

ZERO  GP

AKT
REVISION

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Contents

1	Cardiovascular	8
2	Endocrinology	20
3	Renal & Urology	28
4	Respiratory	37
5	Infectious Diseases	47
6	Allergy & Immunology	53
7	Gastroenterology	55
8	Musculoskeletal	71
9	Haematology	84
10	Dermatology	94
11	Ear, Nose & Throat	102
12	Ophthalmology	108
13	Neurology	113
14	Mental Health & Neurodiversity	123
15	Gynaecology & Breast	132
16	Sexual Health	143
17	Maternity & Reproductive Health	147
18	Urgent & Unscheduled Care	153
19	Paediatrics	156
20	Older Adults	173
21	Long-term Conditions & Cancer	178
22	End of Life Care	180
23	Prescribing	182
24	Community Care & Safeguarding	186
25	Population & Individual Health	188
26	Ethics, Law & Consulting	190
27	Evidence Based Practice & Statistics	192
28	Administration, Management & Quality Improvement	208

Infection	Notable Organisms	Typical Antimicrobial Choice
Community-acquired pneumonia	Streptococcus pneumoniae Haemophilus influenzae	Amoxicillin, doxycycline, clarithromycin
Tonsillitis	Group A streptococcus (Streptococcus pyogenes)	Phenoxymethylpenicillin
Acute sinusitis	Usually viral Streptococcus pneumoniae	Phenoxymethylpenicillin
Otitis media	Streptococcus pneumoniae	Amoxicillin
Otitis externa	Pseudomonas aeruginosa Staphylococcus aureus	Acetic acid Neomycin, gentamicin, ciprofloxacin
Acne	Propionibacterium acnes	Lymecycline, doxycycline
Cellulitis	Staphylococcus aureus	Flucloxacillin
Non-lactational mastitis	Staphylococcus aureus, enterococci, anaerobes	Co-amoxiclav
Urinary tract infections	Escherichia coli Klebsiella pneumoniae	Nitrofurantoin Trimethoprim
Pyelonephritis	Escherichia coli Klebsiella pneumoniae	Cefalexin
C. diff	Clostridium difficile	Oral vancomycin / fidaxomicin
Acute diverticulitis	Gram-negative rods (E. coli) Anaerobes	Co-amoxiclav
H. Pylori	Helicobacter pylori	Omeprazole, amoxicillin and clarithromycin (7 days)
Bacterial vaginosis	Anaerobes (e.g., Gardnerella vaginalis)	Metronidazole
Chlamydia	Chlamydia trachomatis	Doxycycline 100 mg BD for 7 days
Gonorrhoea	Neisseria gonorrhoeae	IM Ceftriaxone 1g
Pelvic inflammatory disease	Chlamydia, gonorrhoea, mycoplasma genitalium	IM Ceftriaxone 1g STAT + doxycycline & metronidazole for 14 days
Bacterial meningitis	Neisseria meningitidis Streptococcus pneumoniae	Benzylpenicillin (awaiting transfer) Ceftriaxone (in hospital)
Influenza	Influenza A and B	Oral oseltamivir or inhaled zanamivir
Malaria	Plasmodium falciparum	Oral artemether with lumefantrine Intravenous artesunate
Shingles	Varicella zoster virus	Aciclovir
Cold sores	Herpes simplex virus 1	Aciclovir
Genital herpes	Herpes simplex virus 2	Aciclovir

Antibiotic	Gram +ve	Gram -ve	Anaerobes	Atypicals
Amoxicillin	✓			
Co-amoxiclav	✓	✓	✓	
Clarithromycin	✓			✓
Clindamycin	✓		✓	
Gentamicin		✓		
Ciprofloxacin		✓		✓
Metronidazole			✓	
Doxycycline	✓	✓	✓	✓
Vancomycin	✓			

Autoimmune Condition	Relevant Autoantibodies
Rheumatoid arthritis	Rheumatoid factor Anti-cyclic citrullinated peptide (anti-CCP)
Systemic lupus erythematosus (SLE)	Anti-nuclear antibodies (ANA) Anti-double stranded DNA (anti-dsDNA)
Sjögren's syndrome	Anti-SS-A (anti-Ro) Anti-SS-B (anti-La)
Hashimoto's thyroiditis	Anti-thyroid peroxidase (anti-TPO) Anti-thyroglobulin (anti-Tg)
Graves' disease	TSH receptor antibodies Anti-thyroid peroxidase (anti-TPO) Anti-thyroglobulin (anti-Tg)
Myasthenia gravis	Anti-acetylcholine receptor (anti-AChR) Anti-muscle-specific kinase (anti-MuSK)
Coeliac disease	Anti-tissue transglutaminase antibodies (anti-TTG) Anti-endomysial antibodies (anti-EMA)
Vasculitis	Anti-neutrophil cytoplasmic antibodies (ANCA) p-ANCA (MPA + EGPA) and c-ANCA (GPA)
Autoimmune hepatitis (type 1)	Anti-nuclear antibodies (ANA) Anti-smooth muscle antibodies (anti-actin) Anti-soluble liver antigen (anti-SLA/LP)
Systemic sclerosis	Anti-nuclear antibodies (ANA) Anti-centromere antibodies (limited cutaneous SS) Anti-Scl-70 antibodies (diffuse cutaneous SS)
Endocrine Condition	Dynamic Test
Cushing's syndrome	Dexamethasone suppression test
Adrenal insufficiency	Short Synacthen test
Acromegaly	Growth hormone suppression test
Diabetes insipidus	Water deprivation test

