Gout

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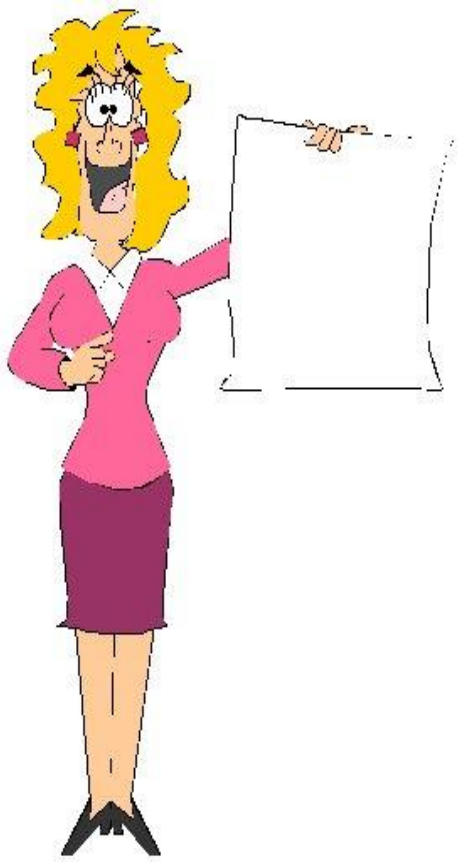
LSBU prescribing update 20th June 2024

