# Chapter 10. Musculoskeletal and joint diseases

Contents



## Key

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| R | **Red drug** see GMMMG RAG list<br>*Click on the symbols to access this list* |
| A | **Amber drug** see GMMMG RAG list<br>*Click on the symbols to access this list* |
| Gn | **Green drug** see GMMMG RAG list<br>*Click on the symbols to access this list* |
| U | **If a medicine is unlicensed this should be highlighted in the template as follows**<br>**Drug name** U |
| | **Not Recommended** |
| OTC | **Over the Counter**<br>In line with NHS England guidance, GM do not routinely support prescribing for conditions which are self-limiting or amenable to self-care. For further details see GM commissioning statement. |
| **Order of Drug Choice** | Where there is no preferred 1st line agent provided, the drug choice appears in alphabetical order. |

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| **BNF chapter** | **10 Musculoskeletal and joint diseases** | |
| **Section** | **10.1 Drugs used in rheumatic diseases and gout** | |
| **Subsection** | **10.1.1 Non-steroidal anti-inflammatory drugs** | |
| **First choice** | **Ibuprofen tablets**<br>200mg; 400mg; 600mg | MHRA DSU: High-dose ibuprofen: small increase in cardiovascular risk, June 2015 |
| **Alternatives** | **Naproxen tablets**<br>250mg; 500mg | |
| | **Diclofenac tablets**<br>50mg | MHRA DSU: diclofenac: new contraindications and warnings, June 2013.<br>MHRA DSU: NSAIDs: cardiovascular risks October 2012. Further evidence that the cardiovascular risk with diclofenac is higher than other non-selective NSAIDs and similar to the selective COX-2 inhibitors |
| | **Etoricoxib tablets**<br>30mg, 60mg, 90mg, 120mg | MHRA DSU: Etoricoxib (Arcoxia): revised dose recommendation for rheumatoid arthritis and ankylosing spondylitis<br>MHRA DSU: etoricoxib: prescribing to patients with high blood pressure, July 2008. |
| **Grey drugs**<br>Items which are listed as Grey are deemed not suitable for routine prescribing but may be suitable for a defined patient population | **Piroxicam**<br>Capsules, orodispersible tablets<br>Systemic piroxicam should be initiated only by specialists as a second-line treatment for arthritis. Patients who currently take piroxicam should be reassessed at a routine appointment. | Gn following specialist initiation<br>Criterion 1 (see RAG list) |
| | **Celecoxib**<br>Capsules<br>Only for use in palliative care for the relief of cancer pain. | Gn<br>Criterion 1 (see RAG list) |
| **Do Not Prescribe** | **Naproxen with esomeprazole**<br>Modified-release tablets | Criterion 2 (see RAG list) |

**General Guidance applicable to all drugs**

- NICE NG226: Osteoarthritis in over 16s: diagnosis and management.
- NICE NG100: Rheumatoid arthritis in adults: management.
- CKS (2013) NSAID prescribing issues
- BNF: NSAID-associated ulcers
- CKS (2013): Patients on low dose aspirin
- MHRA DSU: Non-steroidal anti-inflammatory drugs: reminder on renal failure and impairment, May 2009
- MHRA DSU: Non-steroidal anti-inflammatory drugs: cardiovascular risk, October 2012
- MHRA DSU: NSAIDs and coxibs: balancing of cardiovascular and gastrointestinal risks, December 2007
- MHRA DSU: Non-steroidal anti-inflammatory drugs (NSAIDs): potential risks following prolonged use after 20 weeks of pregnancy, June 2023

| **Subsection** | **10.1.2 Corticosteroids** | |
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| **Systemic corticosteroids** | | |
| The general actions, uses, and cautions of corticosteroids are described in the BNF. | | |
| **Local corticosteroid injections** | | |
| **First choice** | **Methylprednisolone acetate 40mg/ml**<br>or<br>**Methylprednisolone acetate 40mg, lidocaine hydrochloride 10mg/ml** | |
| **Alternatives** | **Dexamethasone sodium phosphate 3.8mg/ml** | MHRA DSU: Dexamethasone 4 mg/ml injection (Organon Laboratories Limited): reformulation with changes in name, concentration, storage conditions, and presentation, October 2014. |
| | **Hydrocortisone acetate 25mg/ml** | |
| | **Triamcinolone acetonide 10mg/ml**<br>**Triamcinolone acetonide 40mg/ml** | |