Cancer	Initial Step	NICE Criteria NG12 (Condensed Overview - Educational Only)
Lung	2ww x-ray	Age ≥ 40 with ≥ 2 (or ≥ 1 if ever smoked) of unexplained: Cough, fatigue, SOB, chest pain, weight loss, appetite loss. Age ≥ 40 with any of: Recurrent chest infection, clubbing, supraclavicular lymphadenopathy, persistent cervical lymphadenopathy, chest signs, raised PLT.
	2ww referral	CXR suggestive of lung cancer. Age ≥ 40 with unexplained haemoptysis.
Oesophagus	2ww referral	Dysphagia Age ≥ 55 with weight loss and any of: Upper abdo pain, reflux, dyspepsia.
Pancreatic	2ww CT	Age ≥ 55 with weight loss and any of: Diarrhoea, back pain, abdo pain, nausea, vomiting, constipation, new-onset diabetes.
	2ww referral	Age ≥ 40 with jaundice.
Stomach	2ww referral	Upper abdominal mass. Dysphagia. Age ≥ 55 with weight loss and any of: Upper abdo pain, reflux, dyspepsia.
Colorectal	FIT test	Abdo mass, change in bowel habit, iron-deficiency anaemia. Age ≥ 40 with unexplained weight loss and abdominal pain. Age < 50 with rectal bleeding and either abdo pain or weight loss. Age ≥ 50 with any of: Rectal bleeding, abdo pain, weight loss. Age ≥ 60 with anaemia.
	2ww referral	FIT result ≥ 10 mcg/hb/g. Rectal mass, anal mass, anal ulceration.
Breast	2ww referral	Age ≥ 30 with an unexplained breast lump. Age ≥ 30 with an unexplained axilla lump. Breast cancer skin changes (e.g., peau d'orange, dimpling). Age ≥ 50 with unilateral nipple changes: discharge, retraction, other.
Ovarian	CA125	Woman (esp. ≥ 50) with any of (esp. ≥ 12 x/month): bloating, early satiety, loss of appetite, pelvic or abdo pain, urinary urgency or frequency. Women with any of: Weight loss, fatigue, change in bowel habit. Women ≥ 50 with IBS symptoms.
	Ultrasound	CA125 ≥ 35 IU/ml.
	2ww referral	Ascites or pelvic/abdominal mass on examination (direct referral). Ultrasound suggests ovarian cancer.
Endometrial	2ww referral	Post-menopausal bleeding.
	Ultrasound	Age ≥ 55 with unexplained vaginal discharge and any of: First presentation, raised PLT, haematuria. Age ≥ 55 with visible haematuria and any of: low Hb, raised PLT, raised glucose.

Additional Treatments

- Loop diuretics (e.g., furosemide or bumetanide) for oedema.
- Cardiac rehabilitation.
- Specialist drugs: Sacubitril with valsartan (Entresto), ivabradine, hydralazine with nitrate, and digoxin.
- Cardiac Resynchronisation Therapy (CRT): For Ejection Fraction <35%.

Hypertension

Stage	Clinic Reading	Confirmed Ambulatory / Home Readings
Stage 1 Hypertension	Above 140/90	Above 135/85
Stage 2 Hypertension	Above 160/100	Above 150/95
Stage 3 Hypertension	Above 180/120	-

Causes

- Primary (Essential): 90%.
- Secondary (10%) (“ROPED” Mnemonic):
 - R: Renal disease (most common).
 - O: Obesity.
 - P: Pregnancy-related (e.g., pre-eclampsia).
 - E: Endocrine (e.g., hyperaldosteronism, Cushing’s).
 - D: Drugs (e.g., alcohol, NSAIDs, steroids, mirabegron, COCP).

Investigations for New Diagnosis

- Urine: Albumin:creatinine ratio + dipstick for haematuria.
- Bloods: HbA1c, renal function, lipids.
- Fundoscopy: Hypertensive retinopathy.
- ECG: Left ventricular hypertrophy or other abnormalities.

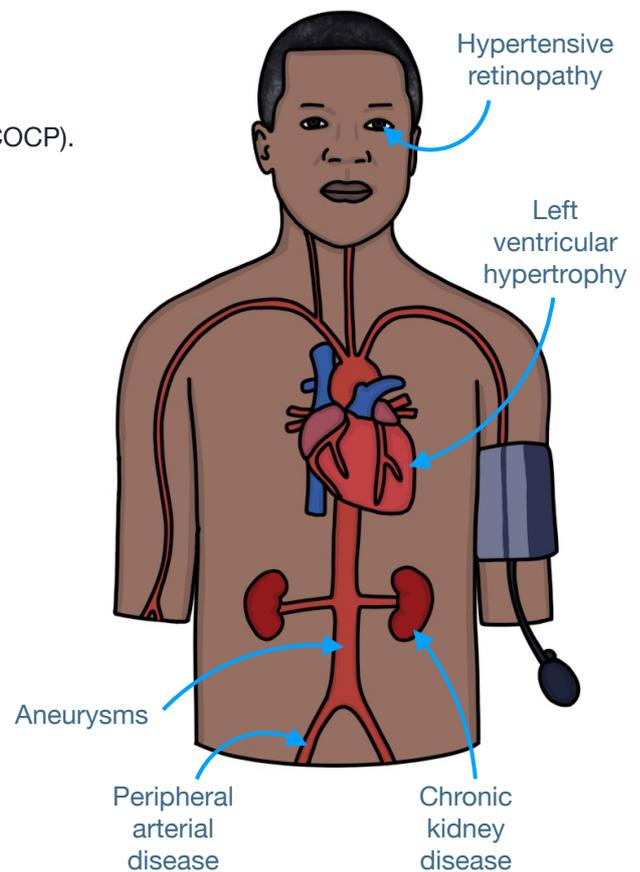
Drug Options

- A: ACE inhibitors (e.g., ramipril).
- B: Beta blockers (e.g., bisoprolol).
- C: Calcium channel blockers (e.g., amlodipine).
- D: Thiazide-like diuretics (e.g., indapamide).
- ARB: Angiotensin II receptor blockers (e.g., candesartan).

Stepwise Approach

- Step 1:
 - <55 yrs: A.
 - 55 yrs or Black ethnicity: C.
 - Type 2 diabetes (any age): A (ARB if Black).
- Step 2: A + C (or A + D or C + D).
- Step 3: A + C + D.
- Step 4: A + C + D + a fourth agent:
 - $K \leq 4.5$ mmol/L: Potassium-sparing diuretic (e.g., spironolactone).
 - $K > 4.5$ mmol/L: Alpha blocker (e.g., doxazosin) or beta blocker (e.g., atenolol).

Consequences of Hypertension

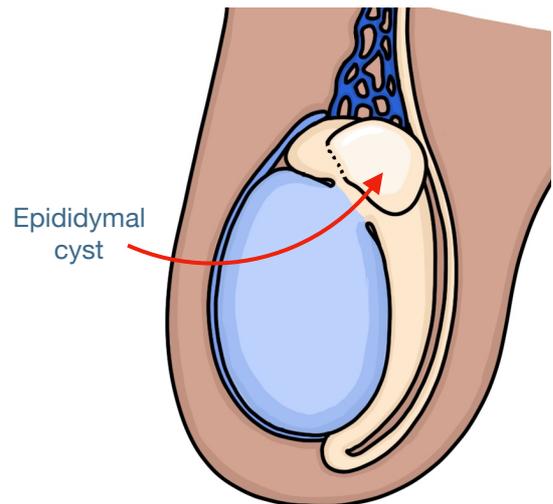


Age	Clinic Reading Target	Ambulatory or Home Readings Target
Under 80 years	< 140 / < 90	< 135 / < 85
Over 80 years	< 150 / < 90	< 145 / < 85