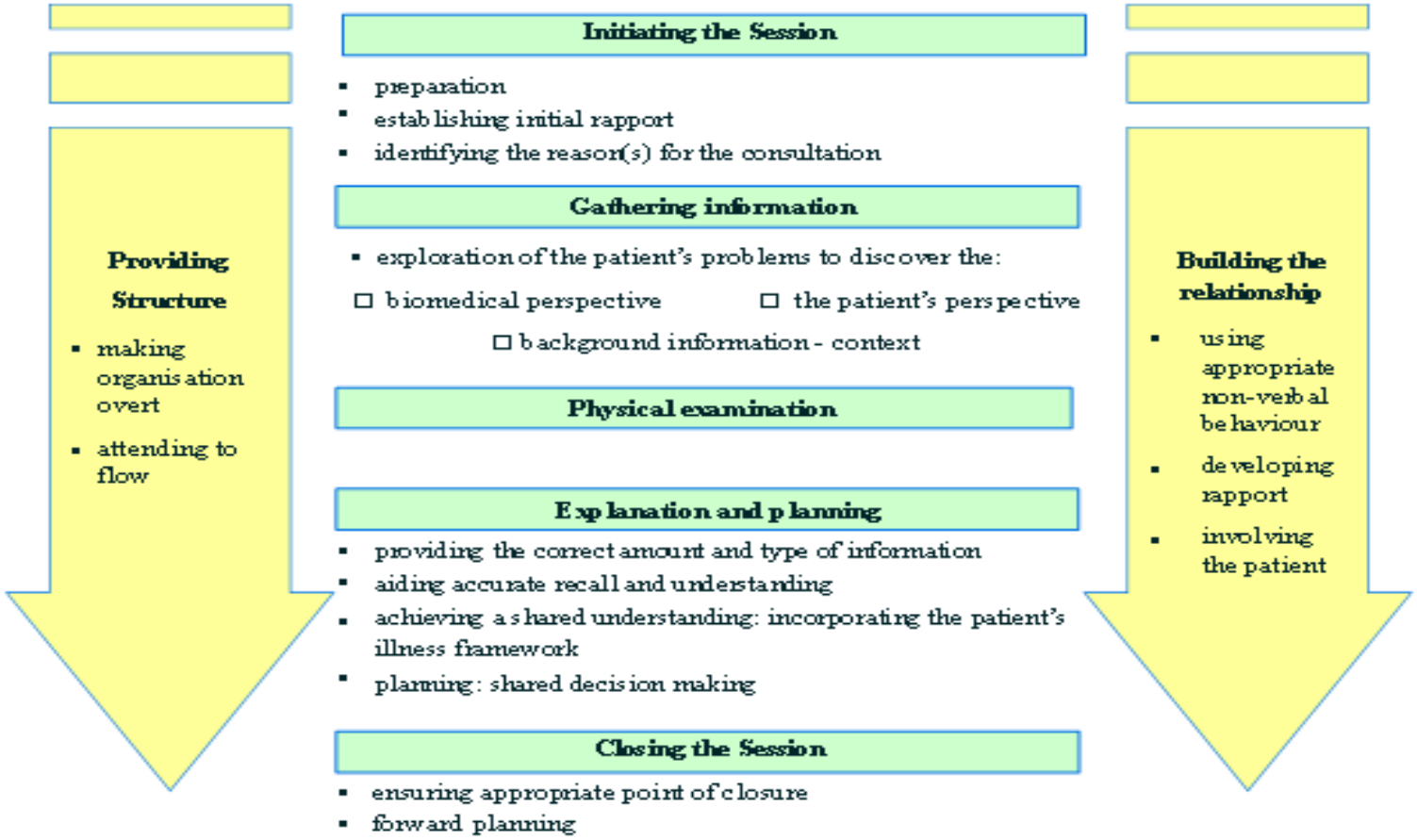
Aims and objectives



To be aware of:

- The value of listening to the patient
- The importance of history taking
- The value of physical examination
- How to nail the diagnosis
- How to work within scope of practice
- Determining treatment options
- The value of nurses practicing at advanced level

Calgary- Cambridge Model



Clinical presentation

- Charles Cartwright has bilateral sore swollen knees and is using elbow crutches.
- Has had this several times in recent years, has been told it is cellulitis
- Antibiotics eventually clear problem but it keeps coming back

Presenting problems

- **Severe pain -** getting worse not better.
- **Unable to weight bear** "because of the pain"
- **Hot and tender**

Medical and social history

- Divorced, 55 year old gentleman, lives alone
- Attends gym and lifts weights, initially thought he'd injured knees lifting
- Works as carpenter
- Has had this before, told its cellulitis. GP normally treats with long courses of antibiotics
- Attended urgent care, they declined to prescribe antibiotics.

Mr Cartwright's hopes and aspirations

" If you could give me a prescription for antibiotics I'll be on my way. I will need a least a month's worth. I might need something stronger than the ones I had last time".

Physical examination

All systems other than MSK= normal

Knees hot red tender to touch

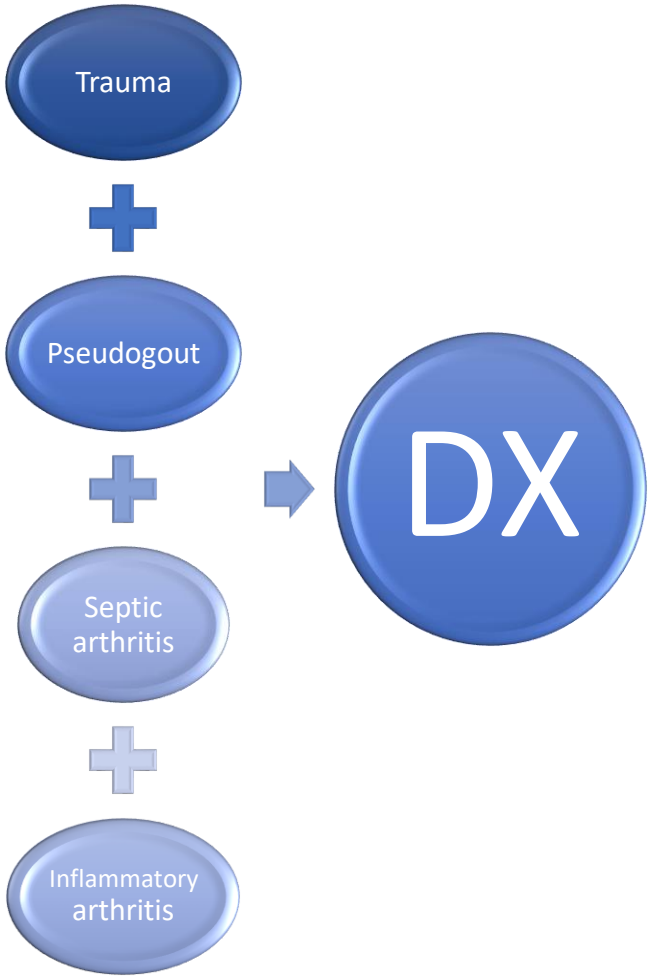
“Came on overnight, after a session of lifting”

Observations of temperature, pulse, blood pressure, pulse, respirations, and 02 saturations were within normal limits.

Weight 82kg. BMI 30

Formulating the diagnosis

Possible diagnoses



Septic arthritis

- Acute bacterial or fungal infection of a joint. Septic arthritis can lead to the destruction of cartilage, severe disability, and increased mortality. Symptoms include fever, chills, hot red joint, severe pain in the affected joint especially on movement, swelling within the joint (Tzanis et. al, 2022).

