# GP SOCIETY'S **ULTIMATE** GUIDE TO CLINICAL EXAMINATIONS

Developed by Dundee GPSoc

@gpsocietydundee

@dundeegpsoc

@gp_society_dundee

https://gpsoc1.wixsite.com/dundee




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# NEWS

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (NEWS exam = hands, arm)

### OSCE Tip

**In the NEWS examination, use the chart to help you remember what to do. It helps if you roughly follow its order.**

**Before you take any measurements, write down the patient's name and DOB on the chart.**

## Heart Rate and Respiratory Rate

Hold the patient's wrist at the point of their radial pulse. Count the number of pulses in 30 seconds and double this to calculate the heart rate.

Count the number of breaths the patient takes in 30 seconds (1 breath = 1 inhalation and expiration). Double this number to calculate respiratory rate.

### OSCE Tip

**These are the two measurements to take out of order. When finished taking the heart rate, keep holding the patient's wrist, as if you haven't started watching their respiratory rate. This stops the patient getting nervous and breathing quicker.**

## SpO2

Place the pulse oximeter over one of the patient's fingers. Remember that nail polish can affect the reading.

## Blood Pressure

In OSCEs, this is taken manually.

1. Place the blood pressure cuff around the patient's upper arm. The label marked "artery" should be placed over the antecubital fossa.
2. In an exam, the first time you pump up the cuff, you should have your fingers over the radial pulse and not be using a stethoscope. Note the mmHg when you can no longer feel a pulse.
3. Put your stethoscope over the antecubital fossa and pump up the cuff to 20mmHg above the measurement recorded when no pulse was felt.
4. Slowly release pressure from the cuff. The first pulse you hear through the stethoscope is the systolic blood pressure. The last pulse you hear through the stethoscope is the diastolic blood pressure.

## AVPU

- Alert = sitting up, chatting freely, engaged
- Verbal = can respond to questions, e.g. "Can you open your eyes?", "Can you squeeze my hand?"
- Pain = responds (verbally or physically) to a painful stimulus e.g. supraorbital pressure or sternal rub
- Unresponsive = doesn't respond to any of the above.

## Temperature

- Measure the patient's temperature using an ear thermometer.
- Remember to use a new probe cover.
- When finished these should be put in an orange bin (clinical waste).

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

## Knowledge Nuggets

Find the most recent news chart here and use it to practice this station

# GENERAL EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (in general exam = hands, neck, face, lower legs)

## End of Bed Check

**Patient**

- Pallor - are the pale, ruddy, grey, jaundiced?
- Breathing - are they breathing heavily, quickly? Are they using accessory muscles?
- Pain - do they look like they are in any pain or discomfort?
- Pace, smoothness, symmetry, gross gait abnormalities, walking aids
- Watch face for discomfort

**Surroundings**

- Are there any walking aids in the room?
- Are there any medications around them (inhalers, tablets etc.)? Are they on oxygen?
- Are there any sick bowls?

## Hands

**Ask patient to hold out arms**

- Look closely at the dorsal surface of their hands:
  - colour
  - signs of systemic disease - finger clubbing, splinter haemorrhages, koilonychia, leukonychia
- Ask patient to cock back wrists:
  - check for $CO_2$ flap
  - check for liver flap (asterixis)
- Ask patient to turn over hands:
  - colour
  - signs of systemic disease - palmar erythema

**OSCE Tip**

**Use the Schamroth window test (putting two nails together to check for a diamond shape between the cuticles) to assess for finger clubbing.**

**OSCE Tip**

**The end of bed check is vital - ensure that you stand back and observe the patient, making it clear to the examiner that you are making your initial observations**

**Take the patient's hand**

- Is it warm, cool or clammy?
- Take the patient's pulse
- Take the patient's respiratory rate. Do this while still palpating their radial pulse - if the patient realises you are observing their respiratory rate, it can become falsely elevated.

## Face

**Eyes**

- Are the sclera yellow?
- Are there signs of anaemia (pale conjunctiva)?
- Other things to look for: redness, discharge, Kayser-Fleischer rings, xanthelasma

**Mouth**

- Use a pen torch to look inside the patient's mouth. Are there any signs of central cyanosis?
- Ask the patient to stick out their tongue and move it from side to side to check for oral cancer.

## Neck

**Lymph Nodes**
- Submandibular > Subclavicular > Pre-auricular > Post-auricular > Anterior Triangle > Posterior Triangle > Occipital

**JVP**
- Look for the JVP with the patient lying at a 45˚ angle

### OSCE Tip

**If you can't see the JVP, push over the patient's liver. It will momentarily raise the JVP - this is the hepatojugular reflex. Any raise sustained for more than a few seconds is a sign of right ventricular dysfunction.**

## Legs

**Oedema**
- Are the legs swollen?
- To check for pitting oedema, press on the affected area for 10 seconds. Rebound time should be immediate

**DVT**
- Are the legs red and swollen or hot and painful to the touch? Focus on the calves.

## Close

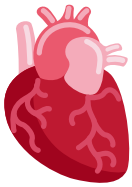
- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

# Knowledge Nuggets

### Why do the sclera turn yellow?

When bilirubin (an orange-yellow byproduct of the breakdown of RBCs) builds up in the blood, it can be due to a number of reasons. Usually something is going wrong in the liver, but it can also be due to pancreatic cancer or gallstones.

When levels of bilirubin in the blood get too high, it starts to deposit in the skin, mucous membranes and eyes, which, due to the compound's colour, subsequently turn yellow.



### What is the JVP?

JVP = Jugular Venous Pressure

- The JVP indirectly measures the pressure in the right atrium

# ABCDE EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
  - If patient unconscious, continue without this information.
- Explain procedure and gain consent, ask about pre-existing discomfort
  - If they are not responsive continue without gaining consent
- Adequately expose patient ("E")

**OSCE Tip**

**This station comes up in every single OSCE you will have. It can vary from year to year. You might have a live patient or a resus Annie. It might be in a medical setting or in the community where you have no access to medical equipment.**

## A = Airway

Is the patient speaking? Yes --> the airway is patent, move onto B.
No --> head tilt, chin lift. Move on to B.
Gurgling noises, choking or abnormal breathing --> attempt to clear the airway --> suction to clear, Heimlich Manoeuvre (5 back blows/5 abdominal thrusts if coughing ineffective), tracheostomy (won't appear in OSCEs).

## B = Breathing

**OSCE Tip**

**There are lots of elements in the "B" and "C" parts of the examination. To help remember everything, start with the hand, work up the arm and onto the chest (shown in knowledge nuggets).**

### Hands

- SpO2 should be >96%. If not, give patient oxygen through non-rebreather mask at 16L/min.

### Arms

- Respiratory rate. Calculate this whilst holding the patient's radial pulse to prevent a falsely elevated reading. Hyperventilation = respiratory rate >20.
  >20 = give oxygen as described above if not already

### Chest

- Palpate: tracheal deviation, chest expansion. If one of these is abnormal, suspect pneumothorax (where to place a chest drain in knowledge nuggets).
- Percuss: bilaterally over 3 areas of the front of the chest. Hyper-resonance suggests pneumothorax. Dull sounds suggest consolidation (pneumonia, pleural effusion, lung cancer)
- Auscultate: listen for breath sounds bilaterally over 3 areas of the front of the chest. Listen for wheeze (asthma attack?), crackles (fluid - pneumonia, heart failure?), or pleural rubs (pneumonia, PE?)

**Ask the patient to sit up if they can. Perform chest expansion, percussion and auscultation over 3 areas of the back, including the lung bases.**

## C = Circulation

### Hands

- Capillary refill time. Squeeze over a finger nail for 5 seconds. Full colour should return within 2 seconds. >2 seconds --> suggests dehydration --> gain IV access and give 500ml of saline through a wide bore cannula

### Arms

- Heart rate. Take the patient's radial pulse for 30 seconds and double to calculate heart rate. >100 = tachycardic = gain IV access and give 500ml of saline through a wide bore cannula (orange or grey) if not done already.
- Blood pressure. Systolic BP <100mmHg = gain IV access and give 500ml of saline through a wide bore cannula (orange or grey) if not done already.
- Gain IV access if not done already. Use a wide bore cannula (orange or grey). If no measurement suggest that the patient needs fluids, don't give them. But useful to have IV access for taking blood counts, blood cultures, cross matching.

### Chest

- Palpate: heaves and thrills. If present these suggest murmurs (heart failure?)
- Auscutate: over all 4 valves of the heart.

## D = Disability

- Blood glucose: <4 = give IV glucagon
- Temperature: <36°C = hypothermia
- Pupil response rate: check for equal pupil response rate to light. Perform swinging light test .
- If you don't have any ideas of what might be going on now, send off bloods (FBC, culture)

## E = expose/everything else

Expose the patient and check for any obvious cuts, bruising or deformities.

If at this point you still do not know what is going on, perform a basic abdominal examination or mention that you would do this.

## History Taking in an ABCDE

### How to take a history in an ABCDE station

Taking a history in an ABCDE OSCE station can be tricky as it's hard to know where to fit it in, and even if you do, with everything else going on, you might forget the things the patient has told you.

If the patient is unresponsive, then obviously it would be impossible to elicit a history. However, in the scenario, they might have family, friends or just witnesses around them, who might be able to give you a better idea of what is going on.

If you can possibly get a history from the patient or someone with them, it's probably a good idea to get this early on. It can tell you much more than the clinical signs can. Try to integrate it into the ABCDE examination, asking questions as you go along, but if this is too hard, then leave it until the end.

### What to ask

The mnemonic 'AMPLE' can help you remember what to ask a patient who has an emergency presentation.

- **A** = allergies
- **M** = medications
- **P** = past medical history (probe for heart disease, diabetes, cancer)
- **L** = last ate/drank
- **E** = events leading up to

Some prefer this mnemonic to be rearranged to 'EAMPL' as they consider "events leading up to " the most important part. If you can remember this, then use this instead, but don't worry if you prefer AMPLE

## iSBAR

This mnemonic is used to help you remember how to hand over a patient to another healthcare professional (doctor on another ward and paramedic are the most common in the OSCE station).

### i = Introduce yourself

- Name
- Role
- Location
- Ask who you are talking to
- "Hello, my name is John Brown and I am a first year medical student. I am phoning you from Ward 2 in Ninewells hospital. Can I ask who I am speaking to?"

### S= situation

- Tell the person who is with you - name and age if you have this information
- Give important vital signs if they are deviated
- "I am with Mr X, a 70 year old male who has recently collapsed. He is tachypnoeic, tachycardic and has a low blood pressure."

## iSBAR (continued)

**B = Background**

- Tell the person what you know about the situation (events leading up to it) and any other information you think is important
- "His wife tells me that he has a history of angina for which he takes GTN. He reported feeling nauseous and collapsed on the way to the toilet. He is allergic to penicillin and last ate at breakfast."

**A = Assessment**

- Tell the person what you think is happening or what you think you need (help/medicines etc.)
- "I think Mr X is having a MI and I would like help from a more senior professional.."

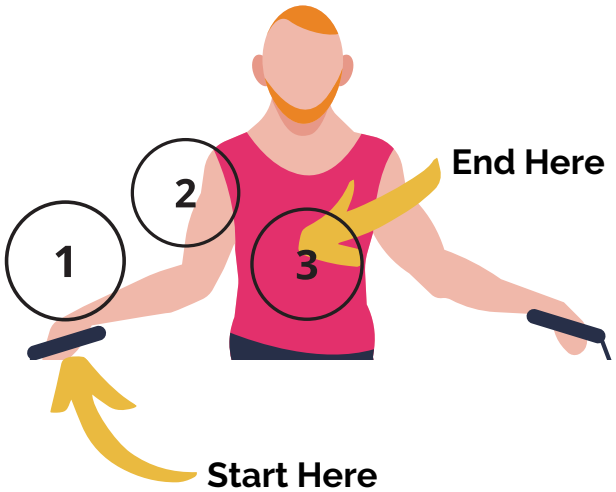
**R = Recommendations**

- Ask the person what their recommendations would be
- "Can you come and see the patient as soon as possible? Is there anything you would like me to do in the meantime?"

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

## Knowledge Nuggets




Visit the Dundee Emergency and Critical Care Society's website for information about their renowned ABCDE nights.

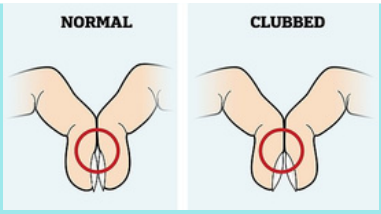
# RESPIRATORY EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient – exposed from the waist up, if possible
- End of bed check – oxygen, inhalers, IVs, use of accessory muscles for breathing, ability to speak etc.

**OSCE Tip**
These are easy safety marks you can gain in every station so never underestimate their importance!

## Look




### Hands

- Clubbing, tar staining
  - o Ask patient to place their nail beds together; absence of a 'diamond-shaped' gap indicates clubbing
- Cyanosis, palmar erythema (redness)
- Tar staining - brown/yellow discolouration - indicates smoking
- Bruising, thin skin (think steroid use)
- Skin temperature
- B agonist tremor, $CO_2$ flap
  - o Ask patient to stretch out their arms with palms facing anteriorly; observe for movement. A small tremor may be due to the use of high-dose beta agonist bronchodilators; a flapping tremor may be due to $CO_2$ retention
- Pulse, respiratory rate
  - o Feel for the radial pulse (on anterolateral aspect of the wrist) using two fingertips, and count the number of beats in 30 seconds (double to get the pulse rate)
- After measuring pulse rate, keep your fingers on the patient's radial pulse while you watch their chest to count the number of breaths in 30 seconds (remember to double), so as not to make them conscious of their breathing leading to inaccurate findings

### Face

- Plethoric face (flushed face)/pallor (paleness)
- Central cyanosis (check lips and underneath tongue), pursed lips
- Colour of conjunctivae (if pale, may be a sign of anaemia)

### Neck

- Lymph nodes – submental, submandibular, anterior triangle, posterior triangle, pre-auricular, post auricular, occipital, supraclavicular
- JVP (see cardiovascular exam)

### Chest

- Shortness of breath – is this present at rest? perhaps while undressing themselves?
- Respiratory rate, pattern and associated features e.g. wheeze
- Shape of chest, symmetry
- Scars, deformities
- *Remember to check the axillae!*

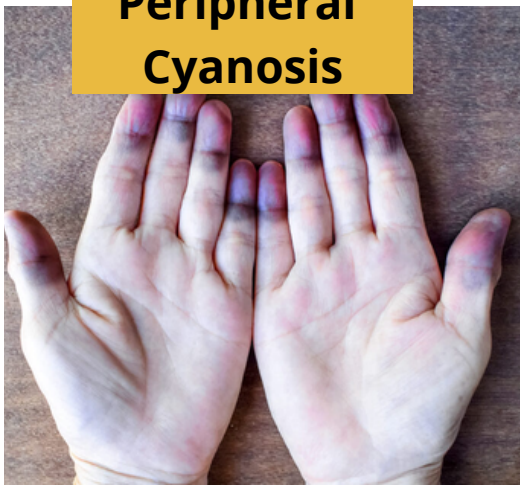
### Legs

- Evidence of DVT – hot, swollen, tender, red leg (usually unilateral)
- Rashes
- Pitting oedema – press firmly on each ankle with your thumb for 5 seconds and check if it
- leaves a temporary indent

**Clubbing**

**Tar Staining**

**Peripheral Cyanosis**



# Feel

## Trachea

Place your index and ring finger either side of the trachea and use your middle finger to gently press over the trachea; your middle finger should lie in the centre of the neck if the trachea is not deviated.

## Chest expansion

Firmly grip the chest wall on either side and bring the tips of your thumbs together. As the patient takes a deep breath in and then out, move your hands with the ribs upwards and outwards and check if the positions of your thumbs remain symmetrical. Do this anteriorly and posteriorly.

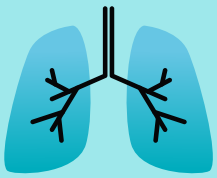
# Listen

## Percussion

- Percuss over all lung fields – usually 6 areas anterior and 8 posterior, as well as 3 on each side of the lateral chest
    - o Begin 2.5cm above clavicle and percuss after at least every 2nd rib
    - o You can percuss the clavicle directly without using a sounding board finger (see 'OSCE tips' section)
    - o Percuss over an area one side, then percuss over the same area on the other side, before moving down the chest – this will allow for a more accurate comparison between each side
    - o Note any difference between each side, and observe for dullness or hyper-resonance
- Cardiac dullness
- Upper limit of liver dullness

## Auscultation

- Auscultate over all lung fields – listen (over the same areas that you percussed) for a full inspiration and expiration
    - o Air entry – present or absent
    - o Character (vesicular (normal) or bronchial
    - o Added sounds – crepitations (crackles), wheeze, rub
- Don't forget the apex – auscultate by placing the bell of your stethoscope above the clavicle



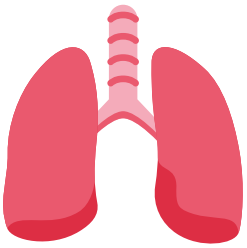
# Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

# ★ Knowledge Nuggets ★

### Structure is key

- **When performing a respiratory examination, it is good to have a logical flow.**
- **Always follow the pattern: Inspection -> Palpation -> Percussion -> Auscultation**
- **Not only does this look good to the examiner, it also helps you remember the components of the exam**



### Auscultation Sounds

- **Vesicular breathing - normal**
- **Bronchial - indicates consolidation - likely pneumonia**
- **Soft breath sounds - indicates fluid/air in the pleural space blocking the sound waves**
- **Coarse crackles - pneumonia / bronchiectasis**
- **Fine crackles - idiopathic pulmonary fibrosis / pulmonary oedema**
- **Stridor - loud high pitched musical sound, mainly inspiratory.**

### Percussion Notes

- **Resonant - normal percussion note**
- **Dull - abnormal lung density likely indicating pneumonia / pleural effusion / tumour**
- **Hyper-resonant - indicates too much air present within the lung tissue - likely to be a pneumothorax**

# PEAK FLOW MEASUREMENT

## Introduction

- Wash hands and don appropriate PPE
- Introduce yourself; name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent
- Establish patient's understanding of their condition and why they need to use a peak flow meter
- Ask the patient if they have and pain or shortness of breath before carrying out the assessment

## Explanation of procedure

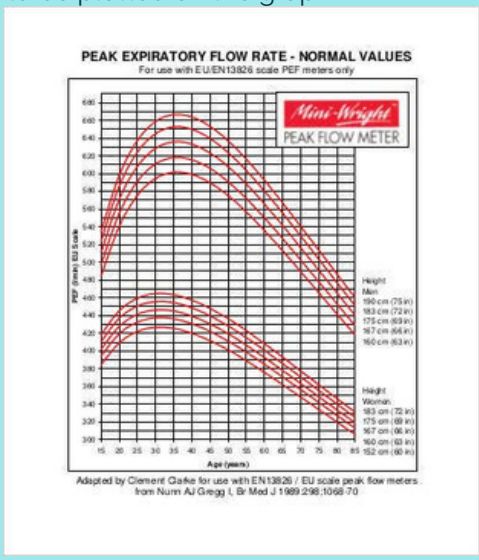
- This procedure allows us to measure how well air flows in and out of your lungs, which is known as the peak flow rate. By measuring peak flow rate we can check how well your asthma is controlled.