Scrotal Lumps

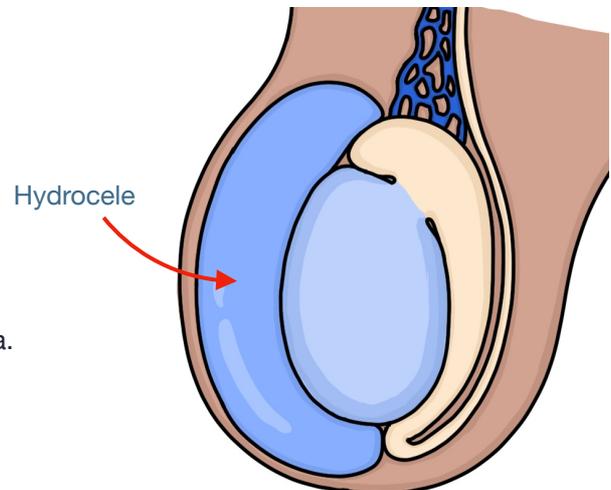
Epididymal Cysts

- Fluid-filled sac at head of epididymis (30% of men).
- Usually Asymptomatic; may present as lump or incidental finding.
- Harmless: Not linked to cancer/infertility.
- Exam findings:
 - Soft, round lump, separate from testicle.
 - At epididymal head.
 - May transilluminate if large.
- Management:
 - Conservative.
 - Surgery considered if painful.
- Very rarely torsion of cyst → acute pain and swelling.



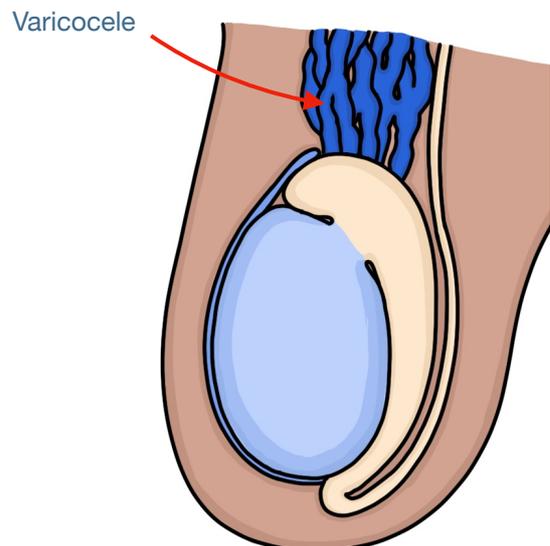
Hydroceles

- Fluid collection in tunica vaginalis (around testes).
- Painless, soft scrotal swelling.
- Exam findings:
 - Testis palpable within swelling.
 - Soft, fluctuant, irreducible, no bowel sounds.
 - Transillumination positive (testis floats in fluid).
- Causes:
 - Idiopathic.
 - Secondary to cancer, torsion, epididymo-orchitis or trauma.
- Management:
 - Conservative if asymptomatic.
 - Surgery/aspiration/sclerotherapy if large/symptomatic.



Varicoceles

- Dilated pampiniform plexus veins (~15% men).
- May cause infertility (↑ testicular temperature), atrophy.
- Pathophysiology:
 - Incompetent valves → reflux into pampiniform plexus.
 - 90% left-sided.
 - Left testicular vein drains to renal vein.
 - Obstruction by renal cell carcinoma a rare cause.
- Symptoms: Dull pain, dragging sensation, subfertility.
- Exam findings:
 - “Bag of worms” mass.
 - Prominent on standing, disappears lying down.
 - Testicular asymmetry possible.
- Investigations: Doppler US, semen analysis, FSH/testosterone.
- Management: Conservative if uncomplicated.
 - Pain, atrophy, or infertility → surgery/embolisation.
- Red flag: Does not disappear lying down → possible retroperitoneal tumour → urgent referral.



Sperm Granulomas

- Common following vasectomy. Usually asymptomatic.
- Firm nodule in epididymis, vas deferens, or scrotum.
- Management: Conservative.

Chronic Obstructive Pulmonary Disease (COPD)

Pathophysiology:

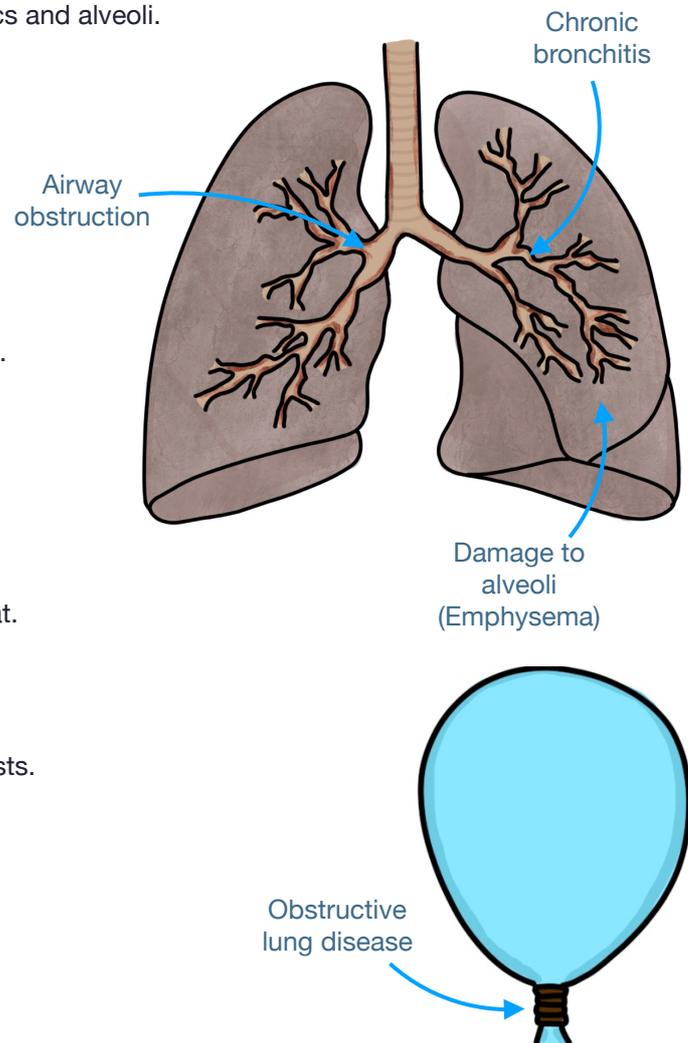
- Airway obstruction: Limits airflow in and out of the lungs.
- Chronic bronchitis: Persistent cough and sputum due to bronchial inflammation.
- Emphysema: Damage and enlargement of alveolar sacs and alveoli.

