

Context for the session

The Learning Objectives are:

- Gather a focused medication history
- Describe what information patients need about their medication
- Describe why patients may not use medication as prescribed, and how to enhance concordance with treatment
- Describe and practice how to use an otoscope to look in the ears and throat (by the end of the year students should be able to demonstrate this skill)
- Describe and practice the steps involved in the clinical examination of the normal respiratory system (by the end of the year students should be able to demonstrate this skill)

Students will cover the following in the two-week block:

- In **Case-Based Learning** a 42 year old man found lying on a concrete floor having last been seen 36 hours earlier. He was conveyed by ambulance to the Emergency Department where he was managed as an accidental opioid overdose (injection of heroin) with naloxone. Students consider the metabolism and excretion of opioids, and the effect of kidney function on drug excretion. They will also consider acid-base balance and hyperkalaemia.

Lectures, workshops and practical cover:

- Introduction to prescribing
- What is a drug? How do drugs act?
- Receptors, agonists, antagonists
- How drugs get into the body, how drugs move around the body and how the body excretes drugs
- Basic pharmacokinetics and dosing
- The safety and harms of medicines
- Drug dependency and addiction

Students are expected to become aware of common medications (e.g., ACE inhibitors, steroids, PPIs, oral hypoglycaemics), their indications and risks and benefits

There is also be numeracy skill sessions, a pharmacology practical on aspirin administration and excretion, and a guest lecture on the importance of drug-receptor interactions and pharmacokinetics to heroin users.

In their **Effective Consulting** lab session, they will learn how to:

- Gather a focused medication history
- Describe how to give an effective explanation and explain “blood pressure” to a patient
- Discuss how to set professional boundaries (*Communication challenge*; a patient who asks for personal contact details)

Specifics for Pharmacology and therapeutics in GP clinical contact

Introduction

Medication can yield great benefits for patients, but they are also associated with significant risks. Polypharmacy is an important factor associated with increased medication errors and adverse drug reactions. Students will see lots of prescribing during their training and it is useful to be aware of the process of prescribing from an early stage.

As with the previous sessions:

- refer to the [Year 2 GP handbook](#), which covers all the information common to all sessions.
- use the enclosed “session plan” as a guide on how to use your time with your group

Allow plenty of time of time for:

- introductions (reflecting on any learning/action points from session two, Body defence)
- student-led interaction with patient(s), and
- summing up at the end/planning for next time (Anaemia, blood and clotting)

(Expert) patients

Suitable patients for the block are:

- Anyone taking prescribed +/- over-the-counter medication +/- other “remedies”, especially if due a medication review and/or take medication that requires monitoring.*
- Anyone willing to have students examine their respiratory system and their ears

* They do not necessarily need to have multiple medications, or to have had problems from previous tablets (including adherence), etc but someone with this history may help draw out some of the below learning points.

Consider encouraging patients to bring all their medicines with them to the review, to better determine what drugs are being taken and how (a “brown bag” review).

Brainstorm

Start by asking the students/getting them to discuss:

Preparation – using the medication history as background information. What does the medication section of the electronic medical record tell us (and not tell us)?

It can tell us:

- *what medical problems that may have. We can surmise several conditions from the medication someone takes, if there is no/limited other history available*
- *if someone is over or under-requesting their medication*
- *about known allergies (if reported and recorded)*
- *when their medication was last reviewed/is next due*
- *about interactions and cautions*

It cannot tell us:

- *what the patients knows about their medication – why it is prescribed, what its potential benefits or risks of harms are*
- *whether they are collecting their prescriptions/taking the tablets as prescribed (or indeed, if someone else is using them instead/as well)*
- *whether appropriate monitoring has been done (BP, blood tests, other checks, e.g. checks for diabetic eye or foot disease)*
- *what medication (or herbal remedies) they are buying over the counter/via the internet, or medication prescribed/given in secondary care; all of which may interact/be contraindicated with prescribed medication*

Obtaining a medication history. When you talk to a patient about their medication, what do we need to find out and why? When is a medication history particularly important?

