective for OA. The NICE OA guidance recommends a number of evidence-based interventions which can be seen as a 'menu of options' as shown in Figure 1, and a subsequent review has updated the evidence for these recommendations for hip and knee OA.

CORE TREATMENTS

Written information about OA and its treatment Arthritis Research UK and Arthritis Care produce a number of patient information booklets and leaflets on OA and its treatment, which can be downloaded from their websites or ordered from them (see 'Patient resources' section below).

Exercise and physical activity There is good evidence that both general aerobic exercise (for example walking or swimming) and local muscle-strengthening exercises (primarily quadriceps exercises for knee OA) are beneficial. A study reported in the *BMJ* in 2009 investigated the benefit, in older overweight adults with chronic knee pain, of exercising at home (in a way similar to that set out in the Arthritis Research UK 'Information and exercise sheet' for patients on knee pain – see

PLOT 1

PLOT 2

FIGURE 2. Cates plots for the benefit of exercise for pain from knee OA. (Reproduced with permission from Dr Chris Cates' EBM website, http://www.nntonline.net/visualrx/cates_plot/.)

'Further reading'). Participants were followed up for 2 years and the number who responded to exercise (in whom pain was reduced by 30% or more at 2 years) was determined. From this we can produce Cates plots for use in the consultation (Figure 2). The patter for their use goes like this: 'If we take 100 people like you with knee OA, then without treatment (Plot 1) 33 people are going to have less pain after 2 years but 67 won't. However, with exercise (Plot 2) an extra 12 people will have less pain after 2 years but 55 still won't'. It is then necessary to let the patient consider the plots and discuss with them what this might mean to them. It can be helpful to point out that (1) we can't predict which individuals will respond and so everyone needs to exercise for some to get the benefit, (2) this is not the only treatment for knee OA and pain, and those that do not improve can be helped in other ways, and (3) exercise is beneficial for other problems and has not been shown to be harmful.

Weight loss A systematic review of the benefit of losing weight for people with knee OA found

that an average weight loss of 6 kg resulted in reduced disability but not reduced pain. Further, the evidence indicated that a greater than 5% reduction in body weight over a 5-month period reduced disability.

FIRST-LINE ANALGESIA

Paracetamol The number needed to treat with paracetamol to obtain relief of pain from hip or knee OA has, from two randomised trials, been calculated to be 7 (95% CI 4, 23), meaning that only 1 in 7 people benefit from treatment. This confirms what many GPs and patients probably believe: that paracetamol, though it should always be tried initially, is not going to meet the needs of people with more than mild intermittent pain. In addition, evidence is accumulating that in doses of greater than 3 g/day there is an increased risk of hospitalisation due to upper gastrointestinal (GI) perforation, ulceration and bleeding, which questions the advice to use paracetamol at full dose for prolonged periods. A very recent study has shown that at doses of 3 g/day over 13 weeks for pain due to knee OA, 20% of participants had a drop in haemoglobin of 1 g/dl or greater and further adds to the evidence for the safety of paracetamol.

Topical NSAIDs These are widely recommended in guidelines for the treatment of knee OA, and evidence supports the statement that topical NSAIDs are as effective as, and possibly safer than, oral NSAIDs.

ADJUNCT TREATMENTS

Capsaicin The use of topical capsaicin is recommended for knee and hand OA but trial evidence of benefit is limited to the knee. Capsaicin is derived from chilli peppers and acts as a counter-irritant as well as reducing pain by depleting sensory nerve endings of neurotransmitters. The initial irritant effect limits its use in some people but a trial of use can identify those for whom it is effective.

Oral NSAIDS (both standard NSAIDs and COX-2 inhibitors) Patients should be advised that all oral NSAIDs have the potential to cause GI, liver and cardiorenal toxicity and that this limits their use in many patients, especially the elderly. When used patients should be recommended to take them at the lowest effective dose and for the shortest possible period of time, and to take a proton pump inhibitor at the same time. Patients on aspirin should be advised to consider other analgesia initially, and then only consider oral NSAIDs if pain relief is ineffective or insufficient. See 'Further reading' on where to obtain detailed advice on the use of oral NSAIDs.