**OSCE Tip**

**Avoid using jargon when explaining the procedure to the patient**

## Plotting peak flow measurement

- Peak flow score depends on the age/height/gender of the patient
- The peak flow chart allows a comparison of the patient's peak flow score with the normal range for individuals in the same category
- The highest reading of the three attempts should be plotted on the graph




## Correct peak flow technique

- A Tell -> Show -> Do approach works well here
- Firstly, insert disposable peak flow mouthpiece onto peak flow meter
- Ensure peak flow meter is set to zero (red dial at zero)
- Ensure patient is either sitting up straight or standing
- Ask patient to take in as deep a breath as possible
- Ask patient to hold the peak flow device parallel to the floor, so that it is completely horizontal
- Ask patient to position their mouth around the mouthpiece, creating a tight seal with their lips
- Ask the patient to breathe out as hard and as fast as possible
- Note the reading on the peak flow meter
- Reset red dial to zero and complete above steps a total of THREE times
- The highest reading of the three attempts should be used as the final result

**OSCE Tip**

**Once you have explained and demonstrated the technique, observe the patient carrying out the procedure and provide feedback**

## Conclusion

- Check if the patient has any questions regarding their peak flow measurement
- Advise the patient to take regular peak flow measurements - ideally each morning and night - and keep a record of them in a peak flow diary
- Thank the patient for their time

# SETTING UP A NEBULISER

## Introduction

- Wash hands and don appropriate PPE
- Introduce yourself; name and role
- Confirm patient details: name and DOB
- Ask the patient what they already know about a nebuliser
- Explain to the patient what you are going to do and the purpose of nebuliser

## Necessary equipment

- Nebuliser (with 3 removable components)
- Face mask
- Nebuliser compression machine / oxygen supply
- Tubing
- Drug nebule

## Assembling Equipment

- Ensure to check the Drug name and expiry date
- Connect one end of plastic tubing to nebuliser compressor machine / oxygen supply and the other end of tubing to the nebuliser
- open the nebuliser drug chamber and pour in the correct medication (having checked name, dose and expiry date)
- Replace the top on the nebuliser drug chamber and screw to tighten
- Next, connect face mask attachment to the top of the medication cup
- Ensure the nebuliser and face mask are held upright at all times to prevent spillage
- Turn the nebuliser on / set oxygen supply to 6L and you should see a fine mist escaping from mask
- Ask the patient to put the face mask on, ensuring that it fits well around patient's face
- Encourage patient to breathe in and out normally

## ★ Knowledge Nuggets ★

- If using oxygen supply, ensure to set rate from 5-8L (I'd to 6L)
- Before giving patient the nebuliser, ensure it works appropriately by turning it on and identifying fine mist
- Ensure patient understands steps involved and feels comfortable

# INHALER TECHNIQUE

## Introduction

- Wash hands and don appropriate PPE
- Introduce yourself; name and role
- Confirm patient details: name and DOB
- Check the patient's current understanding of inhaler technique, perhaps ask patient to demonstrate their current technique
- Ask the patient if they have pain/shortness of breath before beginning.

## Inhaler Types

- There are a variety of inhaler types and you should be familiar of examples of the main types

### Reliever

- E.g. Salbutamol inhaler
- Useful to relieve sudden asthma attacks
- Works quickly to relax the muscles in your airways so you can breathe more easily
- Shouldn't need to use it more than three times per week if asthma is well controlled

**OSCE Tip**

**A pressurised metered dose inhaler (pMDI) like the images opposite is most likely to be used in an OSCE scenario**

### Preventer

- E.g. Beclometasone inhaler
- Should be used every day to reduce the risk of having an asthma attack
- Helps reduce swelling in the airways

**OSCE Tip**

**After using a preventer inhaler, remind the patient to rinse thier mouth out with water. This reduces the risk of oral candidiasis.**

## Steps to ensure effective inhaler technique (pMDI)

- 1. Patient positioning: ensure patient is sitting up straight or standing up. This position helps the medication reach the lungs more effectively.
- 2. Hold inhaler upright. Remove cap from inhaler and ensure there is nothing inside the inhaler mouthpiece.
- 3. Shake the inhaler a few times
- 4. Breathe out gently and slowly. Then place lips around the inhaler mouthpiece and aim to create a tight seal.
- 5. Start to breathe in SLOWLY and STEADILY whilst simultaneously pressing down the cannister of the inhaler once. Then continue to breathe in slowly.
- 6. Remove the inhaler from mouth and close lips. Aim to hold this breath for 10 seconds if possible.
- 7. Then, breathe out slowly and gently
- It is best to explain the steps and demonstrate to the patient first and then get the patient to carry out the steps themselves. Provide constructive feedback for the patient.

# CARDIOVASCULAR EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort, pain or any medically relevant information- pacemaker etc
- Adequately expose patient – exposed from the waist up, if patient is comfortable to do so and adjust bed to 45 degree angle
- End of bed check – oxygen, pacemakers, medications

**OSCE Tip**

These are easy safety marks you can gain in every station so never underestimate their importance! Also make sure you can explain what you're going to do in 1 or 2 sentences max

## Look

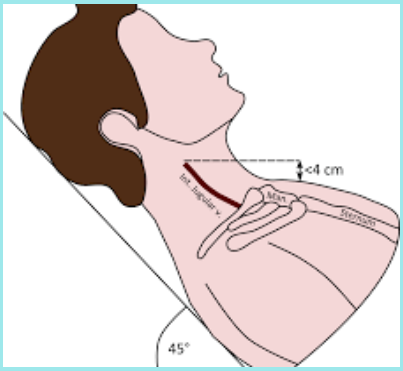
### Hands

- Colour
  - o pallor= indicative of poor perfusion
  - o cyanosis- blue. discolouration= suggestive of reduced O2 delivery to peripheries
- Tar staining - brown/yellow discolouration - indicates smoking which is a huge risk factor for many CVS diseases
- Xanthomata-yellow cholestrol like deposits most often seen on palms, wrists and elbows. Indicative of hyperlipidaemia
- Arachnodactyly- also known as spider fingers. Fingers and toes appear long and thin, they are a feature of Marfans.
- Clubbing- as explained in the respiratory examination section

Specific signs indicative of Endocarditis

- Janeway lesions
- Splinter haemorrhages
- Olser nodes

- Assess radial pulse and respiratory rate as explained in the respiratory examination section
- Assess the temperature of the patients hands- cool hands= suggestive of. poor perfusion of the peripheries
- Assess for capillary refill time-apply pressure to the patient's fingernail using the pad of your finger for 5 seconds and the remove, colour. should return in less than 2 seconds in healthy patients. If more than 2 seconds then this can suggest poor perfusion.




### Pulse

- Assess heart rate- measure pulse for 60 seconds or 30 seconds and multiply by 2
- If irregular rhythm then measure. pulse for 60 seconds
- A normal heart rate= between 60-100 bpm
- <60 bpm= bradycardia & >100 bpm= tachycardia
- Assess for radio-radial delay-palate for radial pulses in both arms at the same time. In healthy patients the pulses should be in sync but if they are out of sync then this can suggest radio-radial delay
- Assess for collapsing pulse
  - o ask the patient if they have any shoulder pain
  - o palpate radial pulse with your dominant hand and palpate the patient's brachial pulse with your non-dominant hand. After you have done this, quickly lift the patient's arm above their head.
- Measure blood pressure
  - o *typically you won't be asked to do this in a CVS examination station due to the time constraint
- Assess carotid pulse
  - o make sure the patient is seated comfortably for this and gently palpate between the larynx and the anterior border of the sternocleidomastoid muscle . You're looking to note the volume and character of the carotid pulse

### Neck

Assessing the JVP
- make sure the patient is seated at a 45 degree angle
- ask them to turn their head towards their left side and comfortably lean back into the pillow
-inspect the JVP as shown in the diagram
- a raised JVP may indicate a number of conditions such as venous hypertension particularly suggestive of right sided heart failure.
- you may choose to do the HEPATOJUGULAR reflex if you deem it necessary. To do this you keep the patient in the position they're in and ask if they have any pain
- then press firmly on the abdomen where the liver is positioned- right upper quadrant
- a positive result would be if the rise in JVP is prolonged and 4cm or more and this may be indicative of right or left sided ventricular failure
- note that this investigation is rarely performed in OSCEs due to its uncomfortable nature but be sure to mention it as a possibility to the examiner

## Face- Eyes

- Look at the colour of the conjunctiva- pallor is a sign of anaemia. To assess the colour ask the patient to pull down their lower lid as this is often more comfortable for patients than you doing it yourself
- Xanthelasma- yellow, cholesterol deposits around the eyes, indicative of hypercholesterolaemia
- Keyser Fleischer rings- brown coloured rings surrounding the iris, associated with Wilson's disease where there is an unusual build up of copper in certain organs and tissues- can lead to cardiomyopathy
- Corneal arcus- grey, white arc surrounding the cornea. A common presentation in elderly patient but unusual in younger patients, can be suggestive of hypercholestrolaemia

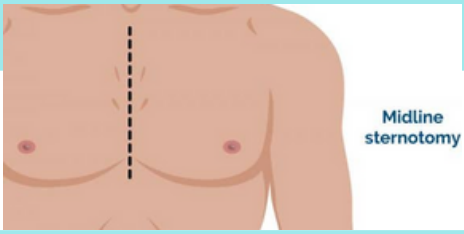
## Face- Mouth

- Look for central cyanosis- if the patient exhibits this sign then it would appear as a blue discolouring around the lips and potentially in the mouth.
- Look for indications of inadequate dental hygiene as this can be a risk factor for patients developing endocarditis
- Angular stomatitis- appears like inflammatory swollen, red patches surrounding the corners of the mouth. It can be caused by iron deficiency.
- High arched palate- indication of the patient having Marfan's syndrome. This sign is also associated with aortic dissection and prolapse of the aortic and mitral valves.

## Chest

Start by looking at the anterior chest

- Look for any scars on the chest particularly a midline sternotomy scar located in down the centre of the chest, which is an indication that the patient has undergone a CABG procedure
- Pectus excavatum- a congenital condition in which the chest appears sunken in
- Pectus carinatum- a genetic condition, the opposite of pectus excavatum in which the chest juts out




## Feel

Apex beat

- Many people struggle to feel the apex beat so don't worry if you don't get it on your first attempt. Here are some ways that might make palpating the apex beat easier

1. Feel down to the 5th intercostal space, this is typically where the apex beat is found in healthy patients
2. put your hand across this area in a horizontal fashion so your fingers lie over the 5th intercostal space at the midclavicular line
3. ask patient to lift up their breast if this hinders you from accessing the 5th intercostal space
4. If you feel the apex beat more toward the mid axillary line then this may indicate that it has been displaced usually suggestive of hypertrophy of the ventricles

Heaves

- Assessing for heaves just involves one step

1. place the heel of your hand on the patients chest laterally to the left sternal edge with your hand vertical so your fingers should be pointed up towards the patients face as shown in the diagram

if a heave is present then you should feel the heel of your hand being raised due to the abnormal and increased beating of the heart during the systolic phase of the cardiac cycle. This may indicate that the patient has hypertrophy of the right ventricle

Thrills

- Assessing for thrills involves a few steps. To palpate a thrill you must feel across each of the heart valves.

1. Place your hand in horizontal fashion across the patients chest and ensure your fingers lay flat on their chest. Also make sure that the palm of your hand lies directly on top of the valve rather than your fingers.

Thrills part 2
- To feel for thrills we must palpate over each of the 4 valves, below are the typical locations of the valves on a patients chest

1. aortic valve: 2nd intercostal space at the right sternal edge
2. pulmonary valve: 2nd intercostal space at the left sternal edge
3. tricuspid valve: 4th intercostal space lower left sternal edge though you may find this slightly lower
4. mitral valve: 5th intercostal space mid clavicular line

The diagram below shows the location of each of the valves

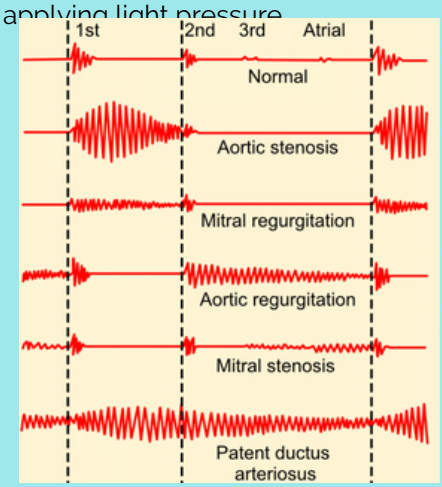
## Listen

To auscultate make sure you have your stethoscope adjusted properly.
You start by auscultating the same place as where you feel for thrills., these are mentioned below.

1. aortic valve: 2nd intercostal space at the right sternal edge
2. pulmonary valve: 2nd intercostal space at the left sternal edge
3. tricuspid valve: 4th intercostal space lower left sternal edge though you may find this slightly lower
4. mitral valve: 5th intercostal space mid clavicular line

The first step to listening to the valves is to determine the first heart sound and to do this we must lightly palpate the carotid pulse as you'll have down earlier. Once you've felt for the first heart sound, continue to palpate the carotid and proceed with listening to each of the 4 valves with both the bell and diagram sides of your stethoscope. If your stethoscope does not have this then don't worry just apply firm and light pressure at each of the valves and have a listen.

For the sake of skillfulness we recommend going round all the valves using one side of the stethoscope or applying from pressure and then repeat with the opposite side of the stethoscope or applying light pressure


Listening for murmurs
Again for skilfulness we recommend listening for murmurs in an order that doesn't inconvince the patient. We would recommend following the list below or any order that is comfortable for you

1. Listen to the carotid arteries using your stethoscope, make sure not to apply pressure on both sides of the neck as this can be dangerous for the patient. Use the diaphragm side of your stethoscope to do this, once you have comfortably positioned yourself ask the patient to take a deep breath in and out and then hold their breath. You're listening to see if the patient has an ejection systolic murmur caused by aortic stenosis. Don't forget to tell the patient to release their breath ;)
2. Then ask the patient to sit up, auscultate over the aortic valve and then ask the patient to lean forward. During expiration you may hear an early diastolic murmur indicative of aortic regurgitation.
3. Ask the patient to lay back down and position your stethoscope (diaphragm side) over the mitral valve. If comfortable to do so then ask them to lean towards their left side and you're listening for a pansystolic murmur during expiration which can suggest mitral regurgitation. If you hear this murmur it is a good idea to move the stethoscope towards the axilla to see how far it radiates
4. while you still have the patient on their side, continue to listen over the mitral valve but change to the BELL side of your stethoscope and listen for a mid-diastolic murmur during expiration which is caused by mitral stenosis .

## Posterior Chest / Legs

You're almost done! This part involves repeating a few of the steps you've already done but whilst examining the posterior chest.

Inspect
- Look for any scars or deformities

Feel
-The key thing to feel for on the posterior chest is sacral oedema. Palpate the inferior portion of the posterior chest where the base of the lungs would be. You may feel and see signs of pitting oedema indicating a build up of fluid.

Listen
- Similar to a respiratory examination you want to listen to at least 8 areas of the posterior chest, 4 on each side.
- We recommend listening to the apex and base of the lungs and two areas in between

Signs to look out for
1. breath sounds- are they equal and bilateral? Note any absent air entry
2. crackles- particularly noted at the base of the lungs and this may indicate pulmonary oedema, a common complication of failure of the left ventricle

Legs
- This is a quick step but easy to forget so make sure you keep in mind that a CVS examination is head to toe. A key sign for heart disease presents in the legs, pitting oedema- a sign ofright ventricular failure.

1. look and feel the patients ankles looking for any signs of pitting oedema which would present as the picture below

2. Also look for signs of a saphenous vein graft often used in CABG procedure.

With that you're done with a full CVS examination!

Make sure to thank the patient for their time and tell them that you are done .

Discuss your findings with the examiner or record them as appropriate. An important thing to remember is when reporting back your findings to the examiner make sure you start with the patients name and DOB as well as their reason for coming in or the need for the examination.

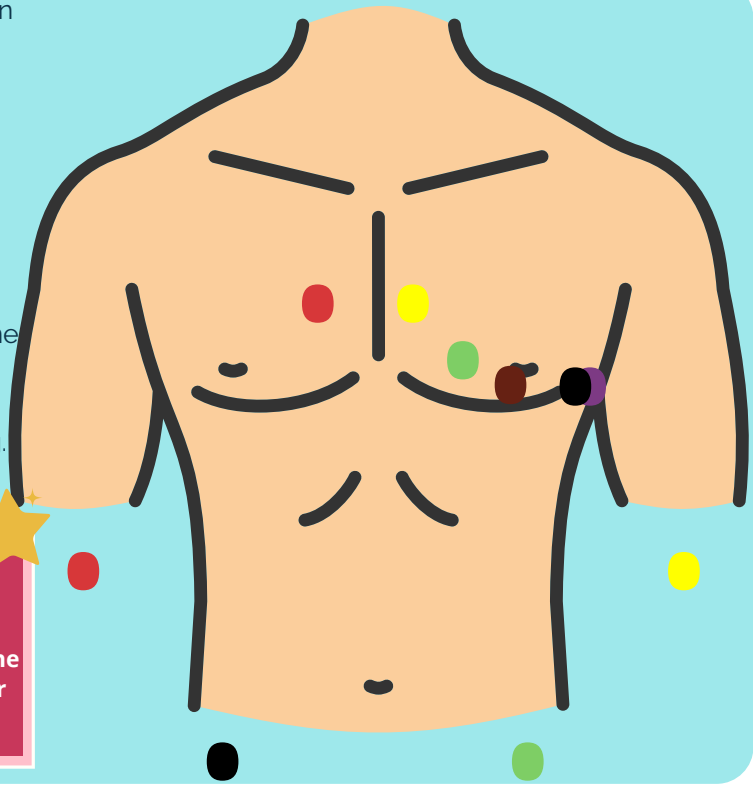
# RECORDING AN ECG

## Introduction

- Wash your hands and put on appropriate PPE
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent
- Position the patient at **45 degrees**
- Adequately expose the patient: above the waist. Maintain patient dignity, loose-fitting clothing or a cover may be replaced after the leads have been attached.
- If the patient's skin is dirty or oily, it may need to be cleaned before the ECG can be performed. Patients with chest hair may require this to be shaved at the electrode placement sites.
- Check for any pre-existing discomfort.

## Apply Electrodes

- Place an electrode in each of the following positions on the chest:
  - V1 - 4th intercostal space to the right of the sternal border
  - V2 = 4th intercostal space to the left of the sternal border
  - V3 - halfway between V2 and V4
  - V4 - 5th intercostal space in the midclavicular line
  - V5 - in line with V4, in the left anterior axillary line
  - V6 - in line with V4 and V5, in the left midaxillary line
  -
- Place an electrode on each wrist and ankle.
  - These should be applied on bony prominences e.g. medial malleoli and ulnar styloid processes.



**OSCE Tip**

**For patients with breasts, remember that a bra with an underwire may affect the ECG tracing and may need to be removed. It is recommended to place V4, V5 and V6 under the left breast, where the breast tissue meets the chest, in order to reduce the impact of breast tissue on the ECG amplitude.**

## Connect ECG Leads

- Connect the chest and limb leads, paying attention to their colours, as shown in the diagram above.
  - V1 - red
  - V2 - yellow
  - V3 - green
  - V4 - brown
  - V5 - black
  - V6 - purple
  - Right upper limb - red
  - Left upper limb - yellow
  - Left lower limb - green
  - Right lower limb - black

**OSCE Tip**

**A useful way to remember the order of the leads is with the phrase "Ride Your Green Bike".**

## Take the Recording

- Ask the patient to remain still and not speak during the rcroding to help minimise electrical artefact.
- Observe the trace on the ECG machine
- When satisfied with the trace, press the button on the ECG machine to print it.
- Ensure that the correct patient's details are displayed on the printed ECG. Often these are inputted into the machine before printing the ECG.

## Close

- Thank the patient
- Remove the leads and electrodes
- Offer to help them off the couch and to dress if required
- Remove PPE and wash hands.
- Summarise findings and explain next steps.

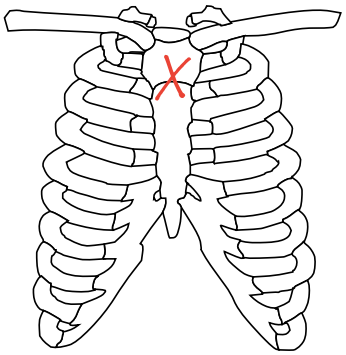
**OSCE Tip**

**You should be comfortable with how to interpret ECGs as you may be asked to do this in an exam or on placement.**

## Knowledge Nuggets

If required, e.g. patient has had an amputation, the limb lead electrodes can be placed more **proximally**. For example, on the fronts of the shoulders and hips. Any alternative placement such as this should be documented.

The correct positions for placing electrodes can be found by palpating the chest wall.
Find the **sternal angle**. The ribs lateral to this are the 2nd ribs and the space below them is the **2nd intercostal space**. By palpating these landmarks and counting down 2 further spaces, the 4th intercostal space can be identified.