Issues to highlight:

- *Problems with medications or side-effects are a common reason for consultations in primary care or hospital admissions, e.g. certain medications may be the cause for abnormal blood tests – low sodium, raised potassium, deteriorating renal function or abnormal liver function*
- *When information about past medical history is limited or vague, much can often be inferred from the medications patients are taking, e.g. statin for raised cholesterol or cardiovascular disease.*
- *To avoid prescribing new medications to which the patient is known to be allergic, or which are contraindicated in combination with another medication.*
- *Concordance. If someone isn't responding to treatment, is it because they are taking their medication as prescribed?*
- *How is taking/using a tablet different to a gel, patch, inhaler, topical treatment (e.g. antibiotic cream, corticosteroid) or injection (e.g. insulin)*

Prescribing. “When I am considering prescribing a medication what do you think I need to consider?” The process can be broken into eight stages (See Table below, in student information).

They do not need to know this in detail but give a broad introduction to the elements that need to be considered:

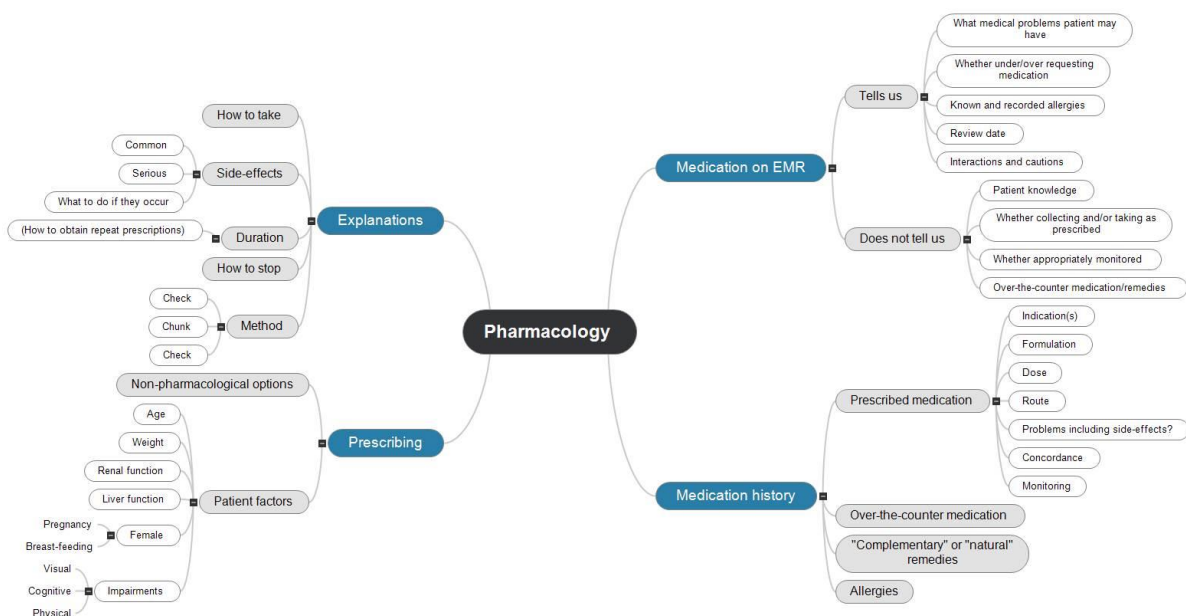
- *Always consider non-pharmacological options first*
- *We need to consider patient factors such as age, weight, renal or hepatic impairment and if the patient is pregnant, planning pregnancy or breastfeeding.*

- We also need to consider some practical aspects: Are there any cognitive, visual or physical impairments that would make taking medication difficult? Children or the elderly may struggle with tablets and some medications taste awful or are difficult to administer (e.g. some inhalers)

Explanations. What does a patient need to know about their medication when you prescribe?