- Older people, especially those with conditions such as rheumatoid arthritis, artificial joints, active infections, people who inject drugs and people taking immunosuppressants are at particular risk of septic arthritis (Earlwood et al, 2021)

Red flag septic arthritis
Medical emergency

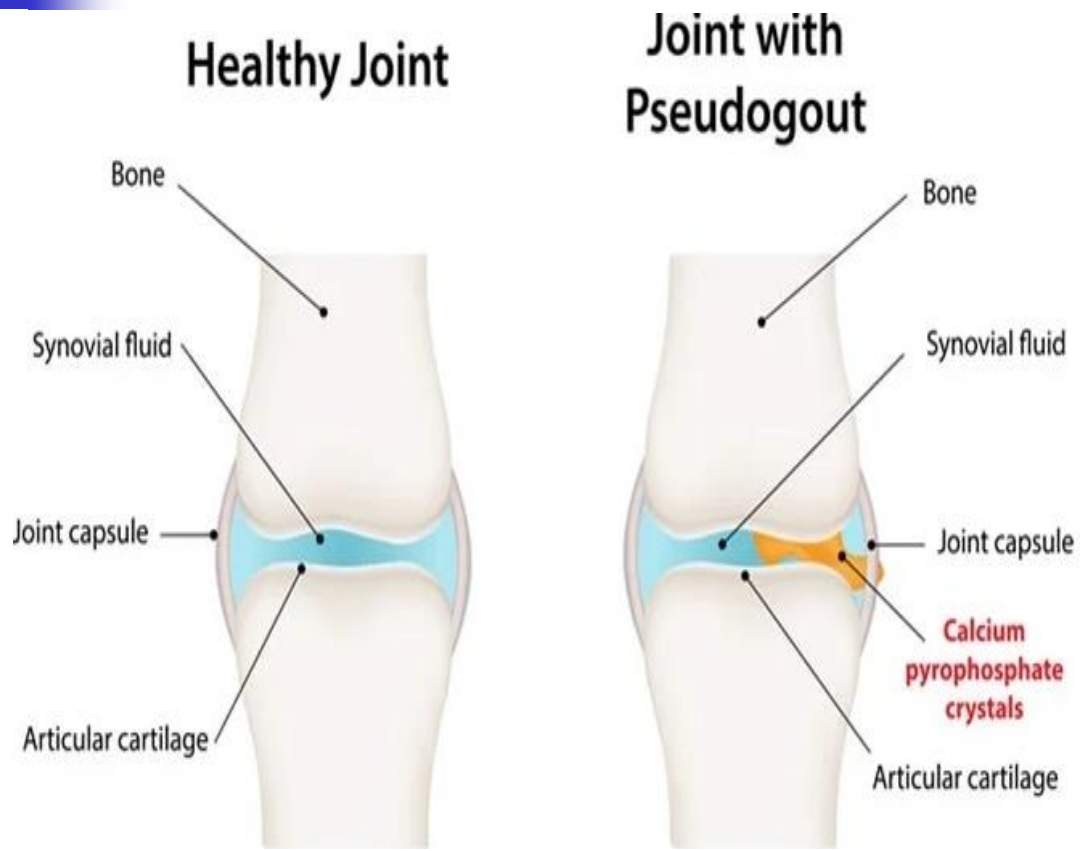
Risk factors

- Aged 80+
- Diabetes mellitus
- Rheumatoid arthritis,
- recent joint surgery or joint prosthesis,
- Previous intra-articular injection
- Skin infections and cutaneous ulcers
- HIV
- Osteoarthritis
- Sexual activity (suspected gonococcal septic arthritis), young healthy patients