Presentation:

- Risk factor: Long-term smoker.
- Symptoms:
 - Shortness of breath.
 - Chronic cough.
 - Sputum production.
 - Wheezing.
 - Recurrent respiratory infections (especially in winter).

Assessment

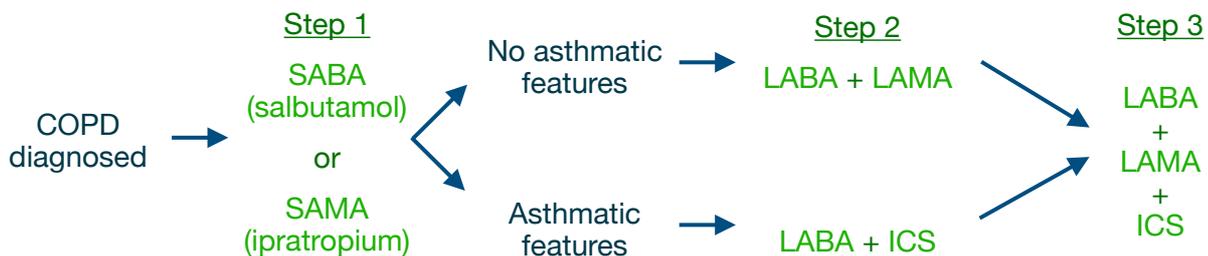
- MRC Dyspnoea Scale (1-5):
 - Grade 1: Breathless on strenuous exercise.
 - Grade 2: Breathless walking uphill.
 - Grade 3: Breathlessness slows flat walking.
 - Grade 4: Breathlessness limits walking <100m on flat.
 - Grade 5: Housebound due to breathlessness.
- Spirometry:
 - Obstructive pattern: $FEV_1/FVC < 70\%$.
 - Reversibility test: Little/no response to beta-2 agonists.



Severity

- Stage 1 - mild: FEV_1 80% predicted.
- Stage 2 - moderate: FEV_1 50-79% predicted.
- Stage 3 - severe: FEV_1 30-49% predicted.
- Stage 4 - very Severe: $FEV_1 < 30\%$ predicted.

Inhalers



Long-Term Oxygen Therapy (LTOT)

- Indications: Severe COPD with sats <92%, polycythaemia (\uparrow haemoglobin), cyanosis, cor pulmonale.
- Contraindication: Active smoking.

Cor Pulmonale

- Definition: Right-sided heart failure due to respiratory disease.
- Mechanism: Pulmonary hypertension \rightarrow \uparrow right ventricular workload + back pressure.
- Signs:
 - Increased hypoxia.
 - Raised JVP.
 - Tricuspid regurgitation.
 - Peripheral oedema.
 - Parasternal heave.
 - Hepatomegaly.

Polymyalgia Rheumatica (PMR)

Basics

- Inflammatory condition.
- More common in older white adults.
- Strong association with giant cell arteritis.

Features

- Shoulder and pelvic girdle pain and stiffness.
- Morning stiffness ≥ 45 minutes.
- Worse after rest, improves with activity.

Diagnosis:

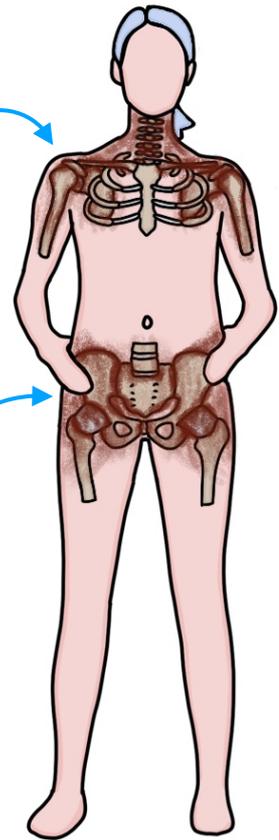
- Clinical presentation.
- Raised inflammatory markers (CRP/ESR), but may be normal.
- Response to steroids.

Treatment

- Initial trial of treatment:
 - Prednisolone 15 mg daily. Assess response in 1 week:
 - Good response - confirm diagnosis.
 - Poor response - consider alternative diagnosis.
- Long-term treatment: 1-2 years of prednisolone. Gradual tapering of dose:
 - 15 mg daily until symptoms resolved.
 - Then 12.5 mg daily for 3 weeks.
 - Then 10 mg daily for 4-6 weeks.
 - Then reduce daily dose by 1 mg every 4-8 weeks.

Shoulder girdle
pain and stiffness

Pelvic pain
and stiffness



Steroid Side Effects:

- Weight gain, diabetes, osteoporosis, hypertension, bruising, cataracts.

When Taking Long Term Steroids (“Don’t STOP”):

- Don’t: Abruptly stop steroids (risk adrenal crisis).
- S: Sick day rules (increase dose if unwell).
- T: Treatment card for steroid dependence.
- O: Osteoporosis prevention (bisphosphonates, calcium, vit D).
- P: Proton pump inhibitors (e.g., omeprazole) for gastroprotection.



Giant Cell Arteritis

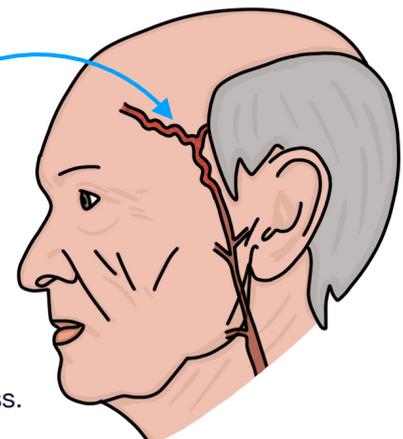
Basics

- Systemic vasculitis affecting medium and large arteries.
- Strong link with polymyalgia rheumatica.
- More common in older white adults (typically >50 years).
- Risk of vision loss: Irreversible if not treated promptly.

Clinical Features

- Unilateral severe headache: Typically around the temple and forehead.
- Scalp tenderness: Noticed when brushing hair.
- Jaw claudication: Pain in the jaw muscles during chewing.
- Visual disturbances: Blurred or double vision; potential for complete vision loss.
- Temporal artery tenderness, thickening on palpation, reduced pulsation.

Temporal
artery
inflammation



Treatment Options

- Topical antifungals:
 - Creams: Clotrimazole, miconazole.
 - Shampoo: Ketoconazole (for tinea capitis).
- Oral antifungals:
 - Fluconazole, griseofulvin, itraconazole.
- Nail infections:
 - Amorolfine lacquer (6-12 months).
 - Oral terbinafine for resistant cases (with LFT monitoring 6 weekly).