Tease out:

- Does the patient know how to order repeat prescriptions/collect their medicine?
- Do they know how to take the medication?
- Common side effects and what to do if they occur
- Serious side effects and signs of allergy and what to do if they occur
- When they run out what should they do? Some medications, e.g. steroids, should not be stopped suddenly



Tasks

As well as talking to patient(s) about their medication, introduce students to sources of information to support safe medicines management. Show them:

- [British National Formulary \(BNF\)](#) and how to access it (paper version, app, website).
- BNSSG local formulary
- [electronic Medicines Compendium](#) which includes patient information leaflets and the detailed Summary of Medical Characteristics

Assign pairs of students a commonly used medication to look up in the BNF. Give them 5 mins to find out its common indications, dosing regime, side effects and contraindications. Get them to summarise their findings to the group, asking questions such as:

- What do you already know about this drug?
- How does this drug work?
- How is this drug used?

- What does a drug need to do to help in this problem, e.g. heart failure? Try linking to physiology
- Name two side effects
- What would it be important to explain to a patient about this drug?

Talk through a paper FP10/electronic prescribing.

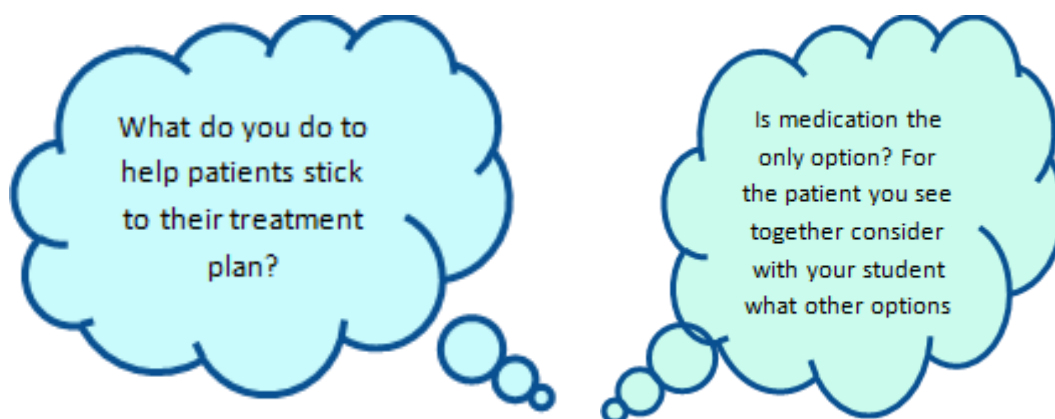
Talk about your own experiences of prescribing/patients with problems with their medication; how you decide what is going on and how to manage?

Below is the information given to the students before the session.

Student information

In preparation for/during your session, think about/discuss:

- **Preparation – using the medication history as background information.** What does the medication section of the electronic medical record tell us (and not tell us)?
- **Obtaining a medication history.** When you talk to a patient about their medication, what do we need to find out and why? When is a medication history particularly important?
- **Prescribing.** “When I am considering prescribing a medication what do you need to consider?” See the below table, “The stages of prescribing”.
- **Explanations.** What does a patient need to know about their medication when you prescribe?



Tables: The eight stages of prescribing

1.	Make a diagnosis	Establishing the diagnosis helps you know what the treatment options are
2.	Establish the therapeutic goal	Not all clinical problems require medication or even any treatment at all. Be clear about what the goal for treatment is.
3.	Chose therapeutic approach	There are often many different treatment options. Are you clear on the risks and benefits of each approach?
4.	Choose the drug.	Including dose, route, frequency and duration of treatment and consider allergies, interactions, contraindications.
5.	Write prescription	Be familiar with the elements of a prescription, check details, write clear instructions. Decide if this is an acute or repeat prescription. Know who is eligible for free prescriptions.

6.	Inform patient	Likely side effects including reasons to stop/seek advice. When to follow up. Give written information e.g. www.patient.co.uk
7.	Monitor drug effects	Monitor therapeutic effects and side effects
8.	Review/alter	Medication may need stopping, changing or dose may need altering

Where to find information about medication. Be aware of the following resources and try using the BNF.