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| **Subsection** | **10.1.3 Drugs that suppress the rheumatic disease process** | |
| **DMARDS** | | |
| **First Choice** | **Methotrexate 2.5mg tablets** | A<br>NPSA Alert, June 2006. Improving compliance with oral methotrexate guidelines.<br>When prescribing oral methotrexate only ever prescribe 2.5mg tablets and pay particular attention to correct dosing instructions – **weekly** dosing.<br>Co-prescribe oral folic acid 5mg weekly with methotrexate (to be taken at least 24 hours after the methotrexate [often 2 -3 days after]) and increase dose if necessary dependant on folate levels. |
| | **Methotrexate 50mg/ml pre-filled Pen injection** (Metoject®) | R pending homecare arrangements<br>**Specialist initiation only**<br>If moving the parenteral formulation to homecare, clinicians should ensure that responsibility for the different aspects of care is clearly defined (in particular blood monitoring.<br>MHRA DSU: Methotrexate once-weekly for autoimmune diseases: new measures to reduce risk of fatal overdose due to inadvertent daily instead of weekly dosing, Sept 2020<br>MHRA DSU: Methotrexate: advise patients to take precautions in the sun to avoid photosensitivity reactions (August 2023) |
| | **Sulfasalazine e/c** 500mg tablets | A |
| | **Hydroxychloroquine sulphate** 200mg tablets | A<br>MHRA DSU: Hydroxychloroquine, chloroquine: increased risk of cardiovascular events when used with macrolide antibiotics; reminder of psychiatric reactions, Feb 2022 |
| **Alternatives** | **Leflunomide tablets**<br>10mg; 15mg; 20mg | A<br>**Specialist initiation only** |
| | **Azathioprine tablets**<br>25mg; 50mg | A |
| | **Ciclosporin capsules**<br>10mg; 25mg; 50mg; 100mg | A<br>BNF Online Patients should be stabilised on a particular brand of oral ciclosporin because |

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| | | switching between formulations without close monitoring may lead to clinically important changes in blood-ciclosporin concentration. Prescribing and dispensing of ciclosporin should be by brand name to avoid inadvertent switching. |
| | **Mycophenolate** U<br>Tablets 500mg, Capsules 250mg | A<br>MHRA DSU: Mycophenolate mofetil, mycophenolic acid: new pregnancy-prevention advice for women and men 2015<br>MHRA DSU: Mycophenolate mofetil: pure red cell aplasia, July 2009<br>MHRA DSU: Mycophenolate mofetil (CellCept) and mycophenolic acid: risk of hypogammaglobulinaemia and risk of bronchiectasis, January 2015 |
| **General guidance applicable to all drugs**<br>• NICE NG100: Rheumatoid arthritis in adults: management. | | |
| **Biologics (secondary care use only)** | | |
| See also **GMMMG High Cost Drugs Pathways for:**<br>• Rheumatoid Arthritis<br>• Ankylosing spondylitis<br>• Psoriatic arthritis | | |
| **First Choices**<br>**(Follow relevant pathway)** | **Abatacept**<br>Injection or infusion | R Prevents full activation of T-lymphocytes<br>TA195: Adalimumab, etanercept, infliximab, rituximab and abatacept for the treatment of rheumatoid arthritis after the failure of a TNF inhibitor.<br>TA375: Adalimumab, etanercept, infliximab, certolizumab pegol, golimumab, tocilizumab and abatacept for rheumatoid arthritis not previously treated with DMARDs or after conventional DMARDs only have failed<br>TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed |
| | **Adalimumab**<br>First choice: Amgevita® ▼<br>Alternative: Humira®<br>Solution for injection | R TNF inhibitor<br>TA195: Adalimumab, etanercept, infliximab, rituximab and abatacept for the treatment of rheumatoid arthritis after the failure of a TNF inhibitor.<br>TA199: Etanercept, infliximab and adalimumab for the treatment of psoriatic arthritis<br>TA375: Adalimumab, etanercept, infliximab, certolizumab pegol, golimumab, tocilizumab and abatacept for rheumatoid arthritis not previously treated with DMARDs or after conventional DMARDs only have failed |