# GASTROINTESTINAL EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing pain/tenderness
- Adequately expose patient
- End of bed check
  - Well/ill, anxious, distressed, sweaty, drowsy, in pain, pale/jaundiced
  - Medication, IV fluids, oxygen, walking aids

**OSCE Tip**

**These are easy safety marks you can gain in every station so never underestimate their importance!**

## Look

### Hands

- **Temperature** and quality of the skin, noting any coldness or clamminess
- **Palmar erythema**
- **Clubbing**
- **Koilonychia** ('spoon nails' – nails which have lost their convexity and have become flat or even concave in shape - caused by iron deficiency anaemia)
- **Leukonychia** (white lines or dots on the nails)
- **Dupuytren's contracture** (hand deformity in which finger(s) are be pulled in and bent towards the palm - present in some alcoholics)
- **Asterixis** (liver flap – seen in liver failure)
  - Ask patient to outstretch the arms and cock back the wrists, and observe their hands for movement – a bilateral, coarse flapping tremor may be a sign of liveR failure
- **Pulse**: rate, rhythm, character

### Mouth

- **Angular stomatitis** (angular cheilitis): swollen, red patches in the corners of the mouth where the lower and upper lips meet
- **Buccal mucosa ulceration** (ulcer on the inside of the cheek)
- **Ulceration/furring** of the tongue
- **Candidiasis** (oral thrush): white/yellowish patches on the tongue or at the back of the mouth
- **Leukoplakia:** thick, white patches on surfaces in the mouth – can be a sign of precancerous change
- Quality of **dentition**

### Eyes

- **Conjunctival pallor:** may be a sign of anaemia
- **Scleral jaundice:** yellowing of the usually-white parts of the eyeball
- **Corneal arcus:** deposit of cholesterol that results in a grey/white arc in the outer edge of the cornea
- **Xanthelasma:** sharply demarcated yellowish deposit of cholesterol underneath the skin around the eyes – common finding in elderly patients, more concerning if <40 yrs old
- **Kayser-Fleischer rings:** deposition of copper leading to dark brownish ring around the iris

### Abdomen

- Distension, scars, symmetry, masses, stoma, drain
- **Striae**
- **Bruising**
- **Spider naevi**: visible grouping of small blood vessels at the skin surface
- **Caput medusae**: visible distended and engorged superficial epigastric veins, radiating across the abdomen

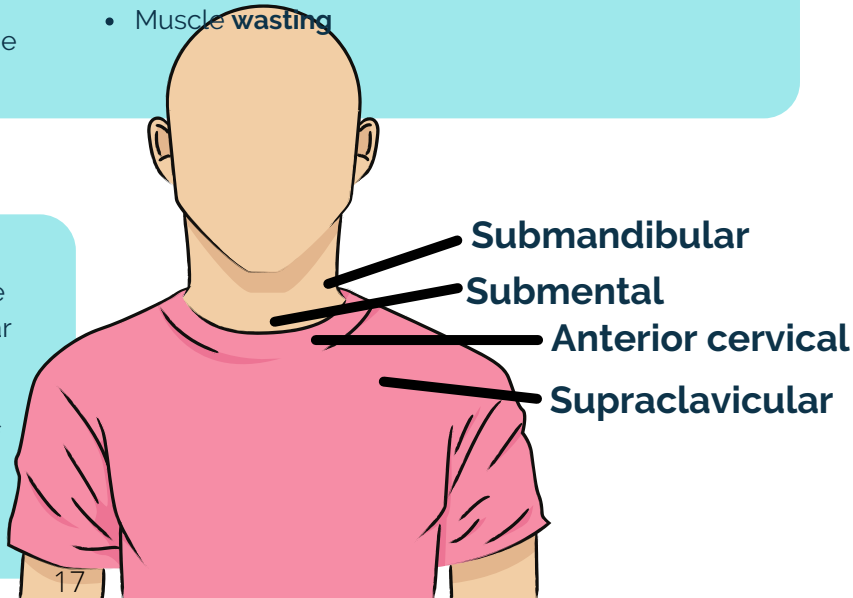
### Legs

- **Temperature** and quality of skin
- **Bruising**
- **Oedema**
- Muscle **wasting**

## Feel

### Lymph nodes

- Check under the chin and along the jaw, down the anterior + posterior neck, and in the supraclavicular area (see respiratory examination checklist for more detail)
- While patient is sitting up, also inspect for signs of sacral oedema (will appear as compressible swelling over the lower back)



***Patient should lie supine with their abdomen exposed (from the level of the nipples to the level of the anterior superior iliac crests, just above the pubic symphysis).***

- Sit beside patient at bed level
- Ask about pre-existing pain and start palpation away from area of discomfort
- Palpate abdomen with flat hand, flexing slightly at metacarpophalangeal joints (MCPJs)
  - Examine all 9 areas with superficial palpation followed by deep palpation
  - Observe the patient's face throughout for any signs of distress
- Abdominal guarding may be present over painful areas
- May be generalised rigidity in the case of bowel perforation

## Liver

- Ask patient to take deep regular breaths in and out
- Begin in the right iliac fossa (RIF) and move upwards towards the ribs
- Use the edge of index finger to 'scoop' upwards on inspiration to feel for liver edge
- Move the hand up 2cm with each breath during expiration
- Palpate over any detected hepatomegaly

## Kidneys

- Place one hand over the back at the level of kidney, the other hand on the anterior abdominal wall, and assess for ballotable (palpable and able to be 'bounced' back and forth) kidney
- In normal patients, nothing will be felt

## Spleen

- Begin in the RIF and move upwards to the LUQ
- Use the edge of index finger to 'scoop' upwards on inspiration to feel for spleen, moving your hand 2cm each time
- If spleen cannot be felt, this can be repeated with patient rolled on to their right

## Auscultate

- Bowel sounds (borborygmi)
  - Note any increase in pitch
  - Listen for 2 minutes before stating that bowel sounds are absent
- Bruits (abnormal sound of turbulent blood flow in an artery - most frequent cause of abdominal bruits is occlusive arterial disease in the aortoiliac vessels)

# Percussion

## Liver

- Percuss up from RIF towards the right lower costal margin (mid-clavicular line), to the site of first dullness, which marks the presence of the liver underneath
- Percuss down from the fifth intercostal space (mid-clavicular line) to upper border of liver

- Examine for groin hernias

## Spleen

- Percuss from RIF to LUQ, noting the point at which the percussive note becomes dull

## Ascites

- Inspect the abdomen for distension (enlargement, ballooning)
- Percuss from midline to flank (away from yourself), listening for a change in percussive note (dullness) suggestive of a fluid level
- If dullness detected, roll patient towards yourself, wait 10 seconds then re-percuss in the same area, to establish if dullness shifts; in the case of ascites, the percussive note will have changed

# Knowledge Nuggets

### Positioning of patient

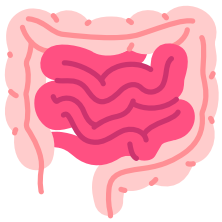
- When carrying out an abdominal examination, it is imperative that the bed is FLAT
- Make sure you position yourself at the same level as the patient i.e. sit down on a chair if required
- Pay attention to the patient's face during the examination to see if they look comfortable or are wincing in pain

### Location of pain

- **The location of the patient's abdominal pain can help guide differential diagnoses**
- **think about the structures which underly this area of skin**
- **RUQ - liver, gallbladder ? cholecystitis**
- **RLQ - appendix ?appendicitis**
- **LLQ - large intestine ? diverticulitis ?IBD**
- **Central - intestines / pancreas**
- **Suprapubic - bladder**

### Closing the consultation

- At the end of the examination, ALWAYS stay to the examiner that you would consider doing a PR examination and check for hernias



# PR EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing pain/tenderness
- Explain that there will be **chaperone** present and gain consent for this
- Ask the patient to undress from the waist down and lie on the couch in the left lateral position, with their knees tucked up towards their chest. They may wish to cover themselves with a sheet.

## Inspection

Part the buttocks and inspect the perianal area, looking for:

- Anal tags
- Haemorrhoids
- Fissures
- Scars
- Sinuses
- Fistulae
- Stool leakage
- Skin changes

**OSCE Tip**

**Ensure that you communicate with the patient throughoutt the examination so that they are comfortable**

## Palpation

- Apply lubricant to a gloved index finger
- Press the pulp of the fingertip against the anal verge at the 6 o'clock position and carefully insert your finger. Feel inside the rectum, which should feel sooth in all areas. Assess:
  - Anal sensation and pain
  - Stool in rectum
  - Bowel wall (rotate finger 360 degrees)
  - Prostate (size, texture, masses) in males
  - Sacral area and coccyx posteriorly
- Assess **anal tone** by asking the patient to squeeze your finger/tighten the muscles in that area as you withdraw it
- Look at your gloved finger - check for stool, mucus or blood

## Close

- Clean the patient or give them tissues and privacy to do so themselves
- Dispose of soiled equiptment
- Allow the patient to dress in privacy
- Thank the patient
- Remove PPE and wash hands
- Summarise findings and explain next steps

# DERMATOLOGICAL EXAMINATION

## Introduction

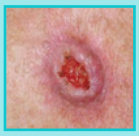
- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient to examine the rash/lesion
- End of bed check

## Describing Pigmented Lesions

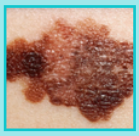
- **A**symmetry
- **B**order – regular or irregular?
- **C**olour – more than 3 colours?
- **D**iameter - >6mm?
- **E**levation

Make sure you can recognise and describe all of these!

**Basal cell carcinoma**



**Squamous cell carcinoma**



**Malignant melanoma**

## Describing other Lesions

- **Distribution**
  - which areas are affected?
  - is there sparing of any areas?
  - was there a primary lesion?
- **Configuration**
  - how are the lesions arranged?
  - do they follow a dermataome?
  - on flexural/ extensor sites?
- **Morphology**
  - see below for definitions

## Morphology

- **Macule**: flat, <1cm
- **Patch**: flat >1cm
- **Papule**: raised, <0.5cm
- **Nodule**: raised, >0.5cm
- **Plaque**: raised + flat, >1cm

- **Vesicle**: fluid-filled, <0.5cm
- **Bulla**: fluid-filled, >0.5cm

- **Purpura**: red, non-blanching rash
- **Petechia:** 1-2mm of purpura
- **Erythema**: red rash which blanches on pressure

- **Wheal**: compressible dermal swelling with no fluid
- **Cyst**: nodule containing semi-solid material
- **Pustule**: pus-filled raised lesion

- **Erosion**: break in the epidermis
- **Ulcer**: break in the dermis

- **Scale**: accumulated keratin
- **Crust**: dried exudate
- **Lichenified**: thickened skin

- **Fissure**: linear split in epidermis
- **Atrophy**: loss of epidermis +/- dermis
- **Scar**: normal tissue replaced by fibrous tissue

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

### OSCE Tip

**During a derm exam, you simply describe what you see. It may be useful to use lay-terms initially in your head, and then think of what the examiner will want you to describe the rash/lesion as**

## Knowledge Nuggets

Some skin conditions exhibit extracutaneous manifestations, whereas other skin lesions may develop as a result of a systemic disease process. Therefore, the history can be essential in determining a diagnosis

# MSK KNEE EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (to mid thigh)
- End of bed check

**OSCE Tip**

**Most examinations can be broken down into a look, feel, move sequence**

## Look (Compare contralateral)

**Patient standing**

- Limb alignment (genu valgum/ varus)
- Quadriceps/hamstring muscle mass and symmetry
- Popliteal fossae (fullness/ swelling might suggest a baker's cyst in RA or OA

**Gait**

- Pace, smoothness, symmetry, gross gait abnormalities, walking aids
- Watch face for discomfort
- Ability to turn

**Patient supine**

- **'DREAMSS'**
- **D**eformity, **R**ash, **E**rythema, **A**symmetry, **M**uscle bulk, **S**cars, **S**welling

## Feel (unilateral)

**Temperature**

- Using back of hands, compare both knees

**Straight leg raise**

- Ankles dorsiflexed, knees locked in extension, confirms intact extensor mechanism

**Effusion tests**

- Small/ no visible effusion > **medial gutter sweep test**
- Gross effusion visible > **patellar tap**

**Patellar tests**

- **Patella apprehension** test (patella instability): gently exert a lateralising pressure on the patella and watch patient's face for apprehension
- **Patella grind** test (patella-femoral OA): move patella side to side, positive if painful
- Patello-femoral crepitation (patella-femoral OA): feel for crepitations as patient actively flexes and extends knee

**Tibial tuberosity**

- Palpated with knee flexed to 90 degrees

**Patellar tendon**

- Tenderness suggests patellar tendinitis

**Joint line**
Medial and lateral

- Using a single digit, begin anterior and working laterally
- If localised joint tenderness, do **Steinman's** test (?acute meniscal tear if positive)
- Joint line tenderness also typical of arthritis (degenerative meniscal changes/ tears)

**Collaterals**

- Palpation of medial and lateral collateral ligaments; tenderness suggests a strain
- Stressing of MCL in valgus, stressing of LCL in varus

**Cruciates**

- **Posterior drawer test:** check for normal relationship between tibia and femur (tibia slightly anterior). Exert posterior force to tibia; no movement if negative; visible posterior sag if positive (suggests PCL injury)
- **Lachman's test:** with patient's leg relaxed, passively flex knee to 20 degrees. Lift tibia anteriorly in relation to femur with other hand; laxity compared to the contralateral side reflects a positive test (suggests ACL injury)

**OSCE Tip**

**There's a lot to remember for the knee exam (hence why it comes up so often in OSCEs) so be methodical:**
**Patient's leg extended: 'STEP' - Straight leg raise, Temperature, Effusion, Patellar tests**
**Patient's leg flexed: palpate round all anatomical landmarks; start central and work upwards and outwards**

## **Move** (Compare contralateral)

### Flexion
Active and passive

- Active movement is performed by the patient themselves, passive by gently moving their limb.
- Used to distinguish between weakness (active only) and stiffness (active + passive)

### Extension
Passive

- +/- heel height testing for locked knee (suggests bucket handle meniscal tear)
- If leg won't straighten patient has a fixed flexion deformity (may suggest moderate to severe arthritis)
- If the leg goes straight but the heel won't lift up the patient can achieve full extension, often communicated as 'neutral'

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

# ★ Knowledge Nuggets ★

### Bucket handle meniscal tear

- Young patient
- Twisting injury
- Unable to straighten knee
- Unilateral joint line tenderness
- Positive steinmann's test

**Torn meniscus prevents full extension**

### Cruciate ligaments

The mnemonic '**LAMP**' indicates the femoral attachments of the cruciate ligaments: **L**ateral **A**CL, **M**edial **M**CL

Cross your middle finger over your index finger on one hand and place it over the ipsilateral knee. This mimics the orientation of the ACL (middle finger) and PCL (index finger) within the joint!

### Common knee injuries

**Consider the mechanism**

- Hyperextension/ rotation on a planted foot > ACL
- Dashboard injury > PCL
- Lateral force to extended knee > ACL, MCL, medial meniscus (unhappy triad)

# MSK SHOULDER EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort, confirm which shoulder(s) is/are affected
- Adequately expose patient's upper body – ask to remove t-shirt. A strappy top is acceptable.
- End of bed check

### OSCE Tip

**Look: Start looking from midline and move laterally.**
**Feel: Start in midline and move laterally. Be aware of the patient's face and body language for any sign of tenderness/pain.**
**Movement: Stand in front of the patient and demonstrate the movements to them as you go.**

## Look (Compare contralateral)

**From the front**
- Start from midline and move laterally:
- Sternum, clavicle, deltoid and trapezium muscle bulk
- Sternoclavicular joint (SCJ), acromioclavicular joint (ACJ)
- Skin changes, scars from previous surgery

**From side**
- Shoulder contour, SCJ, ACJ
- Axilla: swelling or scars

**From behind**
- supraspinatus and infraspinatus muscle bulk (rotator cuff degeneration or chronic tears), scapula asymmetry

## Feel (unilateral)

Start at the SCJ, feel along the clavicle, ACJ, border of acromium, long head of biceps tendon, spine and body of the scapula of the affected shoulder

## Move (compare contralateral)

**Forward flexion (180 degrees)**
- "Raise hands up in front of you like you are about to dive into a pool"

**Abduction (180 degrees)**
- "Bring your arms out to the side and up to meet above your head"
- Painful arc (80-150 degrees): suggests rotator cuff impingement
- Assess from behind the patient as well to assess for scapula thoracic dyskinesia

**External rotation (70 degrees)**
- Arms at 90 degrees, elbows tucked into sides and move your hands and forearms outwards

**Internal rotation**
- Reach one hand up your back as high as you can.
- Note the vertebral level they reach. Then repeat with other hand and compare.

If full range of **active** motion cannot be achieved for a movement then attempt to assist with **passive** movement. Test passive movement by stabilising their shoulder with one hand and assisting them with the movement with the other hand.

**Scapular winging** (look from behind and the side):
1. Palms on wall at shoulder height with arms locked. Ask to draw chest towards wall. Tests power of trapezius (supplied by spinal accessory nerve)
2. With forearms supinated place palms on wall at waist height with arms locked. Ask to draw chest towards wall. Tests power of serratus anterior (supplied by the long thoracic nerve).

**Power of RC Muscles**

Tested against resistance.
- Abduction (aka Jobes/Empty Can test): **supraspinatus** – Patient with shoulders abducted and slightly forward flexed, and hand pronated (thumb towards floor). Push downward on the patient's forearms.

- External rotation: **infraspinatus** – Patient with arms at 90 degrees, elbows tucked into sides. Push inwards on the back of the patient's hands.
- Internal rotation: **subscapularis** – Patient places the back of their hand on their lower back. Ask them to push backwards against your hand

## Special Tests
**(depending on likely pathology)**

Instability (subluxation or dislocation)

- **Sulcus sign**: stabilise the shoulder girdle with one hand and pull down on the patient's arm with your other hand. Gross instability: humeral head will translate inferiorly causing indrawing of the soft tissue superior to this.
- **Anterior and posterior drawer tests:** Patient lies supine on bed. Stabilise shoulder girdle with one hand and the humeral head with the other hand. Try to displace the humeral head anteriorly and posteriorly.
- Apprehension tests:
  - Anterior: Patient lying down. With the patient's elbow flexed, externally rotate their shoulder. Instability: humeral head will sublux anteriorly.
    - Anterior relocation test: Applying pressure anteriorly to the humeral head
  - Posterior: Apply pressure on patient's elbow with their shoulder flexed. Instability: humeral head will sublux posteriorly.

Impingement

- **Painful arc:** 80-150 degrees abduction
- **Hawkins Kennedy test:** Patient with shoulder flexed forward, elbow bent. Internally rotate the patient's arm. Increased discomfort suggests impingement.
- **Scarf test:** adduct patient's arm across their body like a scarf. Increased discomfort suggests ACJ pathology

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

### OSCE Tip

**Special tests: Apprehension tests – watch the patient's face for "apprehension" during this movement as they may be worried because the joint will feel unstable.**

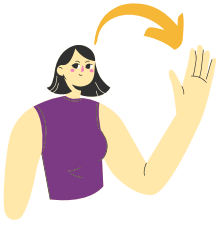
## Knowledge Nuggets

If both passive and active movement reduced this suggests inflammation or global stiffness e.g. glenohumeral arthritis or adhesive capsulitis

A loss of range of motion in external rotation is the most sensitive movement test for potential shoulder pathology.

If the arm appears internally rotated at rest this suggests posterior shoulder dislocation.

Active movement is reduced by muscle weakness, rotator cuff pain or chronic degeneration



External rotation is the movement most significantly restricted in adhesive capsulitis.

# MSK SPINE EXAMINATION

## Introduction

- Wash your hands and put on appropriate PPE.
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort.
- Adequately expose patient's upper body above the waist.
- End of bed check: Body habitus, scars, muscle wasting, bedside charts, walking aids, gait.

## Look (Patient standing)

### From behind

- Scars, bruising, muscle wasting, abnormal hair growth, posture of head and neck, shoulder asymmetry, scapular prominence, scoliosis, iliac crest alignment
- Ask patient to bend forward: can exaggerate rotational deformity. Note any asymmetry in rib height bilaterally.

### From side

- Normal curvatures of the spine (cervical lordosis, thoracic kyphosis and lumbar lordosis), gibbus (angular deformity in thoracic spine)
- Deviation from the normal shape may be due to deformity or spasm.