Opioids Both weak and strong opioids are recommended for pain relief for people with OA if paracetamol or topical NSAIDs are insufficient to relieve pain. Their use, especially in the elderly, is limited by frequent side-effects which were reported in a recent review of the evidence as: nausea (30%), constipation (23%), dizziness (20%), somnolence (18%) and vomiting (13%). The same review calculated the overall number needed to harm for opioids to be 5, and for strong and weak opioids to be 4 and 9 respectively.

Intra-articular corticosteroids There is good evidence from two systematic reviews that intra-articular corticosteroid injections for knee OA reduce pain: the number needed to treat for pain reduction at 1 week is 3 (95% CI 2, 5) but this increases to 5 for pain reduction at any time-point measured in the studies.

Transcutaneous electrical nerve stimulation (TENS) TENS has been shown to reduce pain and stiffness in knee OA and the NICE OA guideline recommends that patients should be referred to a healthcare professional for assessment, proper training in the use of TENS and follow-up.

Assistive devices and walking aids A review of the evidence in the NICE OA guideline concluded that ipsi- or contralateral cane use can significantly improve stride length and walking rhythm. To ensure that the cane is the right length, and that the patient has been given advice on how best to use it, referral to a physiotherapist or occupational therapist should be considered.

Footwear Footwear needs to be well fitting, so the foot is held in place and does not slide around. A wider fit is better so the toes do not get squashed, and soft, well-cushioned insoles may also provide some shock-absorbency and protection for the joints.

Arthroplasty Total joint replacement of the hip and knee has become a reliable intervention to improve pain, restore function and improve health-related quality of life in patients with ongoing pain and functional limitations resistant to pharmacological and non-pharmacological measures.

Case selection for surgery in OA is particularly difficult in view of the considerable variability in reported pain, function and clinical and radiographic findings. A number of scoring systems have been adopted into referral criteria by certain primary care trusts, most commonly the Oxford Hip and Knee Scores. It is important to emphasise that they have not been validated for and are inappropriate for use in this way. Referral should also not be restricted on the basis of age, BMI or associated co-morbidities. Guidelines have been developed summarising available evidence and expert opinion in order to clarify indications for referral and for surgery. An NHS patient decision aid is now available for OA of the knee. Further patient information is available from the British Orthopaedic Association and Arthritis Research UK (see 'Patient resources').

Other surgical procedures The NICE OA guideline recommends that '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)'. A full review on the use and effectiveness of surgical procedures, including novel interventions such as microfracture and autologous chondrocyte techniques, can be found in the associated Topical Reviews report on OA.

Glucosamine The place of glucosamine in the treatment of OA is still evolving. The NICE 2008 guideline recommended that glucosamine hydrochloride (the only preparation with a UK licence at that time) was not cost-effective for use in the NHS, but did suggest that patients could be advised to try privately bought glucosamine sulphate 1500 mg/day for 3 months to see if it was beneficial to them. Since then a licence has been granted for a glucosamine sulphate preparation and NICE is in the process of reviewing its OA guideline.

So what should you tell your patients?

- That glucosamine only reduces pain by a very small amount, but that it does on average reduce pain
- That this may hide a greater benefit for some people, and a lesser effect for others
- That if glucosamine is taken it should be as the sulphate at 1500 mg a day
- That the evidence is to be reviewed by NICE and its potentially revised recommendation is awaited.

Other complementary and alternative medicines A review of the efficacy of the large number of other complementary therapies that have been advocated is beyond the scope of this report, but a helpful and well-conducted review has recently been undertaken by De Silva et al, to which the reader is referred (see 'Further reading').