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| | | TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis<br>TA392: Adalimumab for treating moderate to severe hidradenitis suppurativa<br>TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed |
| | **Apremilast** (Otezla®)<br>Tablets | R PDE4 Inhibitor<br>TA433: Apremilast for treating active psoriatic arthritis<br>MHRA: Apremilast (Otezla ▼): risk of suicidal thoughts and behaviour |
| | **Baricitinib ▼** (Olumiant®)<br>2mg and 4mg tablets | R JAK inhibitor<br>TA466: Baricitinib for moderate to severe rheumatoid arthritis<br>NICE NG191: COVID-19 rapid guideline: managing COVID-19<br>MHRA DSU: Baricitinib (Olumiant▼): risk of venous thromboembolism, March 2020<br>MHRA DSU: Baricitinib (Olumiant▼): increased risk of diverticulitis, particularly in patients with risk factors, Aug 2020<br>MHRA DSU: Janus kinase (JAK) inhibitors: new measures to reduce risks of major cardiovascular events, malignancy, venous thromboembolism, serious infections and increased mortality, April 2023 |
| | **Belimumab ▼**<br>Infusion | R Inhibits activity of B-lymphocyte stimulator<br>TA752: Belimumab for treating active autoantibody-positive systemic lupus erythematosus |
| | **Bimekizumab**<br>Solution for injection | R IL-17 modulator<br>TA916: Bimekizumab for treating active psoriatic arthritis<br>TA918: Bimekizumab for treating axial spondyloarthritis |
| | **Certolizumab pegol**<br>Solution for injection | R TNF inhibitor<br>TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis<br>TA415: Certolizumab pegol for treating rheumatoid arthritis after inadequate response to a TNF-alpha inhibitor<br>TA445: Certolizumab pegol and secukinumab for treating active psoriatic arthritis after inadequate response to DMARDs |
| | **Etanercept** | R TNF inhibitor |

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| | Solution for injection | TA35: Guidance on the use of etanercept for the treatment of juvenile idiopathic arthritis.<br><br>TA199: Etanercept, infliximab and adalimumab for the treatment of psoriatic arthritis.<br><br>TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis<br><br>TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed |
| | **Filgotinib ▼**<br><br>100mg and 200 mg tablets | R JAK inhibitor<br><br>TA676: Filgotinib for treating moderate to severe rheumatoid arthritis<br><br>MHRA DSU: Janus kinase (JAK) inhibitors: new measures to reduce risks of major cardiovascular events, malignancy, venous thromboembolism, serious infections and increased mortality, April 2023 |
| | **Golimumab**<br><br>Solution for injection | R TNF inhibitor<br><br>TA220: Golimumab for the treatment of psoriatic arthritis.<br><br>TA225: Golimumab for the treatment of rheumatoid arthritis after the failure of previous disease-modifying anti-rheumatic drugs.<br><br>TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis<br><br>TA497: Golimumab for treating non-radiographic axial spondyloarthritis |
| | **Guselkumab**<br><br>Solution for injection | R IL-23 inhibitor<br><br>TA711: Guselkumab for treating active psoriatic arthritis after inadequate response to DMARDs<br><br>TA815: Guselkumab for treating active psoriatic arthritis after inadequate response to DMARDs |
| | **Infliximab**<br><br>Infusion<br><br>Solution for subcutaneous injection | R TNF inhibitor<br><br>TA195: Adalimumab, etanercept, infliximab, rituximab and abatacept for the treatment of rheumatoid arthritis after the failure of a TNF inhibitor.<br><br>TA199: Etanercept, infliximab and adalimumab for the treatment of psoriatic arthritis<br><br>TA375: Adalimumab, etanercept, infliximab, certolizumab pegol, golimumab, tocilizumab and abatacept for rheumatoid arthritis not previously treated with DMARDs or after conventional DMARDs only have failed<br><br>TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis |

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| | | TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed |
| | **Ixekizumab**<br>Solution for injection | (R) Interleukin 17 antagonist<br>TA537: Ixekizumab for treating active psoriatic arthritis after inadequate response to DMARDs<br>TA718: Ixekizumab for treating axial spondyloarthritis |
| | **Risankizumab ▼**<br>Solution for injection | (R) Interleukin 23 antagonist<br>TA803: Risankizumab for treating active psoriatic arthritis after inadequate response to DMARDs |
| | **Rituximab**<br>Infusion | (R) Anti-lymphocytic - causes lysis of B lymphocytes<br>MHRA DSU: Rituximab: progressive multifocal leukoencephalopathy in a patient without prior treatment for rheumatoid arthritis, December 2009.<br>MHRA DSU: Rituximab: screen for hepatitis B virus before treatment, December 2013<br>TA308: Rituximab in combination with glucocorticoids for treating anti-neutrophil cytoplasmic antibody-associated vasculitis. |
| | **Sarilumab ▼**<br>Solution for injection | (R) Interleukin-6 antagonist<br>TA485: Sarilumab for moderate to severe rheumatoid arthritis<br>NG191: managing COVID-19 |
| | **Secukinumab**<br>Solution for injection | (R)<br>TA407: Secukinumab for active ankylosing spondylitis after treatment with non-steroidal anti-inflammatory drugs or TNF-alpha inhibitors<br>TA719: Secukinumab for treating non-radiographic axial spondyloarthritis |
| | **Tocilizumab**<br>Injection, infusion | (R) Interleukin-6 antagonist<br>TA238: Systemic juvenile idiopathic arthritis – tocilizumab.<br>TA247: Tocilizumab for the treatment of systemic juvenile idiopathic arthritis.<br>TA518: Tocilizumab for treating giant cell arteritis<br>NG191: managing COVID-19 |
| | **Tofacitinib▼**<br>5mg and 10mg tablets | (R) JAK inhibitor<br>TA480: Tofacitinib for moderate to severe rheumatoid arthritis |

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| | | TA543: Tofacitinib for treating active psoriatic arthritis after inadequate response to DMARDs<br><br>TA920: Tofacitinib for treating active ankylosing spondylitis<br><br>MHRA DSU: Tofacitinib (Xeljanz▼): new measures to minimise risk of venous thromboembolism and of serious and fatal infections, March 2020<br><br>MHRA DSU: Tofacitinib (Xeljanz▼): new measures to minimise risk of major adverse cardiovascular events and malignancies, Oct 2021<br><br>MHRA DSU: Janus kinase (JAK) inhibitors: new measures to reduce risks of major cardiovascular events, malignancy, venous thromboembolism, serious infections and increased mortality, April 2023 |
| | **Upadacitinib▼**<br>Prolonged-release tablets | R JAK inhibitor<br><br>NICE technology appraisals:<br>• TA665: severe rheumatoid arthritis<br>• TA744: moderate rheumatoid arthritis<br>• TA768: active psoriatic arthritis after inadequate response to DMARDs<br>• TA829: active ankylosing spondylitis<br>• TA861: active non-radiographic axial spondyloarthritis<br><br>MHRA DSU: Janus kinase (JAK) inhibitors: new measures to reduce risks of major cardiovascular events, malignancy, venous thromboembolism, serious infections and increased mortality, April 2023 |
| | **Ustekinumab**<br>Solution for injection | R<br><br>TA340: Ustekinumab for treating active psoriatic arthritis. |

**General guidance applicable to all drugs**

- Biologics in Rheumatoid Arthritis can be used, without prior funding approval, according to GMMMG approved pathways: High Cost Drugs Pathway for Rheumatoid Arthritis, High Cost Drugs Pathway for Ankylosing Spondylitis, and High Cost Drugs Pathway for Psoriatic Arthritis
- MHRA DSU: Tumour necrosis factor alpha inhibitors: risk of tuberculosis—screen all patients before starting treatment and monitor them closely, April 2014
- MHRA DSU: TNFa inhibitors: risk of TB – screen all patients before starting treatment and monitor them closely (April 2016)

**Additional NICE guidance and technology appraisals:**

- NICE NG100: Rheumatoid arthritis in adults: management.
- NICE TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis

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| **Subsection** | **10.1.4 Gout and cytotoxic induced hyperuricaemia** | |
| **General guidance applicable to all drugs**<br>• NICE NG219: Gout: diagnosis and management<br>• British Society for Rheumatology Guideline for the Management of Gout<br>**NICE Technology Appraisals:**<br>• NICE TA291: Pegloticase for treating severe debilitating chronic tophaceous gout | | |
| **Acute attack** | | |
| **First choice** | **Colchicine**<br>500microgram tablets | Alternative where NSAIDS contraindicated<br>MHRA DSU: colchicine: extremely toxic in overdose, November 2009. |
| **Long-term control of gout** | | |
| **First choice** | **Allopurinol tablets**<br>100mg; 300mg | |
| **Alternatives** | **Febuxostat tablets**<br>80mg; 120mg | Gn<br>Use only where allopurinol is contraindicated or not tolerated. (As per NICE guidance and/or on specialist advice.)<br>MHRA DSU: Febuxostat (Adenuric▼): stop treatment if signs or symptoms of serious hypersensitivity occur, June 2012. |
| | **Sulfinpyrazone tablets**<br>100mg; 200mg | |
| **Subsection** | **10.1.5 Other drugs for rheumatic diseases** | |
| **Applicable guidance**:<br>• NICE NG226: Osteoarthritis in over 16s: diagnosis and management - section 1.4.6 Do not offer glucosamine products or strong opioids for the management of osteoarthritis.<br>• GMMMG 'Do Not Prescribe and Grey Lists': glucosamine and synovial fluid injections (including hyaluronan and sodium hyaluronate injection).<br>• GM Policy Statement (2020). Hyaluronic Acid injections for Osteoarthritis (GM037).<br>**NICE Technology Appraisals:**<br>• NICE TA477: Autologous chondrocyte implantation for treating symptomatic articular cartilage defects of the knee<br>• NICE TA508: Autologous chondrocyte implantation using chondrosphere for treating symptomatic articular cartilage defects of the knee | | |
| **Do Not Prescribe** | **Glucosamine**<br>With or without chondroitin<br><br>**Synovial fluid injections** | Criterion 1 (see RAG list)<br><br>Criterion 1 (see RAG list) |

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| | Including hyaluronan and sodium hyaluronate injections | |

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| **Section** | **10.2 Drugs used in neuromuscular disorders** | |
| **Subsection** | **10.2.1 Drugs that enhance neuromuscular transmission** | |
| **First choice** | **Pyridostigmine**<br>tablets: 60mg | |
| **Alternatives** | **Neostigmine**<br>tablets: 15mg | |
| **Subsection** | **10.2.2 Skeletal muscle relaxants** | |
| **First choice** | **Dantrolene**<br>capsules: 25mg, 100mg | |
| **Alternatives** | **Diazepam**<br>tablets 2mg, 5mg, 10mg<br>oral solution 2mg/5ml | |
| | **Baclofen**<br>tablets: 10mg<br>oral solution: 5mg/5ml | |
| | **Mexiletine**<br>capsules: 167mg | R NICE TA748: Mexiletine for treating the symptoms of myotonia in non-dystrophic myotonic disorders |
| | **Tizanidine**<br>tablets: 2mg, 4mg | Gn Following specialist initiation |
| **Section** | **Miscellaneous** | |
| | **Nusinersen** (Prevymis®)<br>solution for injection: 12mg | R NICE TA588: Nusinersen for treating spinal muscular atrophy |
| | **Risdiplam** (Evrysdi®▼)<br>powder for oral solution 0.75mg/ml | R NICE TA755: Risdiplam for treating spinal muscular atrophyv |

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| **Do Not Prescribe** | **Therabite®**<br>Jaw rehabilitation system | Criterion 1 (see RAG list) |

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| **Section** | **10.3 Drugs for the relief of soft-tissue inflammation** | |
| **Subsection** | **10.3.1 Enzymes** (Secondary care use) | |
| | **Collagenase (Xiapex®)** | Ⓡ<br>NICE TA459: Collagenase clostridium histolyticum for treating Dupuytren's contracture |
| **Subsection** | **10.3.2 Rubefacients and other topical antirheumatics** | |
| **Rubefacients** | | |
| **Do Not Prescribe** | **Rubefacients**<br>Topical rubefacient products may contain nicotinate and salicylate compounds, essential oils, capsicum, and camphor. Topical NSAID or capsaicin preps are not rubefacients | Criterion 1 (see RAG list) |
| **Topical NSAIDS** | | |
| **Options** | **Ibuprofen 5% Gel**<br>(Available as 30g, 50g or 100g tubes) | |
| | **Ketoprofen 2.5% Gel**<br>(Available as 30g, 50g or 100g tubes) | MHRA DSU: topical ketoprofen: reminder on photosensitivity reactions, June 2009 and MHRA August 2010 |
| | **Piroxicam 0.5% Gel**<br>(Available as 60g or 112g tubes) | |
| **Capsaicin** | | |
| **Options** | **Capsaicin 0.025% cream** | NICE CG177: Osteoarthritis: Care and management in adults.<br>GMMMG Neuropathic Pain in Adults - Guideline for Primary Care (May 2022) |
| | **Capsaicin 0.075% cream** | |
| **Poultices** | | |
| Not recommended for prescribing | | |