## Feel

- Supraclavicular fossa: cervical rib or enlarged lymph nodes
- Spinal processes: tenderness, alignment, step (suggests spondylolisthesis)
- Paraspinal muscles: tenderness, spasm and muscle bulk
- Iliac crest height: note any asymmetry
- Sacroiliac joints (SIJ): tenderness may suggest sacroiliitis, seen in ankylosing spondylitis
- Chest expansion

### OSCE Tip

**Paraspinal muscles – palpate down one side and then the contralateral side.**
**If note tenderness on palpation of spinal processes attempt to assess the exact vertebral level of the tenderness. (C7 (vertebra prominens) is the first palpable vertebra.)**

## Move (Active initially, aided passively if issue)

### Cervical spine

- Flexion: "chin to chest"
- Extension: "look up at the ceiling"
- Lateral flexion: "ear to shoulder".
- Rotation: "turn to look left/right"

### Thoracic spine

- Rotation: "cross your arms over your chest and twist round to each side as far as you can"

### OSCE Tip

**During cervical rotation you can ask the patient to sit in a chair to make it easier to observe this movement from above.**
**During cervical movements stabilising the shoulders with your hands may help to improve the accuracy of your assessment. This minimises compensatory shoulder movement which may obscure a reduced range of movement in the cervical spine.**

### Lumbar spine

- Flexion: "try to touch your toes while keeping legs straight"
- Extension: "lean back as far as comfortably can". Support the patient from behind..
- Lateral flexion: "bend to the side and reach hand as far down the side of leg as possible"

### Special Tests

**Schober's test**: test for restricted lumbar flexion. Will need a tape measure and a marker pen.

- Locate the posterior superior iliac spines (PSIS) and find the midpoint between them..
- Using a marker and measuring tape, mark the skin overlying the spine 5cm below and 10cm above the level of the PSIS.
- Ask patient to bend forward as far as possible.
- Normal: >20cm between the marks when bending forward.

## Close

- Thank the patient
- Offer to help them dress if required
- Remove PPE and wash hands.
- Summarise findings and explain next steps
- Further steps may include: neurovascular examination of limbs, hip or shoulder examination, or imaging such as x-ray or MRI.

## ⭐ Knowledge Nuggets ⭐

Thoracic kyphosis may be suggestive of ankylosing spondylitis or a thoracic wedge fracture.

A neurological examination would also be required to investigate spinal cord or nerve root pathology if the patient has any neurological symptoms. This may be suggested by a **positive straight leg raise test** or **femoral nerve stretch test.**

### Ankylosing Spondylitis

**Typically 20-30 yo males**

**Symptoms**: Lower back pain and stiffness (worse in morning and improves with exercise)

**Signs on examination**: reduced chest expansion, SIJ tenderness (sacroiliitis – hallmark feature), Schober's test shows a reduced range of flexion in the lumbar spine (<20cm when bending forward).

# MSK HIP EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort, confirm which hip(s) is/are affected
- Adequately expose patient's lower body – shorts or underwear if acceptable to the patient
- End of bed check: body habitus, scars, muscle wasting, walking aids, bedside charts, footwear

## Look

**Anterior**
- Symmetry of quadriceps muscles

**Posterior**
- Gluteal and hamstring muscles (wasting may indicate disuse due to pain or stiffness)

**Gait**
- Symmetry of movement, discomfort or gait abnormalities.

**Trendelenburg's**
**To assess abductor muscles of standing leg**
- Face the patient. Ask them to place their hands on yours for stability
- Assess each side in turn. Ask the patient to lift one foot a short distance off of the ground.
- Positive test: standing leg in adduction contralateral iliac crest sinks
- Do not attempt test if the patient is unstable on their feet and you are worried they are at risk of falling

**Supine**
- Scars, swelling, bruising, wasting, asymmetry, obvious fixed flexion deformity of the hip

**Thomas's test**
**To assess for fixed flexion deformity of the hip**
- Patient lying supine on bed.
- Stand on the side of the affected hip.
- Place one hand between the couch and patient's lumbar lordosis with your palm against the patient's back.
- Ask patient to flex their unaffected hip and knee as far as they can and observe affected limb. Repeat on contralateral hip.
- Positive test: thigh lifts off of bed as the lumbar lordosis is occluded when the patient flexes the contralateral hip.

**Limb lengths**
- True and apparent (using tape measure)
- True: anterior superior iliac spine (ASIS) to ipsilateral medial malleolus
- Apparent: xiphisternum to medial malleolus (incorporates pelvic obliquity or lumbar scoliosis which would affect limb length during gait)

### OSCE Tip

**Trendelenburg's:** before beginning the test tell the patient that if they feel at all unstable they should put their foot back onto the ground and that they can use your hands for support.
**Thomas's test:** Check that the patient does not have a hip replacement. DO NOT perform if the patient has a hip replacement as this may cause the hip to dislocate.

## Feel

- Ask if any existing pain
- Joint temperature - for septic arthritis
- Greater trochanter: Lateral aspect of proximal
- Hip joint: start at ASIS and move medially.
  - The midpoint of the groin directly overlies the hip joint.
  - Tenderness at the medial groin may indicate a pubic rami fracture.

### OSCE Tip

**Explain to the patient what you are doing before you feel along their groin as this may make the patient uncomfortable if they are unsure what you are assessing.**

## **Move** (Compare contralateral)

**Hip flexion**
**(100-130 degrees passive flexion)**
- Ask patient to flex hip to bring their knee to their chest (active movement).
- Then ask the patient to hug their knee to their chest to assess full range of passive movement.

**Internal rotation**
**(15 degrees passive movement)**
- Patient's hip and knee at 90 degrees.
- One hand on knee and one on ankle. Rotate the foot laterally.

**External rotation**
**(40 degrees passive movement)**
- Patient's hip and knee at 90 degrees.
- One hand on knee and one on ankle. Rotate the foot medially.

**Adduction**
**(15 degrees passive movement)**
- Legs straight. Stabilise contralateral pelvis with one hand.
- Move ankle medially with other hand to adduct the hip until the pelvis tilts.

**Abduction**
**(45 degrees passive movement)**
- Legs straight. Stabilise contralateral pelvis with one hand.
- Move ankle laterally with other hand to abduct the hip until the pelvis tilts.

### OSCE Tip

**Rotation: ensure to compare the position of the leg to the anterior thigh. Don't rely on the patient's foot position as this can be misleading.**

## Close

- Thank the patient
- Offer to help them dress if required
- Summarise findings and explain next steps
- Wash hands

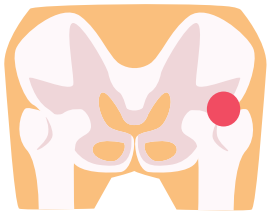
### OSCE Tip

**Possible next steps include: neurovascular examination lower limbs. Lumbar spine or knee examination. Imaging of the hip: x-ray or MRI.**

## Knowledge Nuggets

### Abnormal Gait

**Antalgic:** limp due to hip pain or weakness
**Trendelenburg:** unilateral hip abductor weakness, hip drops towards unaffected side,
**Waddling:** bilateral hip abductor weakness, usually due to a myopathy
**Stiff gait**



Hip pain can commonly be referred to the knee. This is because the knee and the hip are both innervated by the **obturator** nerve.

It is important to consider hip pathology as a cause of knee pain in children and perform a hip examination in addition to a knee examination

# MSK HAND EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (bare below the elbow)
- End of bed check

**OSCE Tip**
**Always ask the patient if they have any pain before beginning an examination**

## Inspection

**Dorsal side**

- swelling, muscle wasting or scars
- psoriatic nail changes e.g. pitting and oncholysis / evidence of nailfold vasculitis
- deformity e.g. ulnar deviation, swan neck, boutonniere, Z-shaped thumb
- skin thinning/ bruising e.g. steroid use or skin thickening e.g. sclerodactyly in systemic sclerosis

**Palmar side**

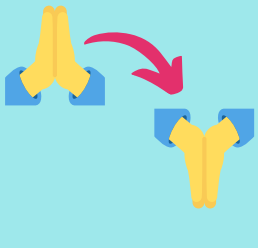
- Muscle wasting at thenar/ hypothenar eminence

## Palpation

- Feel for warmth at wrist and MCPs
- Squeeze MCPs looking for tenderness
- Bimanually palpate any swollen joints (MCP, DIP or PIP) to assess whether boggy (synovitic in RA) or bony (OA)
- Bimanually palpate the wrists
- Run your hand up the forearm to the elbow. Feel and look for psoriatic plaques and rheumatoid nodules

## Function

- Wrist flexion/extension: prayer sign then repeated upside-down
- Make a fist – ensuring all fingers are tucked into the palm
- Check patient can touch their thumb against each of their fingers
- Power grip (squeezing your fingers)
- Pincer grip (opposing finger-thumb interaction)
- Fine pinch (picking up a coin)
- Chuck or tripod grip (holding a pen)
- Hook grip (resisting decoupling of your hooked hands when pulling away)



## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

## Knowledge Nuggets

- Erythema of the soft tissue: may indicate cellulitis or joint sepsis
- **Bouchard's nodes, Heberden's nodes:** OA
- **Dupuytren's contracture, Swan neck deformity, Z-thumb, Boutonnières deformity:** RA
- **Skin thinning or bruising:** long-term steroid use (e.g. in patients with active inflammatory arthritis).
- **Psoriatic plaques:** psoriatic arthritis.
- **Muscle wasting:** can occur secondary to chronic joint pathology or lower motor neuron lesions (e.g. median nerve damage secondary to carpal tunnel syndrome).
- **Splinter haemorrhages:** local trauma, infective endocarditis, sepsis, vasculitis, psoriatic nail disease.
- **Nail pitting and oncholysis:** psoriasis, psoriatic arthritis.
- **Janeway lesions, Osler's nodes:** infective endocarditis.
- **Thenar/hypothenar wasting:** median nerve damage (e.g. carpal tunnel syndrome).

# GALS EXAMINATION

## GAIT, ARMS, LEGS, SPINE

## Introduction

- Wash your hands and put on appropriate PPE.
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort.
- Adequately expose patient: remove long trousers, and clothes above the waist.
- End of bed check: Body habitus, scars, muscle wasting, bedside charts, walking aids.

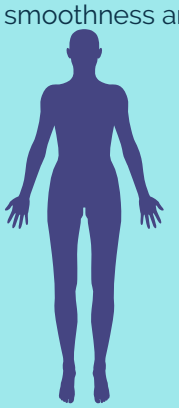
## Screening Questions

Ask the patient the following screening questions:

1. Do you have any pain, swelling or stiffness in your back, muscles or joints?
2. Are you able to dress yourself completely without any difficulty?
3. Can you walk up and down stairs without any difficulty?

## Gait

Ask the patient to walk a few paces, turn and walk back towards you. Observe their **gait cycle** for symmetry, smoothness and their ability to turn quickly**.**



With the patient standing in front of you in the anatomical position, look from the **front, behind and sides** for:

- Shoulder symmetry and muscle bulk
- Limb and spine alignment
- Ability to fully extend the elbows and knees
- Quadriceps muscle bulk
- Iliac crest heights
- Gluteal muscle
- Knee swelling or deformity
- Popliteal swellings
- Abnormalities in the feet

**OSCE Tip**

**It is often useful to demonstrate to the patient the movement which you are asking them to perform.**

## Arms

Ask the patient to place their **hands behind their head**

- Assessing shoulder abduction and external rotation and elbow flexion

Ask the patient to **straighten their arms out infront of them with palms facing down and fingers spread**

- Observe their ability to fully extend the elbows
- Look at the back of the hands for asymmetry, joint swelling, deformity, skin or nail changes

Ask the patient to **turn their hands over** (palms facing upwards)

- Supination assesses wrist and elbow movements
- Inspect the palms, noting muscle bulk and any deformities

Ask the patient to **make a fist**

- Assessing hand function and range of movement of the fingers

Ask the patient to **squeeze your fingers**

- Assessing grip strength

Ask them to **touch each fingertip to their thumb** on the same hand

- Assessing hand function and precision grip

**Squeeze the MCP joints** to check for tenderness suggesting joint inflammation

**OSCE Tip**

**It may be make your examination more slick to complete the elements requiring the patient to be standing (gait, spine) together first rather than following the GALS order which requires them to get up and down a couple of times.**

## Legs

Patient position: lying on the examination couch

- Assess **passive knee flexion and extension** on each side, feeling over the joint lines for crepitus
- With the hip knee flexed to 90 degrees, assess **passive internal rotation of the hip joints**
- Check for **knee effusion** with either a patella tap or sweep test
- Inspect the patient's **feet** for swelling, callosities or deformity
- Squeeze the **MTP joints** to check for tenderness suggesting joint inflammation

**OSCE Tip**

**The medial gutter sweep test is useful to assess for small effusions not detected with a patella tap test.**

## Spine

- **Inspect** for signs of scoliosis, abnormal lordosis or kyphosis, or asymmetry
- Assess **lateral flexion of the cervical spine** by asking the patient to tilt their head to each side (ear to shoulder)
- Assess **lumbar spine flexion** by placing two fingers on the lumbar vertebrae and asking the patient to bend forward - your fingers should move further apart during lumbar spine flexion and back together during extension

**OSCE Tip**

**Practice summarising and presenting your examination findings as this is something you may have to do on placement, in OSCEs and in working life!**

## Close

- Thank the patient
- Offer to help them dress if required
- Remove PPE and wash hands.
- Summarise findings and explain next steps
- If any abnormality has been detected, the next steps would include taking a detailed history and examining the relevant joint(s).

## Knowledge Nuggets

Wasting of the thenar eminence (fleshy part at the base of the thumb) can occur due to **median** nerve compression in carpal tunnel syndrome.
Wasting of the hypothenar eminence (at the base of the little finger) is associated with lesions of the **ulnar** nerve.

GALS is a brief screening examination which is very useful for identifying significant MSK abnormalities. The joint movements assessed are those which are often the first to be affected by pathology

Shoulder abduction - rotator cuff problems
Shoulder external rotation - glenohumeral problems
Hip internal rotation - hip joint pathology

# THYROID EXAMINATION

## Introduction

- Wash your hands and put on appropriate PPE
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfor
- Adequately expose patient (entire neck)
- End of bed check. Key signs to look for:
    - Hyperthyroidism: low BMI, sweaty, hyperactivity, exophthalmos (proptosis)
    - Hypothyroidism: overweight, thin hair, lots of clothing for room temp, hoarse voice

**OSCE Tip**

**Working systematically with your examination should help you remember to cover the key components. For example, start with the hands, moving up to the face and neck then down to the legs.**

## Hands and Arms

- Look at and feel the patient's hands for signs of thyroid disease.
    - Hyperthyroidism: thyroid acropachy, onycholysis, palmar erythema
    - Hypothyroidism: cold, clammy, dry skin
- Assess for peripheral tremor – ask the patient to stretch their arms out in front of them and observe for fine tremor
- Palpate the radial pulse (bradycardia may be a sign of hypothyroidism; an irregular pulse or tachycardia may indicate hyperthyroidism) – note rate, rhythm and volume

## Face and eyes

- Inspect the face for signs of thyroid disease.
    - Hyperthyriodism: excessive sweating
    - Hypothyroidism: dry skin, loss of outer third of eyebrows
- Inspect the eyes from the front, sides and **above** for bilateral exophthalmos (anterior bulging of the eyes – a sign of Grave's disease)
- Assess for eyelid retraction (may be a sign of Grave's disease)
    - Is sclera visible above and/or below the iris?
    - Can the patient close their eyes?
- Assess for ophthalmoplegia and pain during eye movements by asking the patient to follow your finger in a H shape
- · Check for lid lag (sign of hyperthyroidism)
    - Ask patient to follow your finger with their eyes à hold finger up high à move quickly downwards à observe whether upper lid lags behind eye movement

## Neck

**Look from the front and sides**

- Symmetry or asymmetry
- Any scars indicative of previous surgery?
- Are there any visible masses?
- Is there an obvious goitre just below the thyroid cartilage?
- Ask the patient to swallow a sip of water and assess the neck from the front. Thyroid masses will generally move upwards on swallowing.
- Ask the patient to stick their tongue out. Thyroglossal cysts will move upwards.

**Feel**

- Feel – stand behind the patient and ask them to tilt their chin down slightly. Use both hands to examine their neck
    - Check for tenderness

- Palpate downwards on the anterior aspect of the neck, locating the thyroid cartilage, cricoid cartilage, isthmus and lobes of the thyroid gland.
- Ask the patient to swallow another sip of water and feel for upward movement of the thyroid gland.

- If the thyroid gland is palpable, assess:
  - Size
  - Symmetry
  - Diffuse enlargement, unimodular or multinodular?
  - Consistency - Is it soft (normal), firm (simple goitre), or stoney hard (fibrosis, malignancy)
  - Presence of palpable thrill
  - If mass present – is it mobile?
- Palpate to assess tracheal deviation (may occur in case of large goitre)
- Examine the lymph nodes of the head and neck
- If there is a large goitre present, a measuring tape may be used to measure the neck circumference.

**Auscultate**

- Auscultate each lobe of the thyroid gland for bruit (sign of Grave's disease)

## Legs

- Pretibial myxoedema

### OSCE Tip

**Further examinations might include assessing reflexes (may be brisk in hyperthyroidism and slow in hypothyroidism); asking the patient to stand up from a chair with their arms crossed (proximal myopathy can occur in Grave's disease) and percussing the sternum moving inferiorly from the sternal notch (retrosternal dullness may indicate a large thyroid mass extending into this space)**

## Close

- Thank the patient
- Remove PPE and wash hands
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps

# Knowledge Nuggets

A normal sized thyroid gland is **not** usually visible on inspection of the neck

**Onycholysis** is painless detachment of the nail from the nailbed

Eyelid retraction occurs in **Grave's disease** due to sympathetic hyperactivity which results in contraction of the **superior tarsal** and **levator palpebrae superioris** muscles

If suspicious of thyroid disease, appropriate further investigations might include **thyroid function tests**, an **ECG** and **thyroid ultrasound** to assess any masses noted on examination

Unilateral thyroid gland enlargement may indicate a **thyroid nodule or malignancy**

# DIABETIC FOOT EXAMINATION

## Introduction

- Wash hands and put on appropriate PPE
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient's legs and feet (ideally, ask them if they can remove their trousers or roll them up to at least above their knees; shoes and socks should also be removed)
- End of bed check
- Ask the patient about any mobility issues and observe their gait for smoothness and symmetry

**OSCE Tip**
**Since this examination is performed as part of a diabetic review, you can ask the patient if they have had this examination performed before**

## Look

- Examine both feet, all surfaces (including heels, plantar surfaces, in between the toes)
- Look for:
  - Amputations
  - Ulcers
  - Hair loss
  - Callous
  - Bony prominences
  - Muscle wasting
  - Skin condition/changes
  - Colour- comparing bilaterally

**OSCE Tip**
**You can inspect the patient's shoes for any clues to the wear pattern and tread of the shoes**

## Feel

- Temperature of the legs – if cold, this suggests the limb could be ischaemic
- Assess toes for capillary refill time (should be <2 seconds)
- Pulses – check the dorsalis pedis and posterior tibial pulses on both sides

## Test sensation

**Pressure**

- Choose the 10g monofilament
- Demonstrate on the patient's hand what this feels like
- Touch their foot with the monofilament and ask them to say "yes" when they feel it
- Test sensation at the points shown below:

**OSCE Tip**
**You should apply enough pressure that the monofilament bends slightly**

**Vibration**

- Choose the biggest tuning fork (**128** Hz)
- Demonstrate on the patient's hand, on any bony prominence
- Test the medial side of the 1st MCP joint on both feet
- Ask the patient if they can feel a vibrating sensationand to tell you when it stops.

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Remove PPE and wash hands.
- Summarise findings and explain next steps

**OSCE Tip**
**In an OSCE, there will often be 3 different tuning forks laid out for you to choose from. Choose the biggest one (this will be 128 Hz) – this can be remembered with the rhyme "1-2-8 vibrate"!**

## Knowledge Nuggets

The dorsalis pedis pulse is palpated lateral to the extensor hallucis longus tendon,so it can be helpful to ask patients to entend their great toe in order to locate this pulse on the dorsal aspect of the foot.

The posterior tibial pulse can be felt between the medial malleolus and the achilles tendon.

People with diabetes should have their feet screened annually for signs of vascular disease or neuropathy.

If anbnormalities in pressure or vibration sensation are detected, furhter appropriate examination would include assessing **proprioception** and ankle jerk **reflexes**.