- Patient.co.uk is a good source of information for patients about their medications.
- Guidelines and formularies, e.g. NICE, SIGN, local primary care/hospital formularies
- PrescQIPP, an independent, not for profit social enterprise supporting quality prescribing in the NHS www.prescqipp.info
- Specialist Pharmacy Service, supports medicines optimisation across the NHS www.sps.nhs.uk
- Patient group specific information e.g., Best Use of Medicines in Pregnancy (BUMPS) <https://www.medicinesinpregnancy.org/Medicine--pregnancy/>

How to take a good medication history

When gathering a drug history, you should always consider whether the patient’s presenting complaint is due to one of their medicines, including side effects, an interaction between their medicines, or discontinuation of a medicine. As a medical detective you should ask yourself and seek to explain “Why has this presenting complaint happened to this patient at this time?”

The following is an outline of what an “ideal” medication history should cover.

- Elicit and record an accurate medication history, including current and recent medicines, to support effective medicines reconciliation
 - Record the following:
 - Drug name (usually generic; sometimes brands are appropriate, e.g., biologics)
 - Original indication(s) (i.e. the reason(s) the drug was prescribed)
 - Details of the drug
 - Formulation (e.g., tablet, liquid, cream, injection)
 - Dose (taking care to write in full if the dose is in micrograms)
 - Route
 - Dates (when did it start, how long is it for)
 - Effects of the drug (beneficial/adverse symptoms, change in tests e.g., blood pressure)
 - The results of drug monitoring where relevant
- Remember to ask about

- Complementary medicines (e.g., herbal remedies, homeopathy)
- Over-the-counter drugs
- Contraceptive pill/implants/depot injections
- Other less common routes of administration (e.g., inhalers, injections, transdermal patches)
- Any drugs that have recently been changed (including started or discontinued) and why.
- Record problems, or potential problems, with the medication regimen
 - Allergies
 - Adverse effects (distinguish between allergy and intolerance)
 - Ascertain adherence to, and concordance with, the drug regimen
 - Identify common potentially important drug-drug interactions
 - Recognise specific situations which require adjustment of drug choice or dosing (e.g., elderly, children, renal impairment, hepatic impairment, breast feeding, pregnancy)

You might find the following a useful way to remember this:

- For each drug (**NIDDEM**): Name, Indication, Details, Dates, Effects, Monitoring
- Remember the 5 C's: Complementary, over-the-Counter, Contraception, unCommon routes, Changes
- Potential problems (the 5 A's): Allergy, Adverse effects, Adherence, Any interactions, Adjustment

You should explore in a non-judgemental way whether the patient uses or has used recreational drugs and their route of administration. You should consider using alternative sources of information (e.g., carer, hospital ward, community pharmacist, GP) to corroborate the drug history, and understand the limits of these sources.

The patient perspective

Ask open questions to gain insight into the patient's understanding of their medicines, whether it is working, and any potential problems including non-adherence.

- *What do you know/would you like to know about your condition and/or your medicine(s)?*
- *How well have you felt since taking this medicine?*
- *What benefit do you feel your medicine gives you? What would you like your medicine to allow you to do (e.g., feel well enough to walk the dog)? How important are these benefits to you?*
- *What, if anything, are your worries about your medicine? What problems do your medicines cause you?*

Non-adherence is a particularly common issue, and patients may be reluctant to provide accurate information to their doctor. It is important to create a blame-free, non-judgemental environment to establish reasons which may be intentional or unintentional, and include health beliefs, misunderstanding, adverse effects, access (e.g., cost, travel), and forgetfulness.

- “Many people have trouble taking their medications on a regular basis. Do you find this is the case for any of your medications?”
- “What sort of problems do you have remembering to take your medicines?”

Check-chunk-check method of giving an effective explanation

CHECK Identify and *elicit* the current situation before you proceed with the actual explanation.

- Your knowledge** of the situation and what information you are trying to convey—what do you know and what is important.
- The receiver's perceptions of the situation (ICEIE)**. What do they already know? What are their concerns and expectations?
- The receiver's ability to understand**. This is usually guess work but key to an effective explanation.
- The receiver's desire for information**. What do they want to know and to what level of detail?

CHUNK. This is where you give the explanation.