Conclusion

Our ideas about osteoarthritis are changing. It is a dynamic process which is about 'repair' as well as 'wear and tear'. It is about helping patients to have the skills and confidence to better manage their own condition. There are many treatments with proven efficacy that can be considered before the need for surgery arises and it is our job to make patients aware of them.

Further reading

Managing OA

Arthritis Research UK General Practitioners webpage. http://www.arthritisresearchuk.org/home/general_practitioners-1.aspx.

Prodigy (formerly CKS). Osteoarthritis – Management. http://prodigy.clarity.co.uk/osteoarthritis.

Conaghan PG, Dickson J, Grant RL. Care and management of osteoarthritis in adults: summary of NICE guidance. BMJ 2008;336(7642):502-3.

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Hurley M. An exercise in knee pain self-management. Reports on the Rheumatic Diseases (Series 5), Hands On 6. Arthritis Research UK; 2005 June.

- Main report: http://www.arthritisresearchuk.org/files/6526_05032010144844.pdf.
- Information and exercise sheet: http://www.arthritisresearchuk.org/PDF/6526_exercises.pdf.

Map of Medicine. Osteoarthritis – suspected. http://eng.mapofmedicine.com/evidence/map/osteoarthritis1.html.

National Institute for Health and Clinical Excellence (NICE). Osteoarthritis. Clinical Guideline 59. 2008 Feb.

- http://www.nice.org.uk/cg59.
- Full guidance: http://guidance.nice.org.uk/nicemedia/live/11926/39720/39720.pdf.

National Prescribing Centre (NPC) information on the safety of NSAIDs. http://www.npc.nhs.uk/merec/pain/musculo/resources/merec_extra_no30.pdf.

Wandel S, Jüni P, Tendal B et al. Effects of glucosamine, chondroitin, or placebo in patients with osteoarthritis of hip or knee: network meta-analysis. BMJ 2010;341:c4675.

Shared decision-making

National Prescribing Centre (NPC). Evidence informed decision making 4. Shared decision-making with patients: patient decision aids. NPC; 2010. http://www.npc.nhs.uk/evidence/eidm4_shared/pda.php.

NHS Direct Patient Decision Aid: Knee arthritis. https://www.nhsdirect.nhs.uk/DecisionAids/PDAs/PDA_KneeArthritis.aspx.

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Dr Chris Cates' EBM Web Site. Cates plot. http://www.nntonline.net/visualrx/cates_plot/.

For information on the prevalence of OA: http://www.keele.ac.uk/pchs/disseminatingourresearch/newslettersandresources/bulletins/bulletin2/.

Patient resources

There is plenty of information on OA specifically for patients on the following websites:

- Arthritis Research UK: www.arthritisresearchuk.org
- Arthritis Care: www.arthritiscare.org.uk
- NHS Choices: www.nhs.uk/Pages/HomePage.aspx
- Patient UK: www.patient.co.uk.

Specific publications:

- British Association for Surgery of the Knee/British Orthopaedic Association. Total knee replacement: a guide for patients. 2007 June. http://www.boa.ac.uk/en/patient-information/patient-education/total-knee-replacement/.
- National Institute for Health and Clinical Excellence (NICE). CG59 Osteoarthritis: understanding NICE guidance. London: NICE; 2008 Feb. http://www.nice.org.uk/nicemedia/pdf/CG59publicinfo.pdf.