# PAEDIATRIC BLS

- Approach safely
- Check for response
- Shout for help and call 999/2222
- Open airway
  - head in **neutral** for infant
  - **head tilt chin lift** for child
- Look, listen and feel for breathing whilst assessing pulse (10 seconds)
- 5 rescue breaths
- Check for signs of life (10 seconds)
- 15 chest compressions
  - in infant use two fingertips/thumbs
  - in child use heel of one hand
- Continue CPR in a ratio of 15 compressions:2 breaths
- Continue until help arrives or too tired to continue

Infant | Small child | Older child/ adult

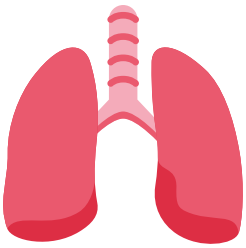
**OSCE Tip**

**Rate: 100-120/ min**

**Depth: 4cm for infant, 5cm for child >1 yr**

## Knowledge Nuggets

### Assessing breathing



**Effort**

- **Rate**
- Recession (subcostal, intercostal)
- Tracheal tug
- Head bobbing
- Accessory muscle use
- Grunting: an end expiratory noise
- Nasal flaring

**Efficiency**

- Expansion
- Additional noises – for example, bronchiolitis produces lots of secretions, leading to gurgling and squeaking
- Inspiratory stridor (indicates upper airway problem)
- Expiratory wheeze (indicates lower airway problem)
- Pulse oximetry
- Effects on end organs - conscious level, pallor, tachycardia

### Children are not small adults!

- **Higher HR:** up to 160bpm in infants
- **Higher RR:** up to 40brpm in infants
- **Lower BP:** as low as 70mmHg systolic in infants

### Fluid replacement

- 20mls/kg of 0.9% saline
- In trauma, give 10ml/kg boluses – risk worsening bleeding if you ramp up BP too much

See Resuscitation Council UK for more detailed guidance on BLS and choking: https://www.resus.org.uk/library/2021-resuscitation-guidelines/paediatric-basic-life-support-guidelines

# OPHTHALMOLOGY

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Ask the patient if they have noticed any of the following symptoms: reduced/change in vision; pain; discharge; redness
- Adequately expose patient: may be required to remove glasses/contact lenses
- End of bed check

**OSCE Tip**
**In an OSCE station you will only be given a select few of these examinations to perform**

## Visual Acuity (Snellen Chart)

### The Test

- Patient **should** be wearing glasses or contact lenses if they normally use them.
- • Ensure the patient is the appropriate distance from the chosen Snellen chart (usually 3 or 6m away)
- Check each eye with the other one occluded

**OSCE Tip**
**IIf the patient has forgotten their glasses/contact lenses, use the pin hole frame to make it easier to read the letters**

### Interpretation

- Record the visual acuity:
  - 6/60 means that the patient is at 6m away from the chart and can read something at 6m away which "the normal eye" can read 60m away
  - You can either record visual acuity as:
    - The line above i.e. 6/6 **plus** how many letters they could read from the line below (6/5)
      - (example = 6/6 + 2 (these 2 would be the 2 letters they could read from the 6/5 line))
  - The line they can read to **minus** how many letters they couldn't read from this line
    - (example = 6/6 – 1 means that they could read all of the letters on the 6/6 line but didn't manage to read 1 of the letters)

**NB:**
If the patient cannot read the 6/60 letter, move them forward by 1m. If they are now able to read the letter then but nothing else, the visual acuity is be 5/60

If the patient still cannot see the 6/60 letter, keep moving them forwards by 1m. If they still cannot read the letter at 1/60, ask if the patient can see your face and shine a light in their eyes.

## Visual Fields

- Ask the patient to sit and **remove** any glasses (obscure visual field)
- Sit facing the patient, ensuring you are at an equal height and an arm's length away
- Ask the patient "is there any part of my face missing?" Hold out 2 hands and ask the patient "how many hands am I holding up?"

1. Ask the patient to cover their left eye with their hand. Close your own right eye
   - Ask the patient how many fingers you are holding up in each of the 4 quadrants (either 1 or 2)
2. Ask the patient to let you know when your finger/white pin comes into their view
   - Then ask the patient to cover their left eye with their hand and close your own right eye again
   - Move your finger/the pin diagonally each time in each of the 4 quadrants
3. Show the patient the red pin this time and tell them that you are going to move this around and ask the patient to tell you when the red top disappears (this assesses the blind spot)
   - Again, ask the patient to cover their left eye with their hand and you close your own right eye
   - Compare the patient's blind spot to your own
   - NB: An enlarged blind spot can be due to optic neuritis or optic disc swelling as a result of papilloedema

**Perform steps 1, 2 and 3 on both sides immediately after doing it on the other eye to allow for easier comparison.**

**OSCE Tip**
**You are comparing the patient's visual fields with your own so your fingers or the pins should be midway between you and the patient!**

## Pupillary Reflexes

**Reaction to Light (Direct & Consensual Reflex)**

- Shine a light into the left eye – it should constrict (this is the **direct reflex**)
- Shine a light into the left eye whilst looking at the right pupil - it should constrict (this is the **consensual reflex**)
  - Do the same tests when shining a light into the right eye

**Swinging Light Test (Relative Afferent Pupillary Defect - RAPD)**

- This tests for optic neuritis/ischaemic neuropathy
- Shine a light on the unaffected eye - the pupil will constrict
- Transfer the light over to the affected eye - the pupil will start to constrict but then it will noticeable dilate.
  - When the unaffected eye is in darkness and so the affected eye wants to dilate as it also thinks it is in darkness

**Accommodation Reflex**

- Ask the patient to follow your finger
- Tell the patient to focus on a distant point
- Then ask the patient to follow your finger
- Move your finger/the pin towards the patient's nose
- **Look** at the patient's pupils – they should BOTH
  - converge towards the midline (this is via the medial rectus),
  - constrict (due to sphincter pupillae muscles)

The lens will also relax but this cannot be observed.

## Movement

- Ask the patient to follow your finger tip in the H shape with their eyes and without moving their head
- Ask the patient to tell you if they experience any double vision or pain
- Look for nystagmus

**Manifest Squints & Cover Test**

- A manifest squint is a squint which you can see all the time – it is detected using the cover test
  - You cannot have a squint in both eyes
- Ask the patient to focus on a distant point in the room
- Look at the patient's corneal reflections using a light, if a patient has a manifest squint, their corneal reflections will be asymmetrical
- Cover one eye and watch the opposite eye for movement – if there is no movement, repeat covering the other eye
- If the opposite eye moves to fix on the target, the patient has a manifest squint – called tropia
- The direction of movement tells you which type of squint it is
  - Outward movement of eye = ESOtropia
  - Inward movement of eye = EXOtropia
  - Downward movement of eye = HYPERtropia
  - Upward movement of eye = HYPOtropia

## Direct Ophthalmoscopy

- ·Ask the patient to remove any glasses (as an examiner, you should also remove any glasses unless very short-sighted)
- Dilate the patient's pupils with short-acting mydriatic eye drops (tropicamide drops) - warn the patient about the blurry vision
- Darken the room
- Ask the patient to focus on an object in the distance
  - e.g. "look at the picture on the wall"

Red Reflex

- Turn your ophthalmoscope on and turn it to '0'
- Assess for a red reflex at 30cm away through the ophthalmoscope
  - Absence: cataracts or vitreous haemorrhage (diabetics) in adults, or retinoblastoma in children
- Assess the anterior chamber of the eye

## Direct Ophthalmoscopy Cont.

**OSCE Tip**
**In the OSCE, false heads will be used in the ophthalmoscopy station. If there is a letter written on the retina, say what it is to the examiner!**

Retina

- Use your left eye to look into the patient's left eye and vice versa.
- Move in closer and focus the wheel (turn it down from 10 towards 0)
- Identify a blood vessel and follow towards the optic disc
- Assess the optic disc for **c**olour (should be peachy, if pale = central retinal artery occlusion)/**c**ontour (should be well defined, if not = papilloedema) /**c**upping (normal ratio is 0.3-0.6, if it is larger than this = glaucoma)
- Assess the retinal vessels for cotton wool spots, haemorrhages and/or neovascularisation (new blood vessel formation)
- Assess the macula – ensure the patient is looking straight ahead for this.
  - you may see drusen (yellow deposits seen under the retina which are lipid deposits and are seen in dry macular degeneration)
  - you may see a "cherry red spot" (seen in central retinal artery occlusion)
- Ask the patient to look left, right, up, down and straight into the light (you look from the opposite direction i.e. if you ask the patient to look down, look at the eye from the top)

**OSCE Tip**
**Asking the patient to look to the left and up, left and down, right and up, right and down helps you visualise the 4 vascular arcades**

# Knowledge Nuggets

### Models

It can be hard to see the retina on the plastic models used for the OSCE as there is a lot of light reflection. It would be a good idea to practice using these models so that you are comfortable with the technique required.

### Looking at the retina

The following steps should be used to examine the retina:

1. Optic Disc: "3 Cs": colour, contour, cup
2. 4 vascular arcades: supero- temporal/nasal, infero - temporal/nasal
3. Macula: ask patient to look at the light

### Ophthalmosope Settings

- The blue filter on the ophthalmoscope is used to look at the front of the eye when fluorescein dye has been used
- A smaller light may be useful for someone who has not had any dilating drops.

# HEARING ASSESSMENT

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (remove ear muffs)
- End of bed check (hearing aids are particularly important!)

**OSCE Tip**
**You should be familiar with how to interpret audiograms**

## Gross Hearing Assessment

- Stand behind the patient
- Mask the ear not being tested by gently rubbing the tragus
- From about 60cm away, say 3 words or numbers and ask the patient to repeat them back to you
- If there is no response, you can move closer and repeat the test from about 15cm away
- Repeat for the other ear

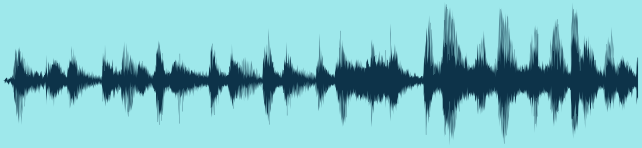
**OSCE Tip**
**Hippopotamus**

## Rinne's Test

- Use the 512Hz tuning form and pinch it or bang it off your knee/arm to make it start vibrating
- Hold the tuning fork so that the prongs are next to the external acoustic meatus (in front of the ear)
- Move the tuning fork so that the base is placed on the mastoid process
- As the patient in which position the noise was louder
- If louder in front of the ear (air conduction > bone conduction), this is Rinne's POSITIVE and suggests normal hearing or a sensorineural hearing loss
- If louder on the mastoid process (bone conduction > air conduction), this suggests a conductive hearing loss

## Weber's Test

- Make the 512Hz tuning fork vibrate again
- Place the base of the tuning fork in the middle of the patients forehead
- Ask the patient where they hear the sound
- Normal result = heard equally in both ears
- Conductive hearing loss = heard louder in affected ear
- Sensorineural hearing loss = heard louder in intact ear



## Close

- Thank the patient
- Summarise findings and explain next steps
- Wash hands

## Knowledge Nuggets

**"128 vibrate, 512 I hear you!"** can help you remember which tuning fork to use in a hearing assessment (128Hz is used in neurological examinations and diabetic foot)

# OTOSCOPY

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (remove ear muffs)
- End of bed check

**OSCE Tip**

**Perform otoscopy on the 'good' ear first!**

## Inspection

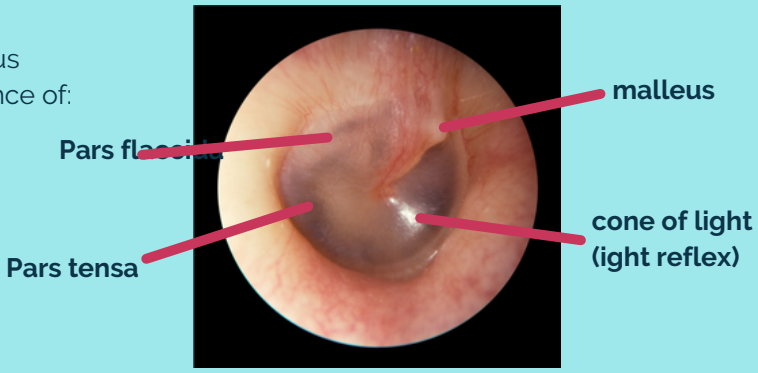
- Hearing aids
- Pinnae
  - Asymmetry
  - Deformity (e.g. cauliflower ear, anotia, low-set ears)
  - Scars (previous injury or surgery)
  - Erythema and oedema (assoc. with otitis externa)
  - Skin lesions
- Mastoid
  - Erythema and oedema (assoc. with mastoiditis)
  - Scars (surgery)

## Palpation

- Assess for lymphadenopathy – pre-auricular and post-auricular regions
- Palpate the tragus and mastoid process for tenderness


## Otoscope

- Ensure the light is working on the otoscope and apply a new speculum (the largest that will comfortably fit into the patient's ear)
- Pull the pinna upwards and backwards in adult patients (downwards and backwards in children) to straighten the external auditory meatus
- Hold the otoscope like a pen in the same hand as the ear you're examining (ie. Right hand for looking in patient's right ear).
- You can rest your pinkie against the patient's face
- Check if the patient is in any discomfort
- Insert the otoscope into the external auditory meatus
- Inspect the external auditory canal. Note the presence of:
  - Ear wax
  - Inflammation
  - Discharge
  - Bleeding
  - Foreign bodies




- Inspect the tympanic membrane (all 4 quadrants)
  - Colour
    Healthy – grey, translucent
  - Shape
    Bulging suggests increased pressure in the middle ear (may indicate otitis media with effusion)
    Retraction may be a sign of Eustachian tube dysfunction e.g. secondary to URTI
  - Look for pars tensa, pars flaccida and lateral process of malleus (normal landmarks)
  - Comment on cone of light – should appear in anterior inferior quadrant
  - Check for any perforation
  - Presence of grommets
  - Note any scarring (tympanosclerosis)
- Withdraw the otoscope
- Repeat in the other ear
- Discard the speculum into the orange bin

**OSCE Tip**

**Further investigations to be aware of include cranial nerve examinations, audiometry and tympanometry**

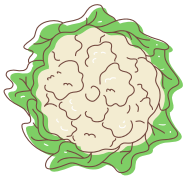
**It's a good idea to be familiar with the appearance of common ear pathologies e.g. mastoiditis, otitis media with effusion, cholesteatoma, tympanic membrane perforation**

## Close

- Thank the patient
- Summarise findings and explain next steps
- Wash hands

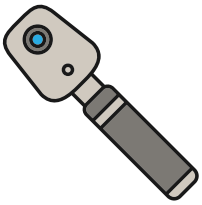
## ⭐ Knowledge Nuggets ⭐

**Cauliflower** ear occurs as a result of repeated blunt trauma



Tympanic membrane perforation may be caused by **infection**, **trauma**, **cholesteatoma** or **grommets**

- Click **here** for some images of pathologies on otoscopy



# RENAL EXAMINATION

## Introduction

- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent
- Ask the patient to lie down with the head of the bed adjusted to a 45 degrees angle.
- Ensure the patient is adequatley exposed. Allow a blanket for use waist up.
- Conduct an End of Bed examination looking for the following: decreased level of consciousness, scars, pallor, shortness of breath, oedema, cahexia and cushinoid appearance.

### OSCE Tip

**In advanced chronic kidney disease patients may have a yellow skin tone. This is known as uraemic complexion caused by uraemia.**

## General Examination

- Conduct a general examination looking at the hands, arms and face for: splinter haemorhages, arteriovenous fistulae and scars. Examine skin for any vasculitis rash.
- Assess fluid balance with: pulse, blood pressure (not on the side of an arteriovenous fistula), skin tugor, mucous membranes and JVP.

## Abdominal Exam

- Inspection
- Palpation of 9 regions - pay extra attention to left and right hypochondriac and lumbar region (enlarged kidneys), and suprapubic/ hypogastric area (enlarged bladder), comment whether any masses felt at these regions. Performdeep and light palpation.
- Percussion of 4 quadrants
- Assess for any acites

## Examining the Kidneys

- Bimanual Palpation of Kidneys to detect lesser degrees of kidney enlargement
- Place left hand below patient's back below the lower ribs and right hand anteriorly over the upper
- quadrant just lateral to the rectus muscle
- Firmly, but gently push hands together as patient breathes out.
- Ask patient to breathe in deeply, and feel for the lower pole of kidney moving down between your hands. If lower pole of kidney can be felt, gently push the kidney back and forwards between two hands to demonstrate its mobility (balloting)
- If kidney is palpable, assess its size surface and consistency
- Auscultate for any bruit arising from renal artery stenosis - Listen 2-3 cm above and lateral to umbilicus

## Examining the Bladder

- Percuss over a resonant area in the abdomen in the midline, then downwards towards the pubic symphysis. Change to dull percussion note indicates upper border of bladder.
- Repeat using a diagonal axis on both left and right side. Comment on whether the bladder appears to be distended

## Close

- Complete the examination by assessing for sacral or peripheral oedema
- Thank the patient
- Offer to help them off the couch and to dress if required
- Remove PPE and wash hands
- Summarise findings and explain next steps

# MALE CATHETERISATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm the patient's details: name and DOB
- Explain procedure and the need for a chaperone
- Gain consent
- Lay patient on a trolley or bed and ask them to remove their clothing from the waist down, and provide a blanket to cover

## Equipment

- Plastic apron
- Two pairs of sterile gloves
- Sterile water-filled syringe (10ml) for inflation of the catheter balloon.
- 0.9% sodium chloride (10mls)
- Lidocaine (1%) anaesthetic lubricating gel for insertion into the urethra.
- Male urinary catheter (12/14 french): these are also used for females in most cases.
- Catheter pack: including cotton wool balls, sterile gauze, sterile drapes, absorbent pad and gallipot (a.k.a. a small pot).
- Catheter bag
- Urine collection bowl (a.k.a. a receiver)

## Procedure

**EQUIPMENT PREPARATION**

- set up a sterile field by removing outer packaging of the catheter pack, and then opening it from the corners without touching the inner surface
- open the catheter, lidocaine gel syringe, sterile water syringe and sterile gloves onto the field using non touch technique
- pour 0.9% NaCl over the cotton balls in the pot

**CLEANING THE PENIS**

- wash your hands again and put on new sterile gloves
- ask chaperone to remove the patients sheet before you place a sterile pad beneath the genitals
- hold the penis in your non dominant hand, using sterile gauze and retract the foreskin
- with dominant hand use a cotton ball to clean the urethral meatus. This is done in a single stroke moving away from the meatus. After each wipe, discard the cotton ball and use a new one.
- discard gloves, wash hands again and put on a new pair of sterile gloves
- place sterile drape over patients penis, with penis visible through the hole of the drape
- place the urine collection bowel below the penis, but on top of drape

**INSERTING ANAESTHETIC**

- hold penis vertically in non-dominant hand with gauze ( one method is to make a sling with the gauze)
- with dominant hand place the tip of the syringe containing the anaesthetic gel into the urethral meatus and slowly inject
- ensure you keep the penis in a vertical position for 5 mins to ensure maximum effect

**INSERT THE CATHER**

- pick up catheter keeping it in its packaging, and remove the wrapper near the catheter tip - DO NOT TOUCH THE CATHETER
- hold the penis in your non dominant hand with sterile gauze
- with your dominant hand Insert the catheter tip into the urethral meatus
- advance catheter whilst removing packaging, until it is fully inserted into the penis
- once fully inserted, inflate the balloon by attaching and emptying the 10ml syringe of sterile water
- once balloon is inserted, withdraw the catheter until you feel resistance
- attach the catheter bag to the catheter, and ensure the bag is left below patient level
- ensure the foreskin is replaced
- clean any urine or gel on the patient

## Close

- Thank patient and allow patient privacy to get dressed
- Explain procedure
- Document in notes

# URINALYSIS

## Equipment

- Alcohol gel
- Non-sterile gloves + apron
- Urine sample + dipstick
- Paper towels + clinical waste bin

**After washing your hands and putting on your apron and gloves, confirm the patient details on the sample container are correct.**

## Colour

- Straw - normal
- Dark - suggests patient is dehydrated
- Brown - due to myoglobin (rhabdomyolysis)/bile pigments (e.g. in jaundice) in the urine/drugs (e.g. chloroquine)
- Red - due to blood (macroscopic haematuria)/drugs (e.g. rifampicin)/food (e.g. beetroot

## Clarity and Odour

- Clear - normal
- Frothy - proteinuria (e.g. in nephrotic syndrome)
- Cloudy with sediment - UTI, renal calculi, proteinuria

- Offensive/foul - could indicate UTI
- Feculent - bowel-bladder fistula
- Sweet - glycosuria (e.g. diabetes mellitus)

## Procedure

1. Check the expiry date and remove a dipstick from the container.
2. Dip the stick into the urine sample for 2-3 seconds, fully submerging all of the reagent squares.
3. Withdraw the dipstick and tap off any residue using the edge of the sample container, then set it down on top of the urine container/paper towel. Placing the dipstick horizontal will help to prevent the chemicals from mixing.
4. A urinalysis guide will be found on the dipstick container - use this to interpret the colour changes. Each square needs to be interpreted at different times (timings will be indicated on the container); look at each reagent in turn and identify if the value is normal, low or high.
5. After interpreting each of the tests, dispose of the test strip and your PPE into the clinical waste bin and wash your hands.