- deliver the information in **appropriate-sized chunks** of information that the receiver can grasp
- do mini checks of understanding
- avoid technical language**. Keep it simple, you want to make the receiver feel smart.
- speak at a **rate, pitch and volume** that aids and at least does not discourage understanding (see later)
- try and weave into your explaining anything you picked up in the **ICEIE**. You can use appropriate metaphor or analogy.
- Visual aids** can help as can models
- give **appropriate detail** but also the big picture—why should what you are saying matter to them?

CHECK. This is where you check whether you have reached a shared understanding, based on your explanation.

- encourage the receiver to **ask questions** "e.g., was there anything that I said that you didn't quite understand?" or "could I clarify anything for you?"
- consider asking the **receiver to explain back** your explanation as a way of checking they have understood. It's not an exam though try "Can you repeat that back to me, I want to check if I made things clear enough?" Or "I want to make sure I explained things properly, can you tell me what you heard?"
- address any concerns** divulged in ICEIE - e.g., "you told me you were worried about cancer - how are you doing with those worries now?" (notice use of open question).

Who can get free prescriptions?

<https://www.nhs.uk/nhs-services/prescriptions-and-pharmacies/who-can-get-free-prescriptions/>

[Accessed 02.09.24]

You can get free NHS prescriptions if, at the time the prescription is dispensed, you:

- are 60 or over
- are under 16
- are 16 to 18 and in full-time education
- are pregnant or have had a baby in the previous 12 months and have a valid [maternity exemption certificate \(MatEx\)](#)
- have a specified medical condition and have a valid medical exemption certificate (MedEx)
- have a continuing physical disability that prevents you going out without help from another person and have a valid medical exemption certificate (MedEx)
- hold a valid war pension exemption certificate and the prescription is for your accepted disability
- are an NHS inpatient

You're also entitled to free prescriptions if you or your partner (including civil partner) receive, or you're under the age of 20 and the dependant of someone receiving:

- Income Support
- income-based Jobseeker's Allowance
- income-related Employment and Support Allowance
- Pension Credit Guarantee Credit
- [Universal Credit](#) and meet the criteria

If you're entitled to or named on:

- a valid NHS tax credit exemption certificate – if you do not have a certificate, you can show your award notice. You qualify if you get Child Tax Credits, Working Tax Credits with a disability element (or both), and have income for tax credit purposes of £15,276 or less
- a valid NHS certificate for full help with health costs (HC2)

People named on an NHS certificate for partial help with health costs (HC3) may also get help.

Free prescriptions for certain medical conditions

People with certain medical conditions can get free NHS prescriptions if they have a valid medical exemption certificate (MedEx).

People with the following conditions can apply for a MedEx:

- cancer, including the effects of cancer or the effects of current or previous cancer treatment
- a permanent fistula (for example, a laryngostomy, colostomy, ileostomy or some renal dialysis fistulas) requiring continuous surgical dressing or an appliance
- a form of hypoadrenalism (for example, Addison's disease) for which specific substitution therapy is essential
- diabetes insipidus or other forms of hypopituitarism
- diabetes mellitus, except where treatment is by diet alone
- hypoparathyroidism
- myasthenia gravis
- myxoedema (hypothyroidism requiring thyroid hormone replacement)
- epilepsy requiring continuous anticonvulsive therapy
- a continuing physical disability that means you cannot go out without the help of another person (temporary disabilities do not count, even if they last for several months)

Examination

Examining the respiratory system








Prepare (WIPPPE)

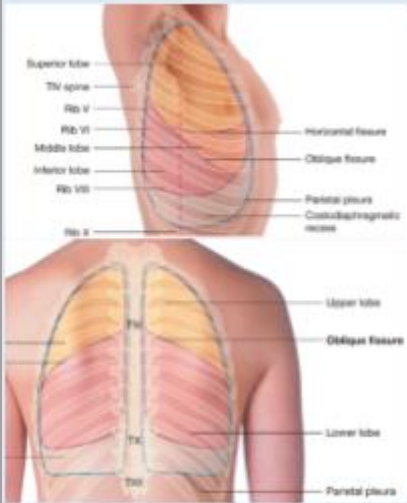
- