Chapter 10. Musculoskeletal and joint diseases

Contents

Key

	**Red drug** see GMMMG RAG list *Click on the symbols to access this list*
	**Amber drug** see GMMMG RAG list *Click on the symbols to access this list*
	**Green drug** see GMMMG RAG list *Click on the symbols to access this list*
U	**If a medicine is unlicensed this should be highlighted in the template as follows** **Drug name** U
	**Not Recommended**
OTC	**Over the Counter** 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.

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** 200mg; 400mg; 600mg	MHRA DSU: High-dose ibuprofen: small increase in cardiovascular risk, June 2015
Alternatives	**Naproxen tablets** 250mg; 500mg	
	Diclofenac tablets 50mg	MHRA DSU: diclofenac: new contraindications and warnings, June 2013. 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 30mg, 60mg, 90mg, 120mg	MHRA DSU: Etoricoxib (Arcoxia): revised dose recommendation for rheumatoid arthritis and ankylosing spondylitis MHRA DSU: etoricoxib: prescribing to patients with high blood pressure, July 2008.
Grey drugs Items which are listed as Grey are deemed not suitable for routine prescribing but may be suitable for a defined patient population	**Piroxicam** Capsules, orodispersible tablets 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 Criterion 1 (see RAG list)
	Celecoxib Capsules Only for use in palliative care for the relief of cancer pain.	Gn Criterion 1 (see RAG list)
Do Not Prescribe	**Naproxen with esomeprazole** 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**	
Systemic corticosteroids		
The general actions, uses, and cautions of corticosteroids are described in the BNF.		
Local corticosteroid injections		
First choice	**Methylprednisolone acetate 40mg/ml** or **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 **Triamcinolone acetonide 40mg/ml**	

Subsection	**10.1.3 Drugs that suppress the rheumatic disease process**	
DMARDS		
First Choice	**Methotrexate 2.5mg tablets**	A NPSA Alert, June 2006. Improving compliance with oral methotrexate guidelines. When prescribing oral methotrexate only ever prescribe 2.5mg tablets and pay particular attention to correct dosing instructions – **weekly** dosing. 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 **Specialist initiation only** 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. 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 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 MHRA DSU: Hydroxychloroquine, chloroquine: increased risk of cardiovascular events when used with macrolide antibiotics; reminder of psychiatric reactions, Feb 2022
Alternatives	**Leflunomide tablets** 10mg; 15mg; 20mg	A **Specialist initiation only**
	Azathioprine tablets 25mg; 50mg	A
	Ciclosporin capsules 10mg; 25mg; 50mg; 100mg	A BNF Online Patients should be stabilised on a particular brand of oral ciclosporin because

		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 Tablets 500mg, Capsules 250mg	A MHRA DSU: Mycophenolate mofetil, mycophenolic acid: new pregnancy-prevention advice for women and men 2015 MHRA DSU: Mycophenolate mofetil: pure red cell aplasia, July 2009 MHRA DSU: Mycophenolate mofetil (CellCept) and mycophenolic acid: risk of hypogammaglobulinaemia and risk of bronchiectasis, January 2015
General guidance applicable to all drugs • NICE NG100: Rheumatoid arthritis in adults: management.		
Biologics (secondary care use only)		
See also **GMMMG High Cost Drugs Pathways for:** • Rheumatoid Arthritis • Ankylosing spondylitis • Psoriatic arthritis		
First Choices **(Follow relevant pathway)**	**Abatacept** Injection or infusion	R Prevents full activation of T-lymphocytes TA195: Adalimumab, etanercept, infliximab, rituximab and abatacept for the treatment of rheumatoid arthritis after the failure of a TNF inhibitor. 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 TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed
	Adalimumab First choice: Amgevita® ▼ Alternative: Humira® Solution for injection	R TNF inhibitor TA195: Adalimumab, etanercept, infliximab, rituximab and abatacept for the treatment of rheumatoid arthritis after the failure of a TNF inhibitor. TA199: Etanercept, infliximab and adalimumab for the treatment of psoriatic arthritis 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

		TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis TA392: Adalimumab for treating moderate to severe hidradenitis suppurativa TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed
	Apremilast (Otezla®) Tablets	R PDE4 Inhibitor TA433: Apremilast for treating active psoriatic arthritis MHRA: Apremilast (Otezla ▼): risk of suicidal thoughts and behaviour
	Baricitinib ▼ (Olumiant®) 2mg and 4mg tablets	R JAK inhibitor TA466: Baricitinib for moderate to severe rheumatoid arthritis NICE NG191: COVID-19 rapid guideline: managing COVID-19 MHRA DSU: Baricitinib (Olumiant▼): risk of venous thromboembolism, March 2020 MHRA DSU: Baricitinib (Olumiant▼): increased risk of diverticulitis, particularly in patients with risk factors, Aug 2020 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 ▼ Infusion	R Inhibits activity of B-lymphocyte stimulator TA752: Belimumab for treating active autoantibody-positive systemic lupus erythematosus
	Certolizumab pegol Solution for injection	R TNF inhibitor TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis TA415: Certolizumab pegol for treating rheumatoid arthritis after inadequate response to a TNF-alpha inhibitor TA445: Certolizumab pegol and secukinumab for treating active psoriatic arthritis after inadequate response to DMARDs
	Etanercept Solution for injection	R TNF inhibitor TA35: Guidance on the use of etanercept for the treatment of juvenile idiopathic arthritis. TA199: Etanercept, infliximab and adalimumab for the treatment of psoriatic arthritis. TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis

		TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed
	Filgotinib ▼ 100mg and 200 mg tablets	(R) JAK inhibitor TA676: Filgotinib for treating moderate to severe rheumatoid arthritis 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 Solution for injection	(R) TNF inhibitor TA220: Golimumab for the treatment of psoriatic arthritis. TA225: Golimumab for the treatment of rheumatoid arthritis after the failure of previous disease-modifying anti-rheumatic drugs. TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis TA497: Golimumab for treating non-radiographic axial spondyloarthritis
	Guselkumab Solution for injection	(R) IL-23 inhibitor TA711: Guselkumab for treating active psoriatic arthritis after inadequate response to DMARDs TA815: Guselkumab for treating active psoriatic arthritis after inadequate response to DMARDs
	Infliximab Infusion Solution for subcutaneous injection	(R) TNF inhibitor TA195: Adalimumab, etanercept, infliximab, rituximab and abatacept for the treatment of rheumatoid arthritis after the failure of a TNF inhibitor. TA199: Etanercept, infliximab and adalimumab for the treatment of psoriatic arthritis 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 TA383: TNF-alpha inhibitors for ankylosing spondylitis and non-radiographic axial spondyloarthritis TA715: Adalimumab, etanercept, infliximab and abatacept for treating moderate rheumatoid arthritis after conventional DMARDs have failed
	Ixekizumab Solution for injection	(R) Interleukin 17 antagonist TA537: Ixekizumab for treating active psoriatic arthritis after inadequate response to DMARDs

		TA718: Ixekizumab for treating axial spondyloarthritis
	Risankizumab ▼ Solution for injection	(R) Interleukin 23 antagonist TA803: Risankizumab for treating active psoriatic arthritis after inadequate response to DMARDs
	Rituximab Infusion	(R) Anti-lymphocytic - causes lysis of B lymphocytes MHRA DSU: Rituximab: progressive multifocal leukoencephalopathy in a patient without prior treatment for rheumatoid arthritis, December 2009. MHRA DSU: Rituximab: screen for hepatitis B virus before treatment, December 2013 TA308: Rituximab in combination with glucocorticoids for treating anti-neutrophil cytoplasmic antibody-associated vasculitis. GMMMG Rituximab biosimilar recommendation (August 2017)
	Sarilumab ▼ Solution for injection	(R) Interleukin-6 antagonist TA485: Sarilumab for moderate to severe rheumatoid arthritis NG191: managing COVID-19
	Secukinumab Solution for injection	(R) TA407: Secukinumab for active ankylosing spondylitis after treatment with non-steroidal anti-inflammatory drugs or TNF-alpha inhibitors TA719: Secukinumab for treating non-radiographic axial spondyloarthritis
	Tocilizumab Injection, infusion	(R) Interleukin-6 antagonist TA238: Systemic juvenile idiopathic arthritis – tocilizumab. TA247: Tocilizumab for the treatment of systemic juvenile idiopathic arthritis. TA518: Tocilizumab for treating giant cell arteritis NG191: managing COVID-19
	Tofacitinib▼ 5mg and 10mg tablets	(R) JAK inhibitor TA480: Tofacitinib for moderate to severe rheumatoid arthritis TA543: Tofacitinib for treating active psoriatic arthritis after inadequate response to DMARDs MHRA DSU: Tofacitinib (Xeljanz▼): new measures to minimise risk of venous thromboembolism and of serious and fatal infections, March 2020

		MHRA DSU: Tofacitinib (Xeljanz▼): new measures to minimise risk of major adverse cardiovascular events and malignancies, Oct 2021 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▼ Prolonged-release tablets	(R) JAK inhibitor NICE technology appraisals: • TA665: severe rheumatoid arthritis • TA744: moderate rheumatoid arthritis • TA768: active psoriatic arthritis after inadequate response to DMARDs • TA829: active ankylosing spondylitis • TA861: active non-radiographic axial spondyloarthritis 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 Solution for injection	(R) 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		
Subsection	**10.1.4 Gout and cytotoxic induced hyperuricaemia**	
General guidance applicable to all drugs • NICE NG219: Gout: diagnosis and management • British Society for Rheumatology Guideline for the Management of Gout **NICE Technology Appraisals:** • NICE TA291: Pegloticase for treating severe debilitating chronic tophaceous gout		
Acute attack		
First choice	**Colchicine 500microgram tablets**	MHRA DSU: colchicine: extremely toxic in overdose, November 2009.

Alternative where NSAIDS contraindicated		
Long-term control of gout		
First choice	**Allopurinol tablets** 100mg; 300mg	
Alternatives	**Febuxostat tablets** 80mg; 120mg	Gn Use only where allopurinol is contraindicated or not tolerated. (As per NICE guidance and/or on specialist advice.) MHRA DSU: Febuxostat (Adenuric▼): stop treatment if signs or symptoms of serious hypersensitivity occur, June 2012.
	Sulfinpyrazone tablets 100mg; 200mg	
Do Not Prescribe	**Lesinurad** Tablets	Criterion 2 (see RAG list)
Subsection	**10.1.5 Other drugs for rheumatic diseases**	

Applicable guidance:

- 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.
- GMMMG 'Do Not Prescribe and Grey Lists': glucosamine and synovial fluid injections (including hyaluronan and sodium hyaluronate injection).
- GM Policy Statement (2020). Hyaluronic Acid injections for Osteoarthritis (GM037).

NICE Technology Appraisals:

- NICE TA477: Autologous chondrocyte implantation for treating symptomatic articular cartilage defects of the knee
- NICE TA508: Autologous chondrocyte implantation using chondrosphere for treating symptomatic articular cartilage defects of the knee

Do Not Prescribe	**Glucosamine** With or without chondroitin	Criterion 1 (see RAG list)
	Synovial fluid injections Including hyaluronan and sodium hyaluronate injections	Criterion 1 (see RAG list)

Section	**10.2 Drugs used in neuromuscular disorders**	
Subsection	**10.2.1 Drugs that enhance neuromuscular transmission**	
First choice	**Pyridostigmine** tablets: 60mg	
Alternatives	**Neostigmine** tablets: 15mg	
Subsection	**10.2.2 Skeletal muscle relaxants**	
First choice	**Dantrolene** capsules: 25mg, 100mg	
Alternatives	**Diazepam** tablets 2mg, 5mg, 10mg oral solution 2mg/5ml	
	Baclofen tablets: 10mg oral solution: 5mg/5ml	
	Mexiletine capsules: 167mg	R NICE TA748: Mexiletine for treating the symptoms of myotonia in non-dystrophic myotonic disorders
	Tizanidine tablets: 2mg, 4mg	Gn Following specialist initiation
Section	**Miscellaneous**	
	Nusinersen (Prevymis®) tablets: 240mg	R NICE TA588: Nusinersen for treating spinal muscular atrophy
	Risdiplam (Evrysdi®▼) powder for oral solution 0.75mg/ml	R NICE TA755: Risdiplam for treating spinal muscular atrophyv
Do Not Prescribe	**Therabite®** Jaw rehabilitation system	Criterion 1 (see RAG list)

Section	**10.3 Drugs for the relief of soft-tissue inflammation**	
Subsection	**10.3.1 Enzymes** (Secondary care use)	
	Collagenase (Xiapex®)	Ⓡ NICE TA459: Collagenase clostridium histolyticum for treating Dupuytren's contracture
Subsection	**10.3.2 Rubefacients and other topical antirheumatics**	
Rubefacients		
Do Not Prescribe	**Rubefacients** 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** (Available as 30g, 50g or 100g tubes)	
	Ketoprofen 2.5% Gel (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 (Available as 60g or 112g tubes)	
Capsaicin		
Options	**Capsaicin 0.025% cream**	NICE CG177: Osteoarthritis: Care and management in adults. GMMMG Neuropathic Pain Guideline November 2019
	Capsaicin 0.075% cream	
Poultices		
Not recommended for prescribing		