## Interpretation

| Test | Time to Interpret | Notes |
|---|---|---|
| **Glucose** | 30 seconds | Raised - may be a result of diabetes mellitus, renal tubular disease, pregnancy |
| **Bilirubin** | 30 seconds | Absence - normal<br>Presence - may suggest biliary obstruction (e.g. in pancreatic cancer) |
| **Ketones**<br>(Breakdown product of fatty acid metabolism) | 40 seconds | Absence - normal<br>Presence - may suggest starvation, DKA |
| **Specific gravity**<br>(A measurement of the quantity of solute dissolved in the urine) | 45 seconds | Low - acute tubular necrosis, diabetes insipidus, increased fluid intake<br>Raised - dehydration, glycosuria, proteinuria, heart failure, liver failure, SIADH |
| **pH**<br>(Normal: 4.5-8) | 60 seconds | Low - DKA, starvation, sepsis<br>Raised - UTI, metabolic alkalosis (e.g. due to vomiting), use of diuretics |
| **Blood**<br>N.B. If patient has uterus, check if they are currently menstruating | 60 seconds | Absence - normal<br>Presence - may suggest UTI, renal calculi, malignancy/trauma to urinary tract, rhabdomyolysis, nephritic syndrome |
| **Protein** | 60 seconds | Absence - normal<br>Presence - may suggest renovascular, glomerular or tubulo-interstitial renal disease, pre-eclampsia, hypertension<br>Can be benign - exercise, postural |
| **Nitrites**<br>(Breakdown product of Gram negative bacteria) | 60 seconds | Absence - normal<br>Presence - highly suggestive of UTI (but absence does not rule out UTI) |
| **Urobilinogen**<br>(Byproduct of bilirubin breakdown) | 60 seconds | Low - may suggest biliary obstruction<br>Raised - may suggest haemolysis (e.g. malaria, haemolytic anaemia) |
| **Leukocyte esterase**<br>(Enzyme produced by neutrophils) | 2 minutes | Absence - normal<br>Presence - may suggest UTI, any cause of haematuria |

## Further Investigations

- Summarise your findings, document the results and suggest further investigations based on the urinalysis.
- Further investigations may include:
  - Lower abdominal pain in fertile patient with uterus - pregnancy test
  - Leukocytes, nitrites, blood and protein could suggest UTI - microscopy, culture and sensitivity
  - Blood could suggest UTI, glomerulonephritis, renal stones, bladder malignancy - microscopy and culture, FBC, U&Es, CT KUB, cystoscopy

# CRANIAL NERVE EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (to mid thigh)
- End of bed check

**OSCE Tip**

**The station will likely be a group of cranial nerves, eg CN III-VI, CN IX-XII etc., rather than all 12**

**CNI**

Cover contralateral nostril and ask patient to smell a strong familiar smell e.g. coffee, orange peel, vinegar

**CNII**

- **Visual acuity** - Snellen chart (if can't manage Snellen chart then categorised as; counting fingers, hand motion, light perception or no light perception (test in that order))
- **Colour** - Ichihara plates
- **Visual fields** – draw finger in from diagonal in each of the 4 quadrants to determine visual field, blind spot
- **Reflexes** – do below under CN III, but also involves CN II
- **Fundoscopy** - for papilloedema/optic atrophy (don't do in OSCEs)

**CNIII**

- **Reflexes** – accommodation reflex and pupillary light reflexes (direct pupil reflex, contralateral pupil reflex, relative afferent pupillary defect (swinging light test)), see ophthalmology 'pupillary reactions' guide for more info
- **'H' eye movements** – get patient to follow your finger as you move it in a H shape, ask if any diplopia

**CNIV**

'H' eye movements (already done)

**CNV**

**Sensory component:**

- Ask patient to close eyes and brush skin in 3 areas bilaterally to see if they feel it
- Do light touch (cotton wool), pain (small red pin) and temp (tuning fork)
- Areas;
  - CN V1 = forehead, upper eyelid, tip of nose
  - CN V2 = lower eyelid, cheek, upper lip, nostril
  - CN V3 = lower lip, chin

**Motor component:**

- Feel masseter and temporalis ('temples') and ask to clench their teeth
- Put hand under jaw and ask them to open it against resistance (testing lateral pterygoid)
- Jaw jerk reflex
- Corneal reflex (say but don't do)

**CNVI**

'H' eye movements (already done)

**CNVII**

- Test muscles of facial expression by; raising eyebrows, close eyes tightly, smile, whistle, puff out cheeks and hold air
- Ask; Any change in taste? Pain on loud noises?

**CNVIII**

- Ask if any balance problems
- Ask patient to occlude one ear and you whisper in the other, get them to repeat back what you said
- Rinnes and weber tests - see ENT 'assessment of hearing' guide for more info VO (vestibuloocular) reflex - ask about neck pain beforehand,
- Get patient to look straight at you and turn their head sharply to one side and ask to keep looking forward

**CNIX**

Gag reflex (don't do in OSCEs)

**CNX**

- Muscles of palate - ask patient to say 'ahhhh' and uvula should lift up in midline
- Pharynx – swallow small sip of water, larynx should move up, shouldn't splutter
- Larynx – ask about hoarse voice
- Ask patient to cough – is it normal and powerful?

**CNXI**

- Shrug shoulders against resistance - for trapezius
- Turn head against resistance - for sternocleidomastoid

**CNXII**

- Stick tongue out straight
- Ask patient to poke tongue into cheeks and whilst your hand is on their cheek

**OSCE Tip**

When testing CN X and getting patient to say 'ahhhh', uvula will move AWAY from non functioning side if nerve damage

**OSCE Tip**

When testing CN XII and getting patient to stick their tongue out, if tongue deviates to one side = injured nerve is on that side

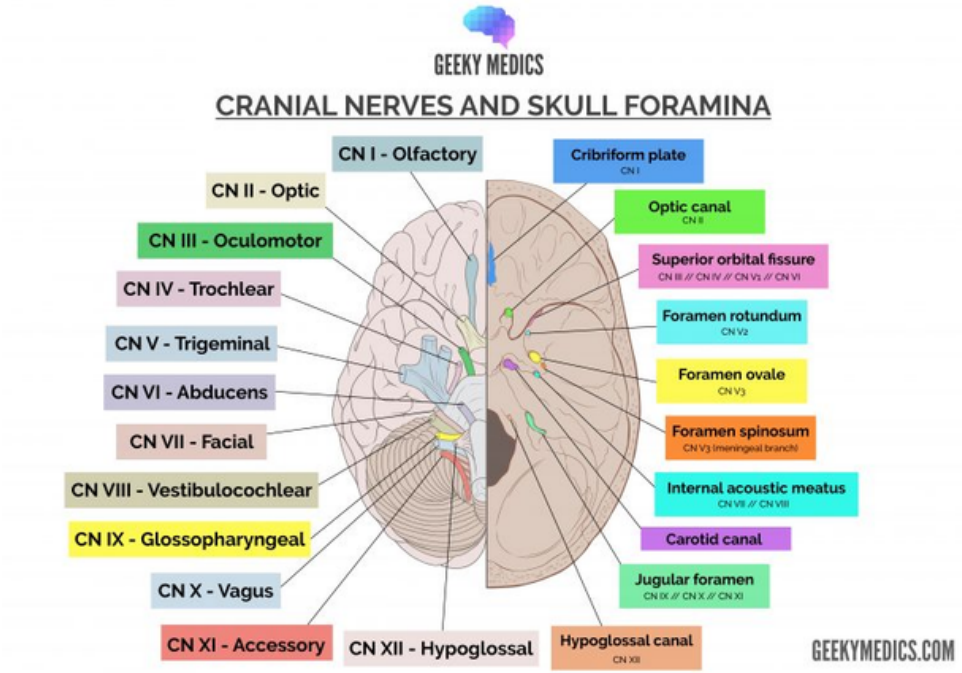
## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

## Knowledge Nuggets

| Names of CN | |
|---|---|
| Olfactory | Oh |
| Optic | Once |
| Occulomotor | One |
| Trochlear | Takes |
| Trigeminal | Their |
| Abducens | Anatomy |
| Facial | Final |
| Vestibulocochlear | Very |
| Glossopharangeal | Good |
| Vagus | Vacations |
| Accessory | Are |
| Hypoglossal | Heavenly |

| Type of CN | |
|---|---|
| Sensory | Some |
| Sensory | Say |
| Motor | Marry |
| Motor | Money |
| Both | But |
| Motor | My |
| Both | Brother |
| Sensory | Says |
| Both | Big |
| Both | Brains |
| Motor | Matter |
| Motor | More |



# CEREBELLAR EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient (ask patient to remove/roll up trousers. Shorts are fine)
- End of bed check

**OSCE Tip**

**A cerebellar examination is indicated in patients with poor co-ordination or loss of balance**

### Gait

- Ask patient to walk across the room
- Ask patient to walk **heel to toe** (like a tightrope) across the room
- **Romberg's Test** - get patient to stand with feet together and closed eyes. Positive test if patient loses balance. Be prepared to catch patient.

**OSCE Tip**

**When assessing gait, walk alongside the patient for bonus safety points**

### Face

- Move finger horizontally and get them to follow with their eyes. Go right to the end of the visual fields and look for **nystagmus**
- Hold out your hands to the the sides of the patient's face. Click your fingers and ask the patient to look to the side you have clicked. Look for a fast reaction.
- **Vestibulocular reflex** (a.k.a. VOR doll's eyes reflex) - hold the patient's head in your hands. Turn the patient's head fast and ask them to remain looking at you.

**OSCE Tip**

**When assesing the VOR, ask if the patient has neck pain first!**

### Speech

- Get the patient to say "British constitution" and "baby hippopotamus". Listen for slurred/staccato speech

### Arms

- Intention tremor (do bilaterally)
  - ask patient to touch their finger tip to their nose.
  - ask patient to touch your finger tip with their finger tip and then touch their nose.
- Dysdiadochokinesia (do bilaterally)
  - ask the patient to take one of their hands and touch it to the other hand. Ask them to alternate from touching palm to palm and palm to back of hand.
  - ask patient to rotate hands as if they are changing a lightbulb
- Pronator drift - ask patient to close their eyes and hold out their hands **in supination** (with palms facing upwards). If their hands drop and pronate this is a positive test.

### Legs

- To test balance, ask patient to stand on one leg (do bilaterally)
- Dysdiadochokinesia - ask patient to heel/toe tap
- With patient lying on bed, ask patient to lift up one leg, touch it to the knee on their other leg, and slide it down to their ankle.

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

**OSCE Tip**

**When assessing a patient with ?Parkinson's, do a cerebellar examination PLUS:**

- **assess upper limb tone**
- **ask about changes in facial expression**
- **ask patient to write (for hypographia)**
- **ask patient to close eyes and count down from 20. This will help to elicit tremor**

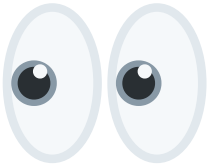
# Knowledge Nuggets

## Findings of cerebellar disease

Gait - wide based gait, stumbling, poor co-ordination

Arms - intention tremor, pronator drift, dysdiadochokinesia

Nystagmus



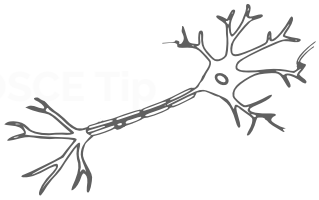
Speech -
slurred: patient sounds drunk
staccato: very disjointed, each syllable separate

Legs - dysdiadochokinesia, poor co-ordination

# UPPER LIMB NEURO EXAMINATION

## Introduction

- Wash your hands and put on appropriate PPE
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient
- End of bed check



## Look (Compare sides)

- Muscle wasting/thinning
- Deformity
- Scars
- Abnormal posture
- Tremor/involuntary movements
- Fasiculations
- Proprioception: ask patient to close eyes and hold out arms with fingers spread, watch for pronator drift.

## Tone

Looking for signs of decreased tone, spasticity, rigidity or clonus. Ensure that the patient is relaxed! Compare both sides.

- Joints to test: - Wrists (supination/pronation)
  - Elbows (flexion/extension)
- Do it several times in each location - quickly, and slowly
  - Quickly - for spasticity
  - Slowly - for rigidity

### OSCE Tip

**For testing tone and power, use one hand to isolate the joint eg. isolate the wrist joint when assessing wrist extension by asking the patient to cock their wrists back and holding the forearm steady. This is demonstrated in the video linked above!**

## Power

Test each movement against resistance.

- Shoulder abduction= **C5**
- Shoulder adduction = C6/7
- Elbow flexion = **C5/6**
- Elbow extension = **C7**
- Wrist flexion = C6/7
- Wrist extension = C6
- Finger flexion = **C8**
- Finger extension = C7
- Finger abduction = **T1**
- Thumb abduction = C8/T1

### OSCE Tip

**Power is rated by MRC gradings (score out of 5)**

**5 = normal power**
**4 = movement against resistance**
**3 = movement against gravity**
**2 = some movement when gravity is taken away**
**1 = flicker of contraction**
**0 = no contraction**

## Sensation

For testing each type of sensation, first demonstrate the feeling of the object centrally e.g. on the sternum or forehead. Ask the patient to close their eyes and then test the sensation in each of the areas clinically indicated, typically in each dermatome.

- **Pain** - use a neurotip to test each dermatome.
- **Light touch** - use cotton wool to test each dermatome.
- **Vibration** - test with a 128Hz tuning fork, working distal to proximal on bony prominences (e.g. fingertip, radial styloid process...). If the patient can feel the vibration equally on each side, you can stop.
- **Temperature** - assess with the cold metal tuning fork e.g. across the patient's palm.
- **Proprioception** - move the end of the patient's finger up/down (holding the sides of the distal phalanx), asking them which way they feel it is moving.

Dermatomes to test:

- **C5**: Badge patch
- **C6**: Thumb
- **C7**: Middle finger
- **C8**: Little finger
- **T1**: Medial forearm
- **T2**: medial arm

### OSCE Tip

**When testing sensation, always compare on both sides as you go along – i.e. do L badge patch, then R badge patch; L thumb, then R thumb etc. Ask the patient if it feels the same on each side.**


Image source: Dermatomes

## Reflexes

- Test with a tendon hammer
- Reflexes to test:
  - **C5/6:** Biceps reflex
  - **C6**: Supinator reflex
  - **C7**: Triceps reflex

### OSCE Tip

**Ensure that you know how to properly hold a tendon hammer and practice using it - swing it like a pendulum!**

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands and remove PPE.

## Knowledge Nuggets

The key difference between **rigidity** and **spasicity** is that rigidity is increased tone with constant resistance throughout motion, no matter the speed, and even at rest; whereas spasticity typically only occurs during muscle stretch and is **velocity-dependent**.

**Hypertonia** - sign of upper motor neurone lesion. Rigidity is caused by dysfunction of extrapyramidal tracts while spasticity is associated with damage to the pyramidal tracts.
**Hypotonia** - sign of lower motor neurone lesion.

Remember that **dermatomes** and **myotomes** are different to the areas innervated by **named nerves**. Myotomes (e.g. C6) refer to groups of muscles innervated by a spinal nerve (containing axons originating from one spinal cord level), but many muscles are innervated by more than one spinal nerve.
For example, the musculocutaneous nerve (the named nerve which supplies the bishop brachii) is innervated by nerve roots C5, C6 and C7.
Similarly, named sensory nerves are innervated by more than one spinal nerve root, so the area of skin innervated by the axillary nerve, for example, is slightly different to the area of the C5 or C6 dermatome!

# LOWER LIMB NEURO EXAMINATION

## Introduction

- Wash your hands and put on appropriate PPE
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient's legs
- End of bed check

## Look (Compare sides)

- Muscle wasting/thinning
- Deformity
- Scars
- Involuntary movements
- Asymmetry
- Tremor
- Fasiculations

Observe the patient's **gait** as they walk across the room...

- Normally
- Heel to toe
- On tip toes
- On heels

Note the speed, symmetry, balance and any other abnormalities.

Perform Romberg's test

### OSCE Tip

**Romberg's test assesses balance.**

**Ask thepatient to stand with their feet together and their hands by their sides and close their eyes closed - be ready to support them if they have poor balance!**

**Positive test = loss of balance. This suggests ataxia with a sensory cause and is highly suggestive of a dorsal column-medial lemniscus pathway deficit.**

## Tone

Feel for increased or decreased tone. Compare each side. With patient sitting with legs **relaxed** and outstretched:

- Roll legs one at a time (slowly to assess for rigidity, and quickly to assess for spasticity)
- Flex and extend the knee (again, slowly and more quickly)

Rotate ankle to ensure relaxation and then dorsiflex rapidly to check for **ankle clonus**

## Power

Test each muscle group against resistance and compare both sides

- Hip flexion = **L1/2**
- Hip extension = L5/S1
- Knee flexion = **S2**
- Knee extension = **L3**
- Ankle dorsiflexion = **L4**
- Ankle plantarflexion = **S1**
- Ankle inversion = L4
- Ankle eversion = L5/S1
- Extension of great toe = **L5**

### OSCE Tip

**Power is rated by MRC gradings (score out of 5)**

**5 = normal power**
**4 = movement against resistance**
**3 = movement against gravity**
**2 = some movement when gravity is taken away**
**1 = flicker of contraction**
**0 = no contraction**

## Sensation

For testing each sensation modality, first demonstrate the feeling of the object centrally e.g. on the sternum or forehead. Ask the patient to close their eyes and then test the sensation in each of the areas clinically indicated, typically in each dermatome. Remember to compare sides!

- **Pain** - use a neurotip to test each dermatome.
- **Light touch** - use cotton wool to test each dermatome.
- **Vibration** - test with a 128Hz tuning fork, working distal to proximal on bony prominences (e.g. DIPJ of great toe, medial malleolus, knee...). If the patient can feel the vibration equally on each side, you can stop.
- **Temperature** - assess with the cold metal tuning fork e.g. on the sole of the patient's foot.
- **Proprioception** - move the end of the patient's great toe up/down (holding the sides of the distal interphalangeal joint), asking them which way they feel it is moving.

### OSCE Tip

**If there is distal loss of pin-prick sensation, you can try moving the neurotip proximally to identify if there is sensory loss in a "stocking" distribution suggestive of a peripheral neuropathy.**

Dermatomes to test:

- **L1**: Groin
- **L2**: Anterior thigh
- **L3**: Anterior knee
- **L4**: Medial malleolus
- **L5**: Dorsum of foot
- **S1**: Heel

S2-S2 can also be tested if indicated based on the history

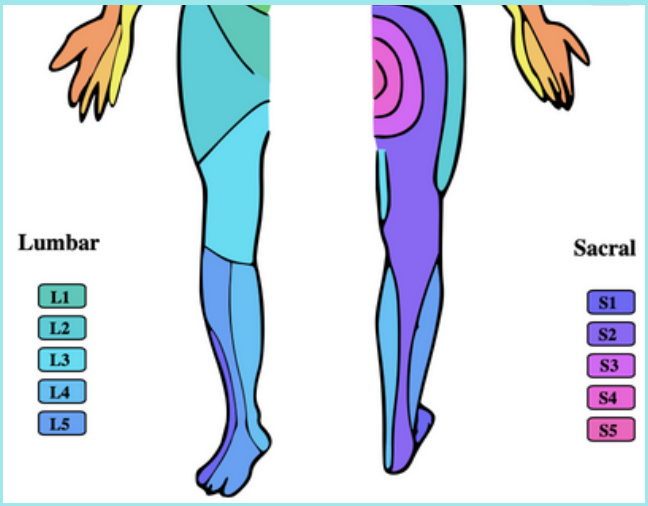



Image source: Dermatomes

## Reflexes

Test with tendon hammer

- Reflexes to test:
  - **L3/4:** Knee jerk
  - **S1/2**: Ankle reflex

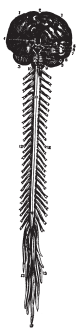
### OSCE Tip

**To illicit the ankle reflex, dorsiflex the foot slightly so that there is some tension in the achilles tendon when it is tapped with the tendon hammer.**

**Babinki test** (Flexion of toes = normal. If the great toe extends and the other toes flex or spread apart, this is a positive result which indicates an abnormality in the corticospinal system)

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands and remove PPE



## Knowledge Nuggets

Vibration and proprioception sensations are transmitted via the dorsal column-medial lemniscus system.
The spinothalamic system is responsible for transmitting signals relating to pain and temperature sensations.