Onychomycosis
(fungal nail infection)



Scabies

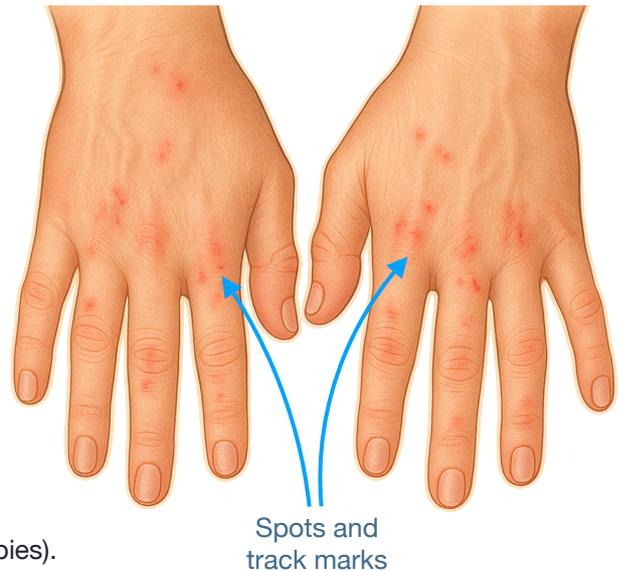
Cause: Sarcoptes scabiei mites.

Pathology

- Burrow into skin, lay eggs.
- Symptoms: Intense itching, small red spots.
 - Especially between fingers (in finger webs).
- Track marks from burrowing.
- Incubation: Up to 8 weeks post-infection.

Treatment

- Permethrin cream:
 - Apply to entire body on cool skin.
 - Leave on for 8–12 hours, wash off.
 - Repeat after 1 week.
- Oral ivermectin:
 - Single dose, repeat after 1 week (for difficult/crusted scabies).
- Symptom relief:
 - Itching may persist up to 4 weeks.
 - Crotamiton cream & chlorphenamine at night may help.



Preventing Spread

- Treat all household/close contacts.
- Wash clothes, bedclothes, towels in hot wash.
- Vacuum carpets and furniture thoroughly.

Crusted (Norwegian) scabies: Severe infestation in immunocompromised individuals.

Cellulitis

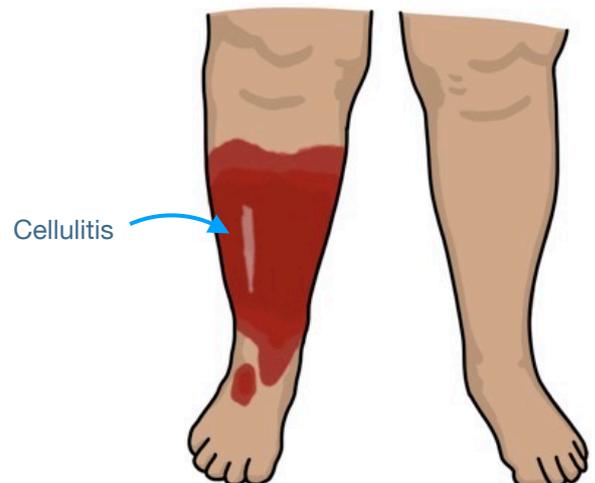
Definition: Infection of skin and underlying soft tissues.

Signs

- Erythema, warmth, tension, thickening, oedema.
- Bullae (large blisters).
- Golden-yellow crust (Staphylococcus aureus).

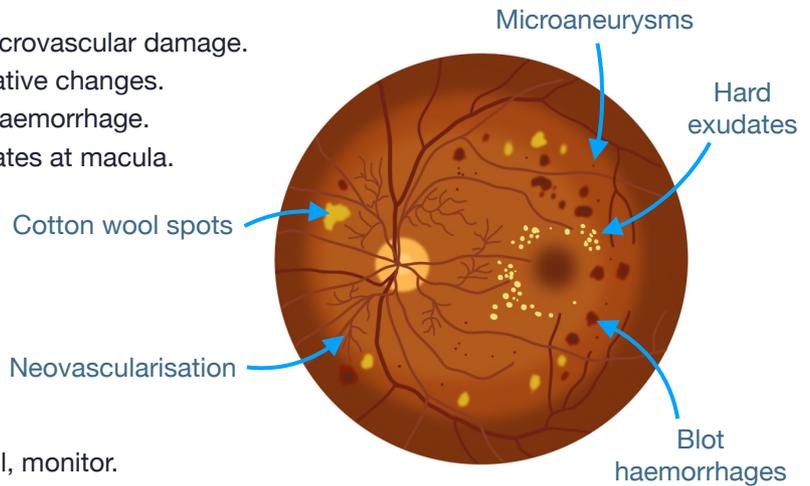
Causes

- Staphylococcus aureus (most common).
- Group A strep (S. pyogenes).
- Group C strep (S. dysgalactiae).
- MRSA in recurrent or antibiotic-exposed patients.



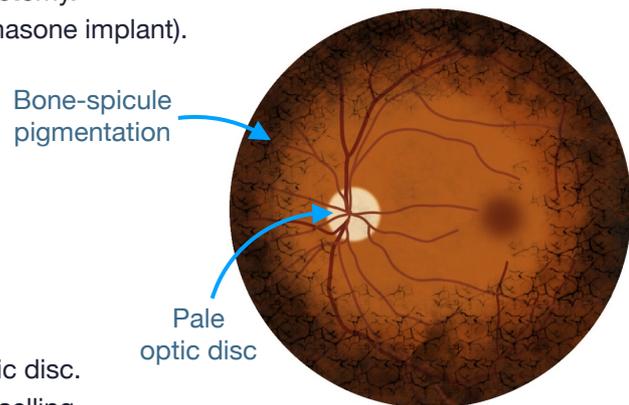
Diabetic Retinopathy

- Cause: Chronic hyperglycaemia → retinal microvascular damage.
- Non-proliferative: Background + pre-proliferative changes.
- Proliferative: Neovascularisation ± vitreous haemorrhage.
- Maculopathy: Macular oedema and/or exudates at macula.
- Complications:
 - Vision loss.
 - Vitreous haemorrhage.
 - Retinal detachment.
 - Neovascular glaucoma.
 - Cataract.
- Management:
 - Non-proliferative: Optimise diabetic control, monitor.
 - Proliferative: PRP laser, intravitreal anti-VEGF ± vitrectomy.
 - Macular oedema: Intravitreal steroids (e.g. dexamethasone implant).



Retinitis Pigmentosa

- Inherited condition (various inheritance patterns).
- Progressive degeneration of photoreceptors.
- Presents with progressive:
 - Night blindness (rods affected first).
 - Peripheral vision loss (tunnel vision).
- Late: Central vision loss.
- Fundoscopy: Bone-spicule pigmentation and pale optic disc.
- No treatment. Ophthalmology follow up. Genetic counselling.