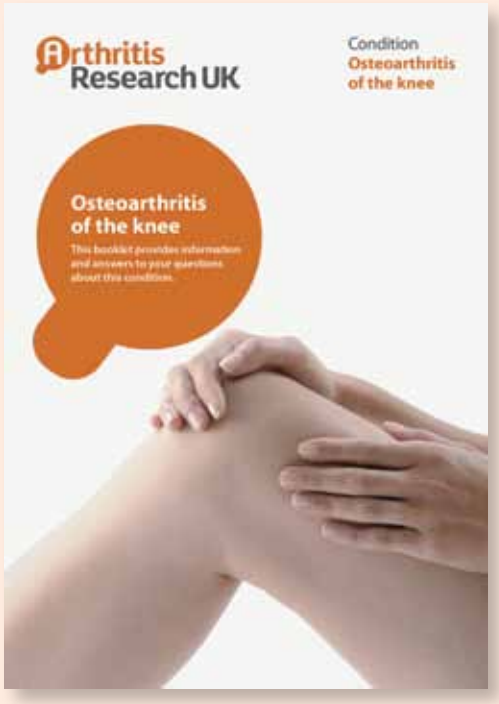
Continuing professional development (CPD) task

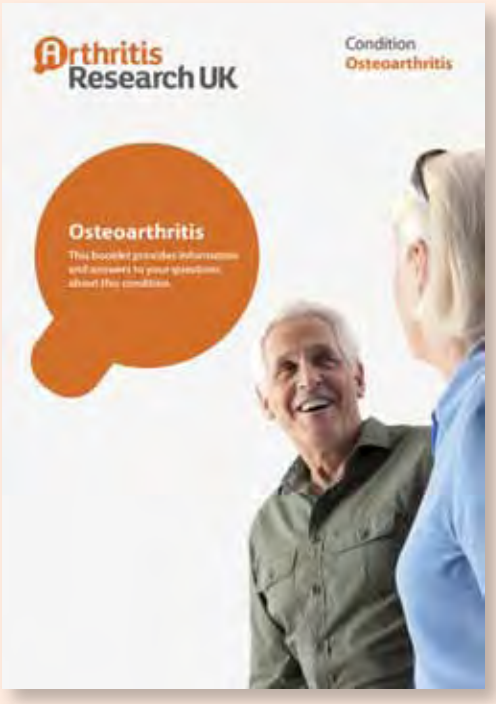
On average in 1 year 2% of all people registered with a practice will consult about OA.*

- Do a computer search on your GP clinical system to calculate the percentage of patients who had a consultation for osteoarthritis (read codes = N05...) in the last year.
- Discuss with your colleagues what you have found and think about the following:
  - Does the prevalence seem higher or lower than you thought?
  - If lower, are patients not being diagnosed, or are symptom codes (such as 'knee arthralgia') being used instead of disease codes?
  - What sort of care are you providing for this group of patients?

* See 'Further reading' for link to information on prevalence of OA.

Patient booklets on osteoarthritis





Arthritis Research UK has recently launched a new range of patient information booklets to provide an ongoing source of information and support for patients with arthritis – people who need high-quality information that is relevant, straightforward and authoritative.

As osteoarthritis is the most common form of joint disease, our booklets '**Osteoarthritis**' and '**Osteoarthritis of the knee**' form a cornerstone of our range. As with all the booklets from Arthritis Research UK, they have been developed using input from medical professionals to meet changing patient needs, offering healthcare professionals a resource they feel confident to share with patients during the consultation. Arthritis Research UK's booklets are:

- **Straightforward** – clear, concise information; an 'at a glance' section for easy reference, making the most important points more digestible, key messages and important points highlighted throughout
- **Relevant** – all information based on the most up-to-date evidence available
- **Authoritative** – the newly written texts have been both medically and lay reviewed
- **Clear** – with colour photography, including pictures of symptoms and 3D illustrations
- **Accessible** – no jargon! An easy-to-understand Q&A format
- **Inclusive** – a 'get involved' page to help patients who can feel isolated.

The information you find in these booklets is rooted in world-class research – some of it funded by Arthritis Research UK – while still keeping the needs of patients, carers and healthcare professionals in mind.

All of our patient information is available to download as a PDF or can be ordered in hard copy on the Arthritis Research UK website **www.arthritisresearchuk.org**. *We offer all of our patient information free of charge.*

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