Clinical features

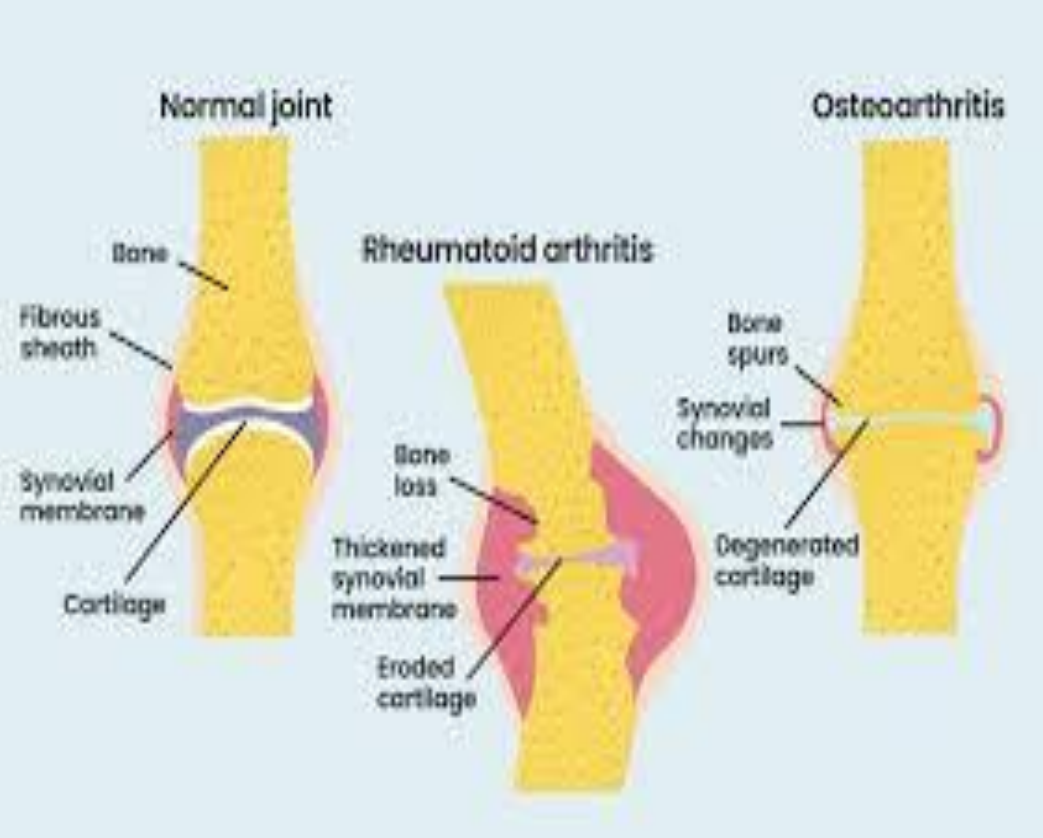
- Knee most common site
- Acute onset
- One joint
- Pain, fever – 40-60% of cases
- Swelling and difficulty moving joint

Pseudogout
Pyrophosphate dihydrate deposition (CPPD) disease



- An acute arthritis caused by the deposition of CPPD crystals
- Most, 95%, of those affected are male (Kleiber Balderrama et.al, 2017).
- Rare under age of 60 (Neame et al, 2003).
- Around 30-50% are aged 85+ on first presentation(Higgins, 2016)
- Usually occurs in larger joints, such as the knees or wrists. It can be difficult to differentiate between gout and pseudogout (Zamora et. al, 2023)

Inflammatory Arthritis



A group of diseases, which in adults, includes:

- Rheumatoid arthritis.
- Psoriatic arthropathy.
- Adult-onset Still's disease.

Auto-immune diseases, first presents in people aged 30-40.

Rheumatoid arthritis and psoriatic arthritis can both present with inflammation and pain in a single joint or digit (NICE, 2020: NICE, 2017).

When a person presents with swelling and pain in multiple joints the clinician should consider inflammatory arthritis (NICE, 2023c).

Refer to rheumatologist

What is gout?

Gout is a type of inflammatory arthritis. If is defined as:

“Gout is a type of arthritis caused by monosodium urate crystals forming inside and around joints, causing sudden flares of severe pain, heat, and swelling” (NICE, 2023a).

Gout is triggered by a disorder of purine metabolism that leads to the build-up of uric acid in the blood. This condition is known as *hyperuricaemia.* It leads to the formation of crystals within joints and on the outer surfaces of joints. Gout can affect any joint; it most commonly affects the toes, knees, ankles and fingers (Ragab, 2017).

Gout

- Affects 1.6 million people in England, one person in 50
- 66,000 people newly diagnosed annually (Abhishek et. al, 2022).
- Gout is more common in older people, especially older men.
- Less common in Scotland and Northern Ireland.
- Rising prevalence in UK

Gout risk factors

- Metabolic syndrome, hypertension, dyslipidaemia, obesity
- Increased risk of cardiovascular disease including cardiac failure and myocardial infarction (Stamp & Chapman, 2012: NICE, 2023b).
- Stage three or greater severity chronic kidney disease (Singh & Gaffo, 2020). Kidney stones, *nephrolithiasis*, can develop as a result of gout (Ramos & Goldfarb, 2022).
- Duretics, aspirin and cyclosporine, an immunosuppressant, increase the risk of a person developing gout (Ben Salem et al, 2017).
- Diet and drinks rich in purines

Stages of gout

Asymptomatic hyperuricaemia
- Rising blood levels of uric acid, increasing risk of developing gout

Acute gout:
- Almost always involves one joint, usually big toe

Intercritical gout
- Second episode within 12 months and chronic gout within 10 years

Chronic gout
- Crystal deposits, tophi, irregular firm nodules and chronic joint damage

1. **Asymptomatic hyperuricaemia:** As blood levels of uric acid rise the risk of developing gout increases
2. **Acute gout**: Almost all initial episodes affect a single joint. This is most often the big toe.
3. **Intercritical gout:** The second acute episode often occurs within a year of the resolution of the first episode. Chronic symptoms develop within 10 years.
4. **Chronic tophaceous gout:** Large crystal deposits, *tophi*, produce irregular firm nodules and chronic joint damage (NICE, 2023a).