# PARKINSON'S EXAM

## Introduction

- Wash your hands and put on appropriate PPE
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
- Adequately expose patient's legs
- End of bed check

## General Inspection

Look and listen to patient for signs indicative of Parkinson's

- hypomimia (reduced facial expressions)
- hypophonia (quiet speech)
- reduced or slowed hand gestures
- tremor
- stooped posture
- walking aids

### OSCE Tip

**Remember this is a focused examination so it is important to only to learn what the relevant steps are! Don't try to do all of the neuro examinations!**

## Tremor

- observe for resting tremor
- this commonly affects the hands, particularly the index finger and thumb, forming a "pin rolling appearance)
- if the tremor is not obvious, try to exacerbate it by asking patient to close their eyes and count down from twenty to elicit
- observe for other types of tremor
  - intention tremor - finger and nose test
  - postural tremor - get patient to hold their arms out straight with palms facing the floor

## Bradykinesia

Assess by asking the patient to perfrm quick, repeated hand movements

- finger tapping - tap thumb and forefinger together
- hand grip - open and close
- pronation and supination (or palm to palm as cerebellar)

Other examinations can include:

- toe tapping - ask patient to keep heel on ground and tap toes
- make a ducks beak movement
- play an imaginary piano
- get the patient to write a phrase and repeat it below 5 times
- ask patient to unbutton and button up their shirt buttons

### OSCE Tip

**The acronyms DANISH and TRAP can be used to remember the important points to cover in the examination**

- **DANISH - Dysdiadochokinesia, Ataxia (gait and posture), Nystagmus, Intention tremor, Slurred, staccato speech, Hypotonia/heel-shin test**
- **TRAP - Tremor, Rigidity, Akinesia, Posture and balance**

## Tone

Similar to as you would assess tone in an upper limb neurological examination.

- Support arm by holding hand and elbow and ask patient to relax
- passively complete wrist circumduction and elbow flexion/extension
- feel for tone abnormalities - in Parkinson's patients will have increased tone, presenting as cogwheel rigidity
- repeat on the other arm and compare

## Gait

- to assess for postural isntability, ask patient to stand up from a seated position with their arms across their chest
- ask patient to walk to end of room and turn and walk back
  - assesslook for slow initiation, reduced step length, reduced arm swing, stooped posture and turning hesitancy
- Carry out the pull test - explain you will stand behind the patient to tug their shoulders and would like them to step back to regain balance
  - in OSCES often you won't need to do this, assessing gait is enough

**OSCE Tip**

**Important to support the patient incase they fall!**

## Further Assessments

To further assess and rule out other Parkinson Plus syndromes (plus get extra points!) say you would consider carry out the following:

- cerebellar examination to exclude cerebellar pathology
- lying and standing BP
- a cognitive assessment (e.g. MMSE)
- drug chart review - some drugs may cause secondary parkinsonism
- eye movements - to assess for progressive supranuclear palsy

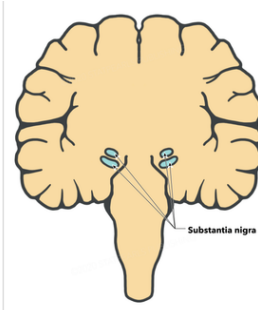
**OSCE Tip**

**Parkinson-Plus syndromes are neuro conditions that have features of Parkinsons among additional clinical features**

## Close

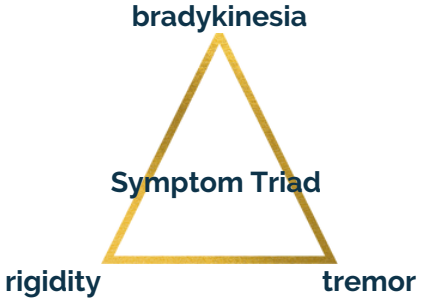
- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

## Knowledge Nuggets




Parkinson's is caused by the degeneration of dopaminergic neurons in the substantia nigra.

Parkinson's is an important differential of falls in the elderly. Another common differentials for falls include, muscle weakness, poor vision, arthritis, polypharmacy and cognitive impairment.



# MENTAL STATE EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm the patient's details: name and DOB
- Explain procedure and gain consent

**OSCE Tip**

**During an MSE, you get some information from asking questions and some from observing - so you can already start gathering information at this point!**

## Appearance

| | |
|---|---|
| Apparent age, gender, race, height, weight<br>Grooming, personal hygiene, hair, smell | Neat/ unkempt/ dishevelled/ clean shaven/ unwashed/ evidence of neglect of personal hygiene. Smell: alcohol/ vomit/ body odour |
| Clothing | Appropriate to weather/ circumstances? Put on correctly? Oversized/ undersized |
| Stigmata of disease, syndromic features | e.g. jaundice |
| Distinctive features | scars inc. self-harm, tattoos, signs of IVDU |
| Gait, odd movements, posture | Involuntary movements, tremors, tics, lip-smacking, akathisias, rocking |
| Objects | Any notable personal possessions |

## Behaviour

| | |
|---|---|
| Engagement and rapport | Distracted/ evasive/ engaged/ cooperative/ hostile/ friendly/ reluctant. Appear to be engaging with hallucinations? |
| Eye contact | Reduced/ excessive/ downward gaze |
| Facial expression | Relaxed/ angry/ disengaged |
| Body language | Open/ guarded/ suspicious/ threatening/ withdrawn (e.g. curled up, hands covering face). Exaggerated gesticulation/ unusual mannerisms |
| Appropriateness | Disinhibition/ overfamiliarity |
| Psychomotor activity | Retardation: paucity of movement, delayed responses to questions<br>Restlessness: continuously fidgets, pace and refuses to sit still. Sustained/ episodic |

## Speech

| | |
|---|---|
| **Form** | |
| Rate | Pressure of speech, slow speech |
| Quantity | Minimal/ absent/ excessive |
| Volume | Loud/ quiet/ whispered/ softly |
| Tone | Monotonous/ tremulous/ decreased intonation |
| Fluency and rhythm | Stammering/ stuttering/ slurred/ disjointed |
| Articulation | Articulated themself clearly/ difficulty articulating |
| **Content** | Main themes e.g. negative/ pessimistic/ positive |

**OSCE Tip**

**There are several mnemonics which can be used to remember the various components of the MSE, including 'ASEPTIC' and 'I AM A STAR'**

## Thoughts & perception

| | |
|---|---|
| **Form** | |
| Speed | Racing/ slow thought processing/ thought stream decreased when discussing … |
| Flow and congruency | Steady pace, logical order. Able to answer questions spontaneously. Disordered: loose associations/ circumstantial thoughts/ tangential thoughts/ flight of ideas/ thought blocking/ perseveration/ neologisms |
| **Content** | |
| Abnormalities | Preoccupied with… / goal orientated. Positive symptoms: delusions (persecutory/ ideas of reference, paranoid, grandiose), phobias, obsessions, compulsions,overvalued ideas. Suicidal/ homicidal/violent thoughts |
| Possession | Insertion/ withdrawal/ broadcasting |
| Perception | Hallucinations, pseudo-hallucinations, illusions, depersonalisation/ derealisation, passivity |

## Mood & affect

| | |
|---|---|
| **Subjective (mood)** | Note how they're feeling in their own words e.g. "low/ anxious/ angry, enraged/ euphoric/ guilty/ pathetic" |
| **Objective (affect)** | |
| Baseline | The apparent emotion reflected by patient's affect e.g. low/ sadness/ anger/ hostility/ euphoria/ anxious/ irritable/ euthymic |
| Reactivity | Fixed, restricted, labile, appropriately, unreactive, flattened, blunted |
| Congruency | Mood congruent/ incongruent with mood reported by patient |

## Insight

| | |
|---|---|
| Do they know they're unwell/ attribute it to mental health/ accept treatment/ hospitalisation | Intact, partial, poor<br>Accepts that they are ill<br>Cooperates with doctors and nurses and is compliant with management. |

### OSCE Tip

**At first, all these terms can feel like learning a new language! Practice using these video clips to help you become fluent**

## Cognition

| | |
|---|---|
| **Cognition** | Level of consciousness: alert, drowsy, stupor. Orientation: TPP. Memory: autobiographical memory (coherent history?), retrograde (WW2 date), anterograde (remember 3 things) |
| **Concentration** | Reverse months of the year, spell world backwards, attention: need for repeating, distractibility |

# Knowledge Nuggets

### Next Steps!

Once you've mastered the MSE, use your skills to try this scenairo

### Depression Vs Mania

A helpful way to remember clinical signs

Symptoms in **MANIA** are ↑

Symptoms in **DEPRESSION** are ↓

i.e. in mania speech is increased, in depression speech is reduced

### Treatment Notes

Remember to counsel patients that:

- medications can take time to work
- there are many medication options
- there are side effects
- not to suddenly stop taking them, even if feeling better, without consulting doctor

# MALE GENITAL EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, give opportunity to express concern or ask questions. Offer a chaperone
- Adequately expose patient (from navel to knees)

**OSCE Tip**

**This is an intimate examination so establishing a rapport and gaining the patient's trust during your intial interaction is important**

## Inspection

- General health/wellness
- Groin folds
- Use DREAMSS approach (deformity, rash, erythema, asymmetry, movement, swelling)

## Palpation

- Palpate lower abdomen if complains of pain otherwise unnecessary
- Inguinal lymph nodes
- ·Scrotal contents
    - Testes (start with non-painful testis)
    - Epididymides
    - Spermatic cord
    - Examine skin on penile shaft – dorsal and ventral
    - Retract prepuce fully
    - Inspect glans and sub-prepucial mucosa
- Part meatus to observe for discharge or urethral lesions ("milk" urethra if appropriate)
- Take specimens as necessary
- ·Replace prepuce

**OSCE Tip**

**Offer perianal examination if symptomatic of anorectal STI**

**(Proctoscopy and swabs if symptomatic)**

## Other systems examination (as appropriate)

- Temperature, blood pressure and pulse: if symptoms/signs/concern about systemic illness
- Skin: Scabies, SARA, syphilis (remember palms and soles), primary HIV, disseminated gonorrhoea
- Eyes: Chlamydia, gonorrhoea, syphilis, pubic lice
- Cardiovascular/neurological: syphilis
- Joints: SARA, diseeminated gonorrhoea
- Abdominal: viral hepatitis

## Extra-genital swabs (chlamydia/gonorrhoea NAAT and GC culture)

- Rectal swab(s) (clinician-taken at proctoscopy if symptomatic)
- Throat swab(s) (clinician-taken or self-taken)
- Conjunctival swab (s) (clinician-taken if symptomatic)

**OSCE Tip**

**Dealing with unintended erections:**
**Don't be embarrassed/annoyed**
**Try to ignore and work around it**
**If the patient is embarrassed, reassure and offer to continue or give a few minutes**
**No need to document it unless relevant (e.g. patient presented with ED)**

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

## Knowledge Nuggets

✗
- Telling someone not to be embarassed
- Being impatient
- Coercing someone to be examined

✓
- Reassure them it's normal to feel this way
- Re-explain exactly what is involved
- Ask what you can do to make it easier
- Give them options for alternatives

# BREAST EXAMINATION

## Introduction

- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Confirm **chaperone** present
- Explain procedure and gain consent, ask about pre-existing discomfort
  - pain, lumps, skin changes
- Adequately expose patient - "remove all clothes on top half, incl bra"
- Wash hands and put on gloves
- End of bed check

**OSCE Tip**

**For intimate examinations such as this, ensure you maintain the patient's dignity as far as possible**

**Being mindful of your patient's privacy makes for best practice - and also helps to earn supportiveness marks in OSCEs**

## Inspection

- Ask patient sit on the edge of the bed, to rest their hands on their thighs. arms relaxed
- Look at the breasts for
  - Asymmetry (note that asymmetry is normal in many women)
  - Scars (e.g. from previous surgery)
  - Obvious lumps or swellings
  - Skin changes (e.g. scaling, erythema, puckering, peau d'orange)
- Look at the nipples for
  - Nipple inversion (again, this is normal for many women, so ask if this is new)
  - Discharge (note colour, consistency, presence of blood)
  - Eczema (may be normal, or may be suggestive of Paget's Disease of the Nipple)
- Repeat inspection with patient's h**ands above their head**
- Repeat inspection with patient's **hands pressing into their hips** - this tenses the pectoralis muscles and allows you to see if any noticeable masses are tethered to the below structures

## Palpation

### Breast

- Begin on the "normal" side
- Ask patient to lie back on the couch (approx. 30-450) and place their hands behind their head
- Palpate the breast with the palmar surface of your middle three fingers (not the tips of your fingers)
- Begin on outside of the breast, working in towards the nipple
- Ensure axillary tail is palpated (palpate between your finger and thumb)
- Ensure nipple is examined
- Ask patient to reproduce nipple discharge if present
- If necessary, check below the breast for any pathology not visible initially
- Examine the other breast as above

**OSCE Tip**

**Use a systematic approach for palpation to ensure no areasare missed, e.g. by working in a spiral outwards or inwards, or by dividing the breast into quadrants and examining each thoroughly. Remember the axillary tail and nipple!**

## Axilla

- Support the weight of the patients arm in yours and ensure they are fully relaxed
- If examining the patient's right axilla, support the patient's right arm in your right arm and palpate with your left hand.
- Examine the following 5 lymph node areas for any lumps or lymphadenopathy
  - Anterior/Pectoral: palpate against pectoralis major/minor
  - Medial/Central: palpate against the lateral chest wall
  - Posterior/Subcapsular: palpate against latissimus dorsi
  - Humoral/Lateral: palpate inner aspect of the arm in the axilla
  - Apex: palpate against glenohumeral joint (right into apex of axilla likely to be quite uncomfortable so warn patient first)
- Repeat for the other axilla
- Bilaterally feel for supraclavicular lymphadenopathy

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Remove gloves and wash hands

# ⭐ Knowledge Nuggets ⭐

### You've got the information, now what?

It's good to know what you would do with the information you've gained from your history/examination. In the context of breast pathology which you are concerned about being cancerous, you would refer on for **triple assessment** at a breast clinic

- Full history + examination
- Imaging
  - (USS if <35, mammography if >35)
- Biopsy (FNA or core biopsy)

### How do you describe a breast lump?

·It can be useful to have a system for describing **any** lump you find. Here are some example mnemonics to help you:

- **SPACESPIT:**

Size, Position, Attachments, Consistency, Edge, Surface and shape, Pulsations
thrills and bruits, Inflammation, Transillumination

- **SSSCCCTTT:**

Site, Size, Shape, Consistency, Colours, Contours, Temperature, Tenderness, (Transillumination)

# FEMALE PELVIC EXAMINATION

## Introduction

- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent
- Explain the need for a chaperone
- Ask about pre-existing discomfort/symptoms, last menstrual period and if the patient may be pregnant
- Offer to go to toilet to empty bladder
- Confirm equipment to hand: lubricating gel, gloves, paper towels, speculum, light, specimen bottles, swabs
- Position the patient in the modified lithotomy position: lying supine on the couch, knees bent with feet brought up to the bottom and then allow the legs to fall out to the side
  - allow the patient time to undress and get into this position in private
  - maintain dignity as much as possible using a sheet
- End of bed check

**OSCE Tip**

**For intimate exams such as this, consent is vital and forms an important part of the station. It's helpful to practice what you will say to the patient in terms of explaining the procedure and how to confirm the need fot a chaperone.**

**OSCE Tip**

**Being organised and having equipment to hand before you start helps the examination run more smoothly**

## Abdominal Exam

- Before any gynaelogical exam it's best practice to carry out a brief inspection and palpation of the abdomen
- Inspect for distension and scarring
- Palpate for masses, tenderness or groin lymphadenopathy

**OSCE Tip**

**In practice, gynaecological/pelvic exam involves abdominal exam followed by speculum exam then bimanual exam.**

**This is a lot to cover in an OSCE and so you may be aksed to focus only on e.g. cervical smear. It's good practice to acknowledge that in real life you would do all of the above steps.**

## External Examination (External Inspection)

**wash hands and put on gloves and an apron.**

- Inspect the external genitalia: hair distribution, vulval skin, pubis, labia majora and minora, clitoris, perineum, urethral meatus, perianal region
  - potential findings: bleeding, discharge, tumours, lesions, warts, cysts, atrophy
- Gently part the labia to inspect introitus
- Ask the patient to cough
  - may demonstrate stress incontinence or prolapse

## Speculum Examination (Internal Inspection)

- Lubricate the speculum (if carrying out a smear, use minimal gel on blades or water so as not to contaminate the smear test)
- Part labia using non-dominant finger and thumb
- Insert speculum
  - Initially, blades should be vertical, with handles at 3 o'clock, rotating to 12 o'clock as inserted, so that blades finish in the horizontal position
  - Speculum should be inserted at a 45-degree angle towards the coccyx
  - Open speculum blades to visualise the cervix and secure in place
- Inspect vaginal mucosa and cervix, looking for any abnormalities, discharge or prolapse
- Carry out swabs if needed
  - May require high vaginal and/or endocervical swabs
- Carry out **cervical smear** if needed
  - Insert the tip of the brush into the cervical os
  - Rotate clockwise 5 times
  - Place brush into medium and ensure tissue is deposited by "dunking" against the base of the pot and rotating anticlockwise 10 times
  - Secure and label specimen
- Remove speculum
  - Slowly pull out the speculum, keeping the blades open until beyond the cervix
  - Allow the blades to close slightly (not fully, as risk of pinching vaginal wall)
  - Rotate back to 3 o'clock as you remove the speculum

## Bimanual/PV Examination (Internal Palpation)

- Lubricate gloved index finger and middle finger of dominant hand
- Part the labia with index and middle finger of non-dominant hand
- Insert two fingers gently, avoiding sensitive clitoris and urethra
- Lay non-dominant hand over suprapubic region
- Palpate the cervix
  - Assess texture and size of cervix. In some cases, may need to determine if cervical os is opened or closed
  - Note any cervical excitation (extreme pain on palpation of the cervix)
- Palpate the uterus
  - Move dominant hand into the posterior fornix
  - Palpate the uterus between the hands for mobility, regularity, size and position
  - Anteverted: palpated between posterior cervix and non-dominant hand
  - Retroverted: uterine body lies posterior to anterior cervix and so will not be palpable
- Palpate the Pouch of Douglas
  - With dominant hand in posterior fornix, palpate posteriorly
  - Note any masses
- Palpate for adnexal masses
  - Move dominant hand to lateral fornix and non-dominant hand to coinciding iliac fossa
  - Assess position, size, movement and tenderness of any masses (note that normal ovaries are not palpable)
  - Repeat on opposite side
- Remove fingers slowly
  - Inspect gloves for blood or discharge

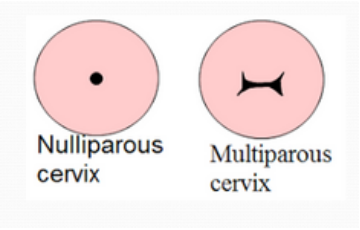
## Close

- Thank the patient
- Provide the patient with tissue and allow privacy for redressing. Offer assistance if needed.
- Remove gloves and wash hands
- Summarise findings and explain next steps

# ⭐ Knowledge Nuggets ⭐

## Cervix shape

Cervical os shape varies between women who are nulliparous (never given birth) and multiparous (delivered a baby vaginally)




## National Cervical Cancer Screening Programme

In Scotland, everyone aged 25-64 with a cervix is offered routine cervical screening every 5 years.

Smear tests are sent from primary HPV testing. If this is positive, the sample is sent for further cytology. Positive results may require treatment with colposcopy.

The screening programme was started in 1988. Cervical cancer is now rare in the UK because of the programme!

# PREGNANT ABDOMEN EXAMINATION

## Introduction

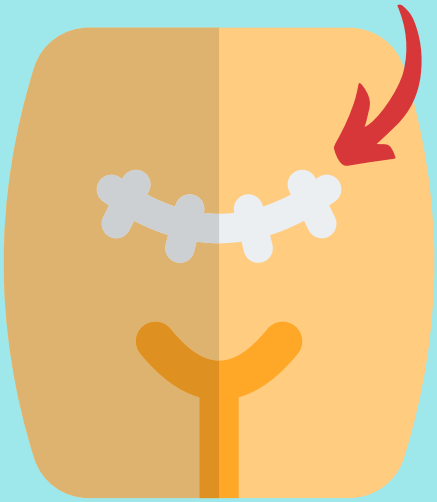
- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Ask about gestation, whether mum knows sex of baby etc.
- Explain procedure and gain consent, give opportunity to express concern or ask questions.
- Offer a chaperone
- Ensure patient comfort (examination usually best done on an empty bladder)
- Adequately expose patient (from navel to knees)
- Position patient appropriately
  - Bed to 15 degrees
  - In 3rd trimester (29 weeks onwards), tilt the patient slightly to the left with a pillow (known as the left lateral pillow). This prevents compression of the abdominal aorta and inferior vena cava by the pregnant uterus.
- End of bed check
  - pallor, oedema, jaundice, obvious discomfort

**OSCE Tip**

**This is an intimate examination so establishing a rapport and gaining the patient's trust during your intial interaction is important**

## Look

- Observe for any abnormalities
- Note the shape of the pregnant abdomen
- Look for any noticeable foetal movements
  - may be visible from 24 weeks
- Note the skin appearance
  - Things to look for:
    - stretch marks
    - linea nigra
    - striae gravidarum
    - striae albicans
    - excoriations
    - distended superficial veins
    - umbilicus eversion
    - previous c-section scars



## Feel

- **Measure the symphysial/fundal height (SFH)** = from fundus of uterus to pubic symphysis
  - Measuring tape cm side down, then turn around to read the measurement (this eliminates bias)
  - Fundus of the uterus should be palpable at around 12 weeks, should be near the umbilicus at 20 weeks and near the xiphisternum at 36 weeks
- Determine **foetal lie** - relationship of long axis of the foetus compared to long axis of the mother
  - Place hands at each side of the top pole of the uterus and gently apply pressure
  - Walk hands down either side of uterus
  - Determine which side is the back (smooth) and which the front (you should be able to feel limbs)
  - Lie can be longitudinal (cephalic or breech), transverse or oblique
- Determine **foetal presentation** = anatomical part of the foetus closest to the pelvic inlet
  - Palpate the lower pole of the uterus just above the pubic symphysis for either the foetal head or foetal bum/legs
  - Head should feel round and be ballotable; bum/legs will be broader, softer and less well-defined
  - Particularly important in third trimester when you are closer to delivery
- Assess **engagement**
  - How many fifths of the head are palpable at the symphysis
  - Entire head within abdomen = 5/5ths, not engaged; head not palpable within abdomen = 0/5ths, fully engaged
- Assess liquor volume
  - Feel around and ballot the fluid surrounding the foetus to determine the approximate quantity

## Auscultate

- Use a Pinnard's stethoscope to assess foetal heart rate
  - Place on the anterior shoulder of the foetus
- Measure heart rate for the full minute, palpating mother's pulse at the same time
  - Normal foetal heart rate = 110-160 bpm
- In some cases you may use a doppler to assess heart rate
  - Used in same position as Pinnard's stethoscope

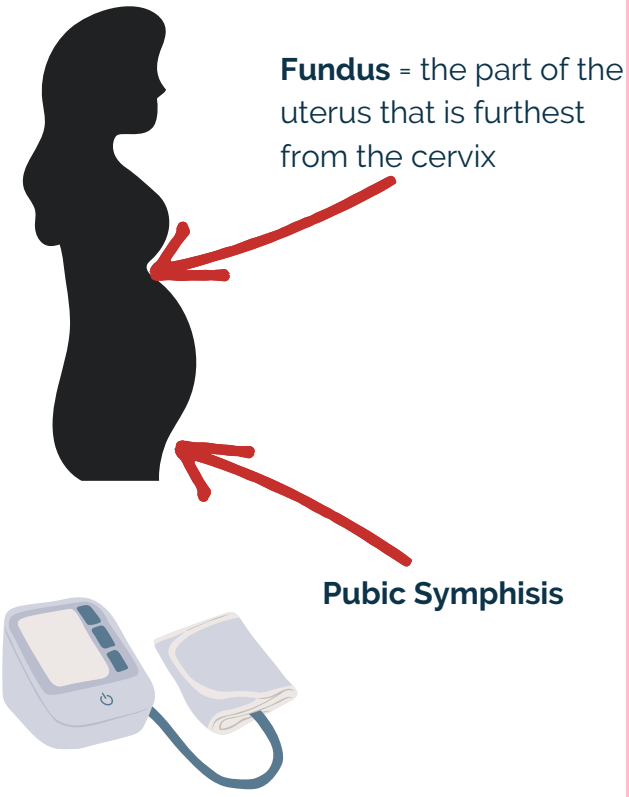
## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
  - Next steps in antenatal exam usually include blood pressure assessment and urinalysis
- Wash hands

## Knowledge Nuggets

### Symphyseal fundal height (SFH)

Symphyseal/fundal measurement of the pregnant abdomen should be roughly the same as the gestation from 20 weeks onwards (± 2cm until 36cm, and ±3cm from 36cm)




### Antenatal Checks

Antenatal checks are usually carried out by midwives, in uncomplicated pregnancies

Other investigations to consider/often done at antenatal checks include urinalysis and blood pressure, to look for signs of pre-eclampsia

# NEWBORN ASSESSMENT

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm the infant's details: name and DOB
- Explain procedure and gain consent: 'routine top to toe examination of your baby'
- Ask parents to undress the infant down to its nappy

**OSCE Tip**
**Work methodically from the head downwards to ensure you don't miss anything!**

## Screening questions

- Pregnancy: complications before/ during/ after birth. Type and gestation of delivery including presentation
- Family history: particularly problems with hips, hearts, hearing, cataracts and kidneys in 1st degree relatives
- Newborn history: meconium, urination, feeding, parental concerns

**OSCE Tip**
**Enquiring about any other parental concerns will earn you safety points. They may highlight a minor issue which you can provide reassurance for.**

## General

- **Weight**: assess for SGA (<10th centile) or LGA (>90th centile)
- **Colour**: pallor, cyanosis, jaundice
- **Posture**: hemiparesis, Erb's palsy
- **Tone**: passively move the limbs and observe them when picked up Hypotonia common in Down's syndrome ('rag doll' feel)
- **Skin**: bruising/ lacerations, birthmarks, vernix

**OSCE Tip**
**If SGA, plot head circumference and length as well to determine whether this is symmetrical (commonly due to fetal factors) or asymmetrical (commonly due to placental insufficiency)**

## Head

- **Size**: microcephaly vs macrocephaly
- **Shape**: inspect shape + cranial sutures
- **Fontanelles**: tense, buging (?raised ICP) vs sunken (dehydration)

## Face

- **Appearance**: dysmorphia
- **Symmetry**: CNVII palsy
- **Trauma**
- **Nose:** nasal patency (choanal atresia)

## Eyes

- Erythema/ discharge
- Shape and position
- Red reflex
- Scleral jaundice/ haemorrhage

**OSCE Tip**
**Absent red reflex: congenital cataracts, retinal detachment, vitreous haemorrhage and retinoblastoma. Refer ASAP!**

## Ears, mouth and palate

- **Pinna:** symmetry, skin tags, pits, accessory auricles
- **Clefts** of soft/ hard palate
- **Tongue and gums**: tongue tie, sucking reflex

## Neck and clavicles

- **Length & abnormalities:** webbing ?Turners
- **Lumps:** cystic hygroma (posterior triangle)
- **Clavicular fracture:** bruising, discontinuity, malpositioned arm ?shoulder dystocia

## Upper limbs

- **Symmetry**
- **Fingers -** count!
- **Palms:** palmar creases (2 = normal)
- **Brachial pulses**

## Chest

- Respiratory rate (40-60)
- Work of breathing
- Auscultate lungs and heart
- Pulse oximetry

**OSCE Tip**
**Signs of increased WOB include: difficulty feeding, grunting, tracheal tug, supraclavicular/ intercostal/ subcostal recession, nasal flaring, head bobbing**

**Do heart and lung auscultation aftter general inspection as the baby will likely start crying!**

## Abdomen

- Distension
- Umbilical swelling/ erythema/ discharge
- Inguinal hernia
- Organomegaly: liver, spleen, kidneys, bladder

## Genitalia

- **Ambiguity**: congenital adrenal hyperplasia
- **Males:** hypospadius, hydrocele, testes present bilaterally
- **Females**: labia, clitoris, discharge

## Lower limbs

- Asymmetry, oedema, deformities, digits
- Tone, movement and ROM
- **Femoral pulses**
- Hips: **Barlow's and Ortalini's**

## Back & spine

- Scoliosis
- Hair tufts
- Naevi
- Birthmarks
- Sacral pits

**OSCE Tip**

**Hair tufts and sacral pits can be associated with underlying neural tube defects (e.g. spina bifida).**

## Anus

- **Patency**: imperforate anus
- **Meconium:** should be passed within 24 hours: delay suggests obstruction or Hirschsprung's disease.

## Reflexes

- **Palmar grasp:** fingers close into palmar grasp when an object strokes their palm
- **Sucking reflex:** instinctive sucking of anything that touches the roof of their mouth
- **Rooting reflex:** infant turns its head toward anything that strokes its cheek/ mouth. Present at birth, disappears by four months old
- **Stepping reflex:** infant places one foot in front of another when placed on a flat surface
- **Moro reflex:** legs and head extend while arms jerk upwards as infant is dropped from one hand to the other

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

# Knowledge Nuggets

This assessment is known as the Newborn Infant Physical Examination (NIPE)
It is performed within 72hrs of birth by Dr/ANP/midwife and again at 6-8 weeks by a GP

### Head shape abnormalities

- **Cranial moulding:** common, self-resolves in first few days
- **Caput succedaneum:** diffuse, poorly defined fluid collection often crossing suture lines. Self-resolves in first few days
- **Cephalhaematoma:** subperiosteal haemorrhage, may increase in size. Does **not** cross suture lines. More common with instrumental delivery, may cause jaundice (monitor bilirubin)
- **Subgaleal haemorrhage:** large, fluctuant fluid collection which crosses sutures lines. Rare but may cause life-threatening blood loss

### Facial Birthmarks

- **Salmon patch** (stork mark, nevus simplex): red/ pink patches on eyelids, neck, or head. Very common, fade by 2 y/o
- **Haemangiomas** (strawberry mark): raised red lump, typically enlarges over first 6-12 months and disappears by 7 y/o. Treatment if affecting breathing, vision or feeding
- **Port-wine stain** (naevus flammeus): red/purple mark on the face and neck. Typically present from birth, do not regress. Association with Sturge-Weber syndrome syndrome.

### Further baby checks

- **Universal hearing screening test** - if abnormal, do auditory brainstem response test
- **Blood spot**
  - heel prick blood sample sent to lab
  - within the first 5 days of life
  - looking for; CF, hypothyroidism, haemoglobinopathies (sickle cell) and 6 metabolic diseases (eg PKU)

# HAEMATOLOGY EXAMINATION

## Introduction

- Wash your hands
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent, ask about pre-existing discomfort
  - If they are not responsive continue without gaining consent
- Adequately expose patient (in haem exam = abdomen)

**OSCE Tip**

**A full haematology examination takes a long time, so often an OSCE station will only ask for certain aspects to be performed.**

## General Examination

**Hands**

- Look at the nails and check for koilonychia
- Check the palmar creases for pallor

**Face**

- Eyes - conjunctiva for pallor, sclera for jaundice
- Mouth - angular stomatitis, smooth or beefy tongue, oral tonsillar bed

**OSCE Tip**

**Remember common clinical features of haematological disease: bleeding, bruising, abdo distension, pallor and cachexia**

## Neck Lymph Node Examination

**Ask the patient to sit on the edge of the bed for this part of the examination**

**Inspect**

- Inspect neck for masses and asymmetry
- Give patient a glass of water. Ask patient to take a sip and hold it in their mouth. Whilst looking at their neck, ask the patient to swallow the water.

**Palpate**

- Palpate the lymph nodes: submental, submandibular, pre-auricular, anterior triangle, posterior triangle, post-auricular, supraclavicular

## Axillary Lymph Nodes - wear gloves!

**With the patient sitting on the side of the bed, take their arm and its full weight. Palpate the right axilla with the left hand and vice versa. Ask if pain in either shoulder before starting palpation.**

**Inspect**

- Note any obvious masses or scars

**Palpate**

- Palpate the medial, anterior and posterior walls of the axilla.
- Palpate the axillary apex

## Inguinal Lymph Nodes - wear gloves!

**Ask the patient's consent before performing this part of the exam. Adequately expose the patient and lie the bed flat.**

**Inspect**

- Note any obvious masses, scars or distension

**Palpate**

- Palpate for horizontal inguinal lymph nodes (below the inguinal ligament)
- Palpate for vertical inguinal lymph nodes (down the medial aspect of the upper thigh, starting 3cm laterally from pubic tubercle, along the line of the saphenous vein)

## Abdominal Examination

**Inspect**

- Inspect the abdomen for any scars or masses
- Inspect the skin for evidence of easy bruising, purpura, petechiae or skin infections

**Palpate**

- Palpate the abdomen starting in the left iliac fossa. Palpate superficially and then more deeply. Leave palpation of any tender regions until the end.
- Palpate the liver, starting in the right iliac fossa and moving upwards
- Palpate the spleen, starting in the right iliac fossa and moving diagonally towards the left hypochondrium

**Percuss**

- Liver: percuss down from the right side of the chest until you hear the upper border liver (sound will change from resonant to dull)
- Spleen: percuss from the right iliac fossa to the left hypochondrium for the spleen

**Other**

- For completion, palpate kidneys, percuss for ascites, and auscultate for bowel sounds

**OSCE Tip**

**Sit down when palpating the abdomen. This makes it easier to keep the hand flat, the correct technique for abdominal palpation**

**OSCE Tip**

**If you cannot feel the spleen on palpation, ask the patient to turn onto their right side (towards you). Position your hand on their back over their lower ribs. Palpate for the spleen as before.**

## Close

- Thank the patient
- Offer to help them off the couch and to dress if required
- Summarise findings and explain next steps
- Wash hands

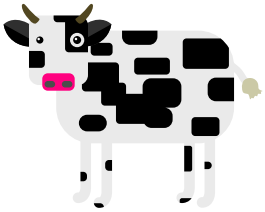
## Knowledge Nuggets

### What are petechiae?

Petechiae are pinpoint round dots found on the skin caused by bleeding. These are <2mm in diameter. Spots of blood between 2mm and 1cm are called purpura. Any bleeding >1cm is called ecchymoses (commonly called bruising).

### What causes a beefy tongue?

Vitamin B12 is essential for cell division. Some of the most rapidly dividing cells in the body are the mucosal epithelium in the tongue. When someone is B12 deficient, the normal wear and tear the tongue expeiriences is not replaired as quickly, leading to inflammation and pain



# VENEPUNCTURE, CANNULATION AND CROSSMATCH

## Introduction

- Wash hands, put on apron and gloves
- Introduce yourself: name and role
- Confirm patient details: name and DOB
- Explain procedure and gain consent
- Collect Appropriate Equiptment:
  - Clean a tray with a disinfectant wipe. Clean the sharps box with this too.
  - For venepuncture, you will need: alcohol wipes, tourniquet, needle (useful to take 2), any blood bottles you need (+ an adapter if performing blood cultures or using a butterfly needle), gauze and tape/plaster
  - For cannulation you will need: alcohol wipes, tourniquet, cannula, cotton wool, cannul dressing, gauze, 5ml syringe, 5ml saline, cannula cap
- Adequately expose the patient (in venepuncture and cannulation = expose arm to shoulder ideally), use pillow to position arm
- End of bed check

## Venepuncture

- Ask the patient if they have had their blood taken before. Is there an arm they would prefer to be used or that is known to be better for getting blood?
- Put the tourniquet on the patient's upper arm (about 10cm above the antecubital fossa)
- Palpate the patient's antecubital fossa for veins.
- Once you have found the vein you plan to use, wipe the area with an alcohol swab for 30 seconds. Leave this area to dry for 30 seconds. **Do not re-palpate the vein after cleaning the area.**
- Warn the patient of a sharp scratch and insert the needle, bevel up, at a 15-30˚ angle
- Depending on the type of needle you are using, you might see a "flashback"
- Attach the blood bottles
  - If taking blood for culture remember:
    - place alcohol wipes on top of both bottle lids to sterilise prior to attaching
    - attach the aerobic bottle before the anaerobic one
- Once you have collected all the samples you need, remove the tourniquet
- Put the gauze just above the puncture site.
- Remove and sheath the needle, and apply pressure using the gauze. Secure this with some tape or remove and apply a plaster. Dispose of needle in sharps bin.
- Label the blood bottles at the patient's bedside

**OSCE Tip**

**Veins that are straight will be easier to cannulate! Also worth remembering that inserting at hands will be more painful and inserting at antecubital fossa restricts use of that arm.**

## Cannulation

- ·Place tourniquet and observe, palpate and assess veins
- ·Use an alcohol wipe to clean arm and allow to dry – do not repalpate
- ·Prepare cannula and inspect device
- ·Hold in dominant hand and align needle with vein. Use manual traction with other hand.
- ·Insert needle at 10-30 degrees until you see flashback. You don't need to insert the whole needle
- ·Lower the cannula, and advance the needle a further 2mm to ensure in vein
- ·Partially withdraw needle and once you see second flashback advance the cannula into vein whilst simultaneously withdrawing the needle
- Once the needle is almost removed, remove tourniquet and place gauze beneath the canula hub
- ·Apply pressure above vein, withdraw needle and dispose
- ·Allow blood to fill device and attach cap
- ·Secure cannula with the 2 small strips
- ·Draw up 5mls of NaCl, insert and twist the syringe into the cap, and slowly flush cannula
- ·Finish dressing the cannula and ensure the transparent window is over insertion site so that it can be monitored
- ·Date and sign annotation strip
- ·Thank patient, remove PPE and dispose of equipment
- ·Procedure should also be documented in the patients notes

**OSCE Tip**

**Warn patient that flushing the cannula might feel cold but not sore. If its painful, difficult to flush or you see fluid build-up, it indicates you are not in vein.**

## Crossmatching

- Also known as transfusion request
- Confirm patient name, DOB and check with their wristband
- Carry out venepuncture as above
- Write, **BY HAND**, details details on blood bottles at the patient's bedside. Include:
  - **patient forename and surname, sex, DOB, CHI, hospital and ward, time, date, signature and initials**
- Complete or review the request form – again by hand
- Consider special requests
  - Irradiated blood - used in patients with hodgkins disease or stem cell transplants
  - CMV negative blood - used in neonates
- Send sample to BTS lab.

# Knowledge Nuggets

### Next Steps!

Use the links below to learn the steps involved in safe blood transfusions! Also worth learning the different types of blood transfusion reactions and how these are managed!

### OSCE Tip

**Colours may vary in different health boards but in OSCEs useful to remember orange and grey are used in ABCDE scenarios.**

## Needle Sizes and Uses

| Size | Color | Recommended use |
|---|---|---|
| 14G | Orange | In massive trauma situations. |
| 16G | Gray | Trauma, surgeries, or multiple large-volume infusions |
| 18G | Green | Blood transfusion, or large volume infusions. |
| 20G | Pink | Multi-purpose IV; for medications, hydration, and routine therapies. |
| 22G | Blue | Most chemo infusions; patients with small veins; elderly or pediatric patients |
| 24G | Yellow | Very fragile veins; elderly or pediatric patients |

Image source: mymadmedworld