Eyelid Disorders

Blepharitis

- Presentation: Itchy, red eyelids; crusty lashes; gritty sensation.
- Management: Eyelid hygiene, warm compresses, lubricating drops.

Entropion

- In-turned eyelid, corneal irritation.
- Management: Ophthalmology referral, surgery.

Ectropion

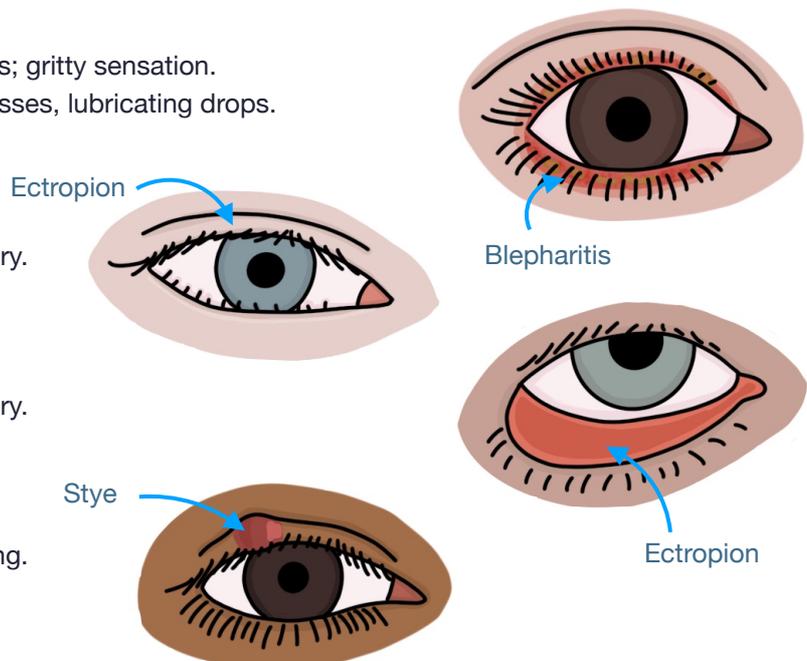
- Out-turned eyelid, watery eye.
- Management: Ophthalmology referral, surgery.

Hordeolum (Stye)

- Painful eyelid lump, acute.
- Management: Warm compresses, self-limiting.

Chalazion

- Painless eyelid lump, chronic.
- Management: Warm compresses, gentle massage, incision and drainage if persistent.



Periorbital cellulitis: Red, swollen, painful. Admit for IV antibiotics. CT scan if orbital cellulitis suspected.

Orbital cellulitis: Red, swollen, painful eye movements, vision changes, pupil reaction, proptosis. Admit.

Drops: Hypromellose (least viscous - 10 mins), polyvinyl alcohol (middle), carbomer (most viscous - 30-60 min).

Recurrent Miscarriage

- Defined as ≥ 3 first-trimester miscarriages or ≥ 1 second-trimester miscarriage.
- Causes:
 - Idiopathic (common in older women).
 - Antiphospholipid syndrome.
 - Hereditary thrombophilias.
 - Uterine abnormalities.
 - Parental genetic factors (e.g., balanced translocations).
 - Chronic histiocytic intervillitis.
 - Chronic diseases (e.g., diabetes, thyroid disease, SLE).

Nausea and Vomiting of Pregnancy

Overview

- Timeline:
 - Typically starting at 4–7 weeks.
 - Peaks at 8–12 weeks
 - Resolves by 16–20 weeks (though it may persist).
- Severe symptoms = hyperemesis gravidarum.
- Caused by human chorionic gonadotropin (hCG):
 - Produced by the placenta.
 - Higher hCG levels \approx worse symptoms.

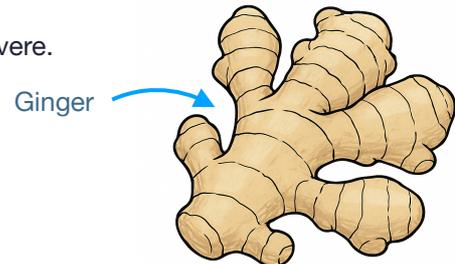


Pregnancy-Unique Quantification of Emesis (PUQE) Score

- Evaluates severity (score out of 15): <7 : Mild, 7–12: Moderate, >12 : Severe.

Non-Medical Options

- Plain/bland/cold food, little and often.
- Ginger.
- Acupressure (PC6 point on inner wrist).

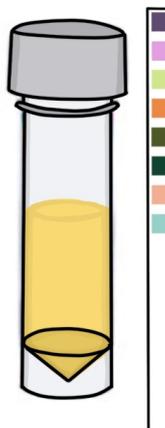


Oral Antiemetics

- First-line: Cyclizine, promethazine, prochlorperazine, chlorpromazine or doxylamine/pyridoxine.
- Second-Line Options:
 - Metoclopramide (extrapyramidal side effects).
 - Domperidone (cardiac risks).
 - Ondansetron (risk of cleft lip).

Management Based on Severity

- Mild Cases: Managed at home with oral antiemetics.
- Admission:
 - Unable to tolerate oral antiemetics or fluids.
 - $>5\%$ weight loss compared to pre-pregnancy.
 - PUQE >13 .
 - Dehydrated.
 - Ketones in the urine.
 - Need for treatment of other medical conditions.
- Moderate-severe cases:
 - IV/IM antiemetics.
 - IV fluids.
 - Thiamine.
 - VTE prophylaxis.



Urine Dipstick in Pregnancy

Ketones: Dehydration (N&V)
 Nitrites / leukocytes: Infection
 Protein: Pre-eclampsia
 Glucose: Gestational diabetes

Polypharmacy

Overview

- ≥ 5 medications (common definition).
- Common in multimorbidity and frailty.
- Risk = adverse drug reactions (ADRs), falls, delirium, admission.
- Distinguish appropriate vs problematic polypharmacy.

Clinical Clues

- Falls.
- New delirium/confusion.
- Postural hypotension.
- Functional decline.

High-Risk Drug Classes

- Anticholinergics → confusion, constipation, urinary retention.
- Benzodiazepines / Z-drugs → sedation, falls, dependence.
- Opioids → drowsiness, constipation, falls.
- Antihypertensives → postural hypotension, syncope.
- Diuretics → dehydration, AKI, electrolyte imbalance.
- Insulin / Sulfonylureas → hypoglycaemia.
- Anticoagulants → bleeding risk.
- NSAIDs → AKI, GI bleed, HF exacerbation.

Assessment

- Structured medication review:
 - Indication still valid?
 - Benefit > harm?
 - Dose appropriate (renal function)?
 - Align with patient goals?
- Check eGFR and interactions.