Diagnosis and treatment of acute phase

Gout can be diagnosed treated and managed in primary care without specialist rheumatological input (NICE, 2022).

We need to diagnose acuratley and to use urate lowering therapy (ULT) appropriately. Evidence suggests that there are delays in initiating ULT and that patients who would benefit from ULT do not always have this prescribed (Kuo et.al, 2015).

Clinical features of gout

Acute onset	• Symptoms develop within 12-24 hours
Excruciating joint pain	• Joint hot, red tender to touch
Site	• Lower limb and single joint at first presentation

Precipitated by

Infection, injury, dehydration, excess alcohol or purine intake, and rapid initiation of ULT

How to diagnose

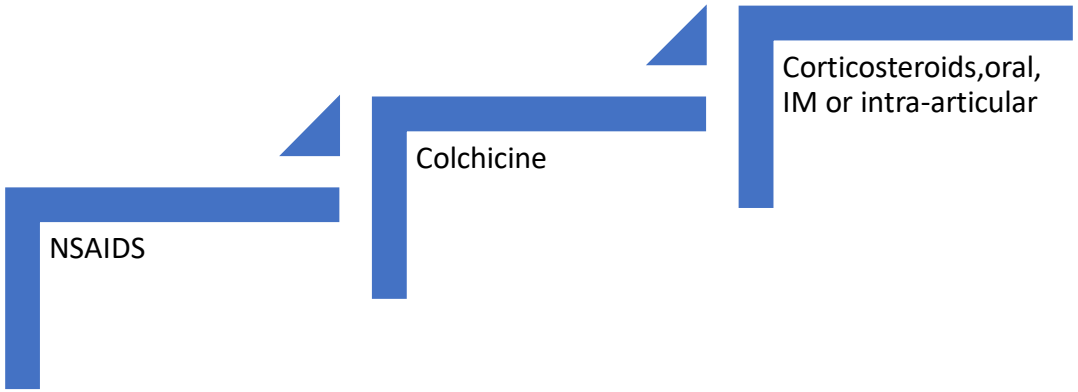
- Gout is diagnosed on the basis of history and clinical assessment, may have low grade pyrexia and feels generally unwell.
- Take blood to measure serum urate level and confirm clinical diagnosis (NICE, 2022)
- **Serum urate level 360 micromol/litre indicates gout.** If serum urate level is below 360 micromol/litre and gout is strongly suspected the urate level check in two weeks (NICE 2022).
- If diagnosis of gout remains uncertain NICE recommend joint aspiration and microscopy of synovial fluid. Some primary care physicians are able to do this. If this is not possible NICE recommend x-ray or CT imaging of the affected joint (NICE, 2022).

In day-to-day practice diagnosis is usually made clinically and confirmed by checking serum urate levels.

Acute phase comfort measures

- Elevate the affected joint
- Rest
- Apply ice packs

Start treatment ASAP



- Early treatment aims to reduce damage to joints and to reduce pain and discomfort (BNF, 2024a).
- There are three possible treatments for acute gout, Nonsteroidal anti-inflammatory drugs (NSAIDs), colchicine, a treatment specifically used to treat gout and corticosteroids. Corticosteroids these can be given orally, intramuscularly or injected directly into the joint (BNF, 2024a; NICE,2023a).

Non steroidal anti-inflammatory drugs

Contraindications

Older, aged 65 and over – risks of gastro-intestinal(GI) bleeding and renal damage may outweigh benefits

On anticoagulant therapy – risk of GI bleeding

Indications and dosage

- Younger, under the age of 65 are usually prescribed a Non steroidal anti-inflammatory drug (NSAID).
- Naproxen is usually the NSAID of choice as it has fewer gastrointestinal side effects than other NSAIDs. The usual dose is 750mg as an initially dose and 250g three times daily (TDS) until attack has passed (BNF, 2024b).

NICE (2023a) advises clinicians to consider prescribing a proton pump inhibitor for patients on NSAIDs.

Colchicine

- Indication: Treatment of acute gout. It can be given to people who are being treated with anticoagulants.
- **Narrow therapeutic range and in overdose can cause serious side effects and can lead to death** (Stamp et al, 2023).
- People at greatest risk of adverse effects are people who are over 85 years old, those with renal or hepatic impairment, gastro-intestinal or cardiac disease (Wason et la, 2014).
- Dosage is 500 micrograms 2–4 times a day until symptoms relieved. The total dose in a course of treatment, should not exceed 6 mg. There should be a break in treatment of at least four days before commencing another course. Side effects include abdominal pain, diarrhoea; nausea and vomiting (BNF, 2024c).

Corticosteroids

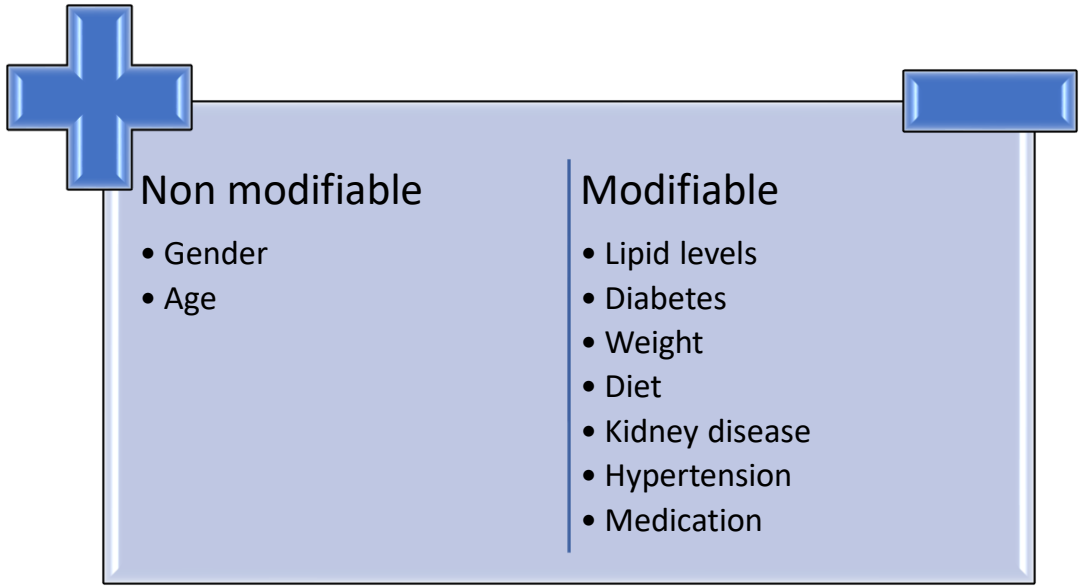
All are given ”off label”. Normally medical staff would discuss treatment, other than oral steroid therapy, with a rheumatologist prior to treatment.

- Corticosteroids can be given if NSAIDs and colchicine are not suitable.
- NICE (2023) recommends oral prednisolone 30-35 mg once a day for 3-5 days.
- Alternatively, an intramuscular corticosteroid injection or an intra-articular corticosteroid injection may be given. In primary care intra-articular corticosteroids are not normally prescribed or administered by nurses but may be given by medical staff or possibly physiotherapists with appropriate skills.
- NICE (2023) advises clinicians to consider prescribing a proton pump inhibitor for patients prescribed oral steroids.

Acute gout treatment summary

Treatment	Dose	Duration	Comments
NSAIDS	Naproxen often drug of choice. Initial dose 750mg and 250mg TDS	Until symptoms settle	Contraindications those on anticoagulants, history of gastric ulceration. Cautions over 65years. Consider PPI
Colchicine	Colchicine is a specific treatment for acute gout. Dose 500 micrograms 2–4 times a day until symptoms relieved, maximum 6g per course of treatment.	Until symptoms settle or 6g administered.	Risk of toxicity, narrow therapeutic range. Cautions: Cardiac disease; over 65, gastro-intestinal disease, hepatic and renal disease
Steroid therapy		Three to five days for oral treatment. One single treatment for injectable steroids.	All steroid treatment is off label and not normally prescribed by nurses in primary care

Holistic care and lifestyle factors



Person with gout is likely to be overweight, hypertensive, have impaired renal function and may have metabolic syndrome and type two diabetes.

It is possible to modify these factors and promote health

The post flare MOT

Follow up appointment:

- Bloods before appointment, serum urate level, HbA1c to screen for diabetes, check lipid levels to assess for cardiovascular disease and to check urea and electrolytes to check for renal disease.
- At the MOT, check weight, body mass index (BMI) and blood pressure
- Assess lifestyle factors and comorbidities including cardiovascular risk factors and CKD.
- Provide lifestyle advice or treatment for any identified problem. If, for example, the review indicates that the person is at risk of developing type two diabetes the person can be referred to the local diabetes prevention programme
- Give advice on lifestyle measures to reduce the risks of further gout flares. NICE (2022)

Medication and diet

- NICE (2022) recommends that medication is reviewed and whenever possible medicines that increase the risk of a person developing gout, such as thiazide diuretics, are discontinued.
- Provide information about gout.
- Advise to consume a healthy diet. There is insufficient evidence to recommend a special diet. If at risk of type two diabetes discuss diabetes prevention programme. If has type two diabetes discuss diabetes remission programmes.
- Advised to avoid consuming alcohol excessively especially beer and other drinks high in purines
- Make the person aware of the UK Gout society, see resources.

Preventing recurrence

- Urate-lowering therapy (ULT) should be offered to:
- People with gout who have multiple or troublesome flares.
- Chronic kidney disease (CKD) stages 3 to 5,
- tophi,
- Chronic gouty arthritis and diuretic therapy
- ULT is started 2-4 weeks after a gout flare has settled.
- ULT normally given for the rest of a person's life.

Urate-lowering therapy (ULT)

First line therapies are:

Allopurinol, or febuxostat (BNF, 2024d: BNF 2024e).

Allopurinol should be offered first-line to people with gout who have major cardiovascular disease such as, myocardial infarction, stroke, or unstable angina.

Febuxostat should be used with caution in patients with pre-existing major cardiovascular disease especially those with high urate crystal and tophi burden or those initiating urate-lowering therapy.

Liver function should be checked before commencing febuxostat (BNF, 2024e).

Treat to target

- Start on a low dose and titrate up slowly until the serum urate level is below 360 micromol/L (6 mg/dL). Serum urate levels are checked monthly. In certain cases, lower levels, 300 micromol/lar indicated. These are for people who have tophi or chronic gouty arthritis or who continue to have ongoing frequent flares despite having a serum urate level below 360 micromol/L (6 mg/dL) . Serum urate levels should be checked annually in people with gout who continue ULT after reaching their target serum urate level (NICE, 2022)

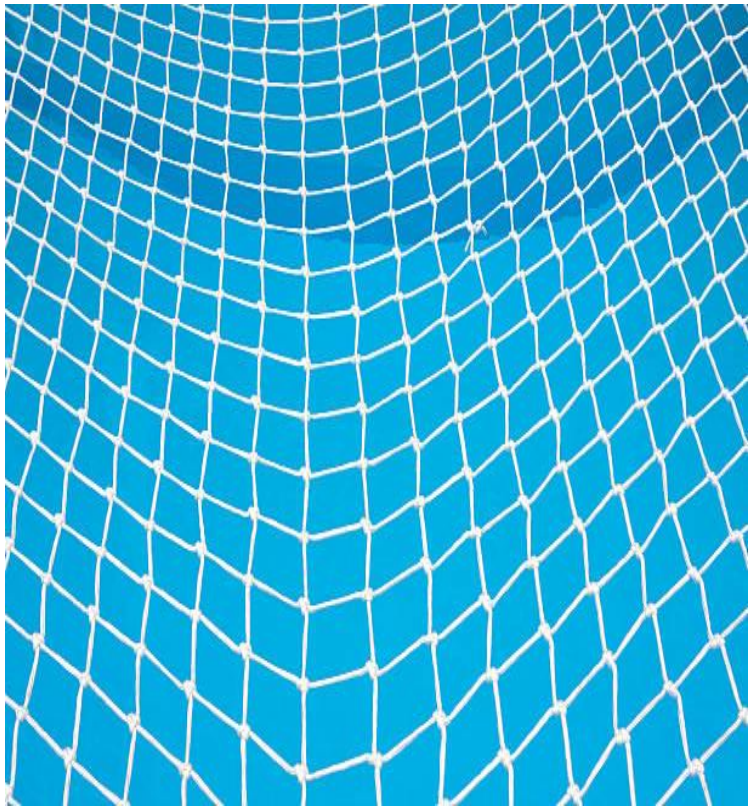
Why treat to target

The saturation point of uric acid is approximately 404 micromol/l). At this level urate crystals are deposited in and on the joints. When the serum urate level falls below this point, urate crystals dissolve into solution out of joints. The urate will be excreted via the kidneys (Ruoff, & Edwards, 2016). The latest research involving 3613 people with gout tracked people for an average of 8.3 years. Researchers found that the risk of flares was related to serum urate level and keeping serum urate level at 5mg/dl significantly reduced the risk of flares (McCormick et.al. 2024)

Nurse led care in gout

- People with gout are not always well managed (Dehlin et al, 2020). When a person first presents with gout the person requires a lot of care and support. Nurse are in a unique position to improve the care of people with gout. Research involving 517 patients with gout assigned 255 to nurse-led care and 262 usual care. Nurse-led care was associated with high uptake of and adherence to urate-lowering therapy. **The researchers found that nurse led care was effective and superior to usual care (Doherty et al, 2018).**

Safety netting



- Advise to contact if concerns
- Advise to seek urgent medical advice if condition worsens
- Arrange to review when acute phase has settled

The value of advanced practice

Nurses practicing at advanced level:

- Raise the bar for all nurses
- Are able to see, diagnose and treat
- Are registered, educated and accountable
- Reduce pressures in acute and primary care
- Improve quality of care

Our challenge is to have our skills recognised and valued at all levels from secretary of state to the patient

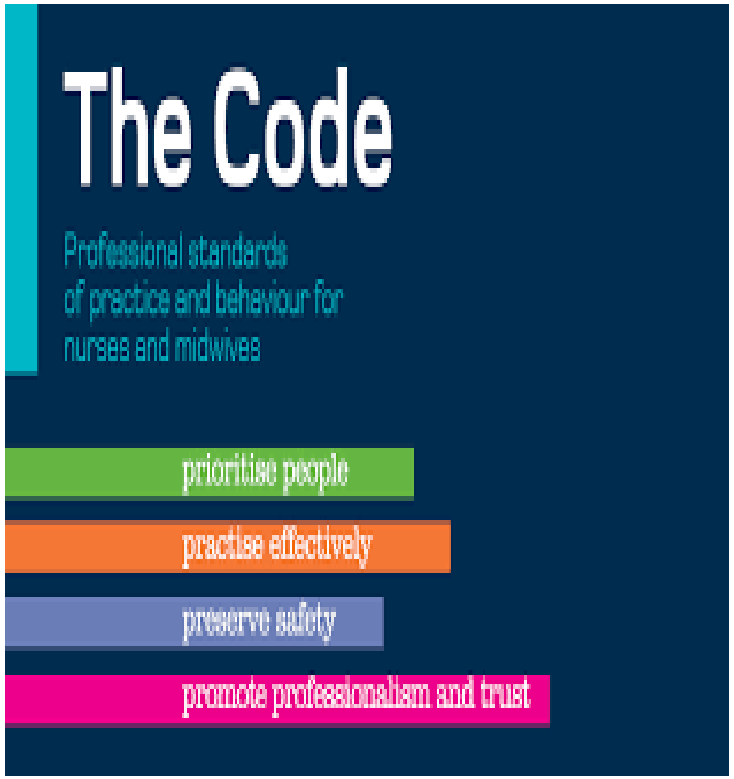
Resources

- NHS Diabetes Prevention Programme Know Your Risk tool:
- preventing-diabetes.co.uk/know-your-risk-tool/

- Link to register for the NHS Diabetes Prevention Programme
- preventing-diabetes.co.uk/referral/

- UK Gout Society
- https://www.ukgoutsociety.org/all_about_gout.htm

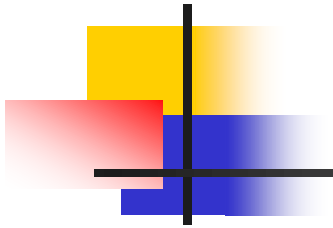
Scope of practice



- The nurse is required to work within the limits of competence and make a timely and appropriate referral to another practitioner when it is in the best interests of the individual requiring care and treatment

Key points

- Careful history taking and examination enable the nurse to accurately diagnose gout in most cases.
- Acute gout can be managed by rest, ice packs and oral NSAIDs, low-dose colchicine or corticosteroids.
- Holistic care aims to promote health and reduce risks by screening for obesity, diabetes mellitus, hypertension, hyperlipidaemia and cardiovascular diseases
- Urate-lowering treatment (ULT) should be considered for multiple or troublesome flares, chronic kidney disease (CKD) stages 3 to 5, tophi, chronic gouty arthritis and diuretic therapy should be offered urate-lowering therapy
- ULT dose should be titrated gradually and checked annually when within target. Once the SUA is below this level, it should be checked annually



Thank you for listening

Any questions?