Management

- Deprescribe non-beneficial or duplicate drugs.
- Risk/benefit analysis (e.g., antihypertensives in >90).
- Taper where required (e.g. benzodiazepines, opioids).
- Simplify regimen.
- Shared decision-making and clear documentation.

Anticholinergic Burden

Overview

- Cumulative effect of taking one or more medicines with anticholinergic properties.
- Common in older adults with polypharmacy.
- Associated with cognitive decline, falls, delirium, and mortality.

Mechanism

- Block central and peripheral muscarinic receptors.
- Reduced acetylcholine activity → cognitive and autonomic effects.

Palliative Care Symptom Control

Opioids in Palliative Care

- Background dose: Regular dosing (e.g., 12-hourly morphine).
- Rescue doses: 1/6 of 24-hour background dose for breakthrough pain.
- For example:
 - Background: 30 mg morphine every 12 hours (60 mg/day).
 - Rescue dose: 10 mg as needed.

Opioid	Route	Equivalent Dose
Morphine	Oral	10 mg
Codeine	Oral	100 mg
Tramadol	Oral	100 mg
Oxycodone	Oral	6.6 mg
Morphine	IV / IM / SC	5 mg
Diamorphine	IV / IM / SC	3 mg

Buprenorphine patch: 5 mcg/hr \approx 12 mg/day morphine.

Fentanyl patch: 12 mcg/hr \approx 30 mg/day morphine.

End of Life Symptom Management

- Pain: Morphine or oxycodone (S/C injections or syringe driver).
- Restlessness/agitation: Benzodiazepines (e.g., S/C midazolam).
- Distressing respiratory secretions: S/C glycopyrronium, hyoscine or atropine.
- Breathlessness: S/C morphine or midazolam.
- Nausea/vomiting: S/C levomepromazine, cyclizine, haloperidol or metoclopramide.

Palliative Care Emergencies

Spinal Cord Compression

- Presentation: Back pain, weakness, sensory loss, bladder/bowel dysfunction.
- Management: Admit for urgent MRI (via MSCC coordinator), dexamethasone, oncology/neurosurgery input.

Superior Vena Cava Obstruction

- Presentation: Facial swelling, dyspnoea, distended neck veins, Pemberton's sign.
- Management: Admit, dexamethasone, stenting/radiotherapy.

Hypercalcaemia

- Presentation: Confusion, nausea, constipation, thirst.
- Management: Admit, IV fluids, bisphosphonates (pamidronate/zolendronic acid), treat underlying malignancy.

Massive Haemorrhage

- Presentation: Massive bleed (e.g., tumour erosion in head & neck, lung or GI cancer).
- Often terminal event.
- Management: Dark towels, position comfortably, midazolam for distress, palliative sedation.
- Distressing: Support for family, staff debrief.

PRESCRIBING

Specific Drug Interactions

Citalopram/escitalopram + Omeprazole

- Interaction: Omeprazole (CYP2C19 inhibitor) increases citalopram levels, risking QT prolongation.
- Action: Switch to sertraline (less affected by CYP2C19) or pantoprazole (weaker CYP2C19 inhibition).

Warfarin + Antibiotics

- Particularly macrolides, metronidazole, fluoroquinolones.
- Interaction: Many increase INR and bleeding risk. (Particularly macrolides, metronidazole, fluoroquinolones).
- Action: Monitor INR closely, consider dose reduction.

Statins + Clarithromycin

- Particularly atorvastatin and simvastatin (less with pravastatin and rosuvastatin).
- Interaction: Clarithromycin inhibits CYP3A4, increasing statin levels, risking myopathy/rhabdomyolysis.
- Action: Hold statin during clarithromycin course.

Fluoxetine/paroxetine + Tamoxifen

- Interaction: Fluoxetine inhibits CYP2D6, reducing tamoxifen's active metabolite, decreasing efficacy.
- Sertraline or citalopram are preferred.

Citalopram + Amiodarone

- Interaction: Both prolong QT interval, increasing arrhythmia risk.

Carbamazepine + COCP

- Interaction: Carbamazepine induces CYP3A4, reducing contraceptive efficacy, risking pregnancy.
- Carbamazepine also reduced efficacy of POP, implant, emergency contraception.
- Action: Switch to non-hormonal contraception (e.g., copper IUD).

Lithium + NSAIDs, ACEi or diuretics

- Interaction: NSAIDs, ACEi and diuretics reduce lithium clearance, increasing toxicity (tremor, confusion).

Notable Side Effects

NSAIDs: Gastritis, ulcers, renal impairment, asthma exacerbation, CVD risk, worsened HF; PPI co-prescription.

Statins: Myalgia, myopathy, hepatitis. Check creatine kinase if muscle symptoms.

ACEi: First-dose hypotension, dry cough, hyperkalaemia, AKI, angioedema. Switch to ARB if cough.

Beta-blockers: Bradycardia, fatigue, bronchospasm; avoid in uncontrolled asthma.

SSRIs: Nausea, insomnia, sexual dysfunction, bleeding risk, SIADH (causing hyponatraemia).

Metformin: GI upset, lactic acidosis (rare); avoid if eGFR <30.

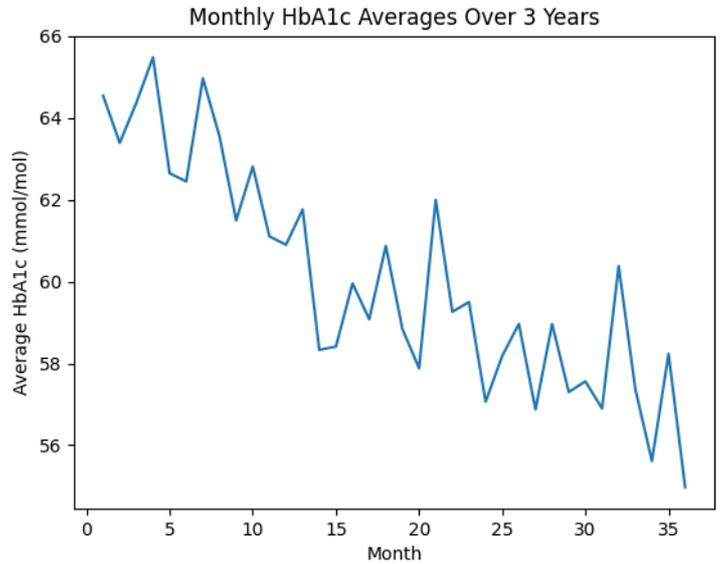
Opioids: Constipation, sedation, respiratory depression, nausea, miosis. Naloxone for overdose.

Valproate: Teratogenicity (neurodevelopmental disorders), hepatotoxicity, tremor. Avoided in women/men < 55.

Amiodarone: Hypo/hyperthyroidism, pulmonary fibrosis, photosensitivity, grey skin.

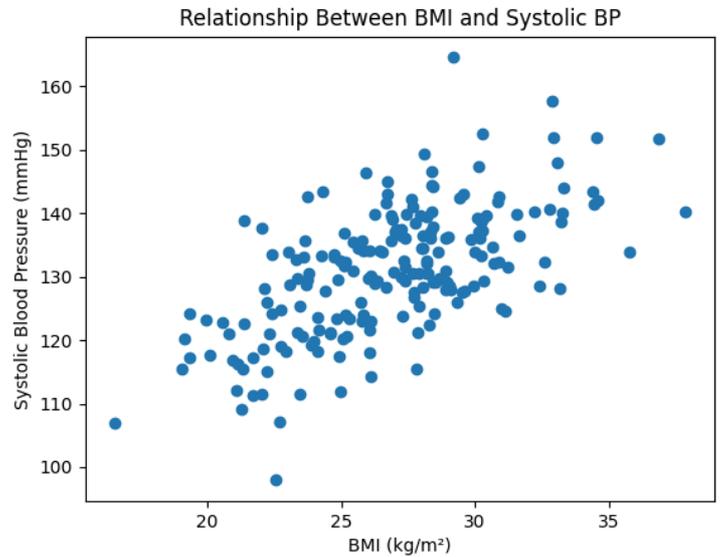
Line Graph

- Data points connected to show trends over time.
- Example: Monthly HbA1c averages in a GP practice over 3 years.
- Use: Monitoring trends, service performance.



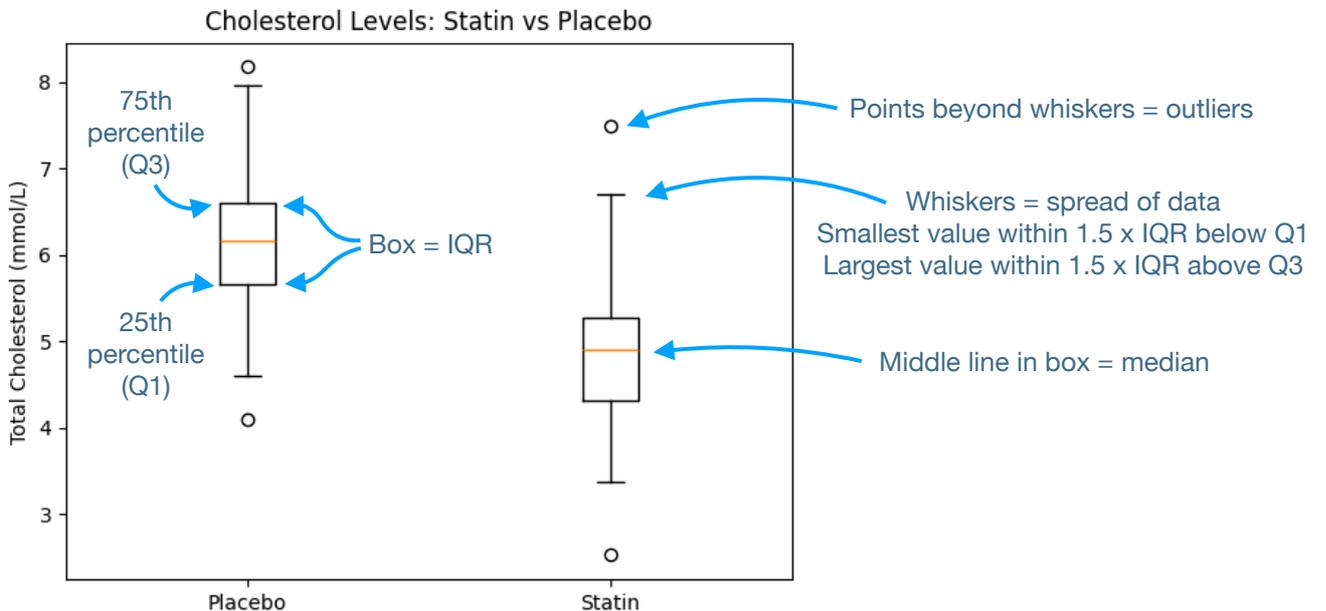
Scatter Plot

- Plots relationship between two continuous variables.
- Example: BMI (x-axis) vs systolic BP (y-axis).
- Use: Identify correlation patterns.



Box Plot

- Shows median, interquartile range (IQR), and outliers.
- Example: Comparing cholesterol levels in statin vs placebo group.
- Advantage: Quickly shows spread and skewness.



ADMINISTRATION, MANAGEMENT & QUALITY IMPROVEMENT

GP Contracts

Contract Types

- General Medical Services (GMS) (around 68% of practices):
 - National contract for core services. Negotiated by NHS England and BMA GP Committee.
- Personal Medical Services (PMS) (around 30% of practices):
 - Locally negotiated, similar to GMS, allows flexibility.
- Alternative Provider Medical Services (APMS) (around 1% of practices):
 - Flexible contracts. Non-GP providers (e.g., private companies, social enterprises).

Core Services

- Essential: Appointments, diagnosis, referrals, health promotion.
- Out-of-hours: Optional (most opt out, replaced by ICB-commissioned services).
- Additional: Minor surgery, contraception (can opt out).

Payment Streams

- Global sum:
 - Capitation-based, per weighted patient (changes annually).
 - Covers core services.
 - Adjusted for demographics and deprivation (Carr-Hill formula).
- Quality and Outcomes Framework (QOF) (around 20% of funding):
 - Incentive payments for meeting clinical/organisational targets (e.g., diabetes, BP control).
- Directed Enhanced Services (DES): National optional services (e.g., flu vaccination, extended hours).
- Locally Commissioned Services (LCS): Local contracts (e.g., care homes, ear wax removal).
- PCN funding (around 10% of funding):
 - Additional Roles Reimbursement Scheme (ARRS, e.g., pharmacists, mental health practitioners, physios).
- Training income: Students / FY2 / GP trainees.
- Premises Reimbursement: Rent, rates, waste disposal.
- Locum/Sickness Cover: Reimbursed via SFE payments.

Organisations

Integrated Care Boards (ICBs): Plan and coordinate local services and funding, and manage contracts.

Local Medical Committees (LMCs)

- Represent GPs and GP practices at local level:
 - Advise and assist with contracts.
 - Advise on employment and partnership issues.
 - Help negotiate the provision of local services.
- Funded by a levy from GP practices.

Primary Care Networks (PCNs)

- Groups of practices under DES contract.
- Collaborative services.
- More than 90% practices involved.
- Accounts for around 10% of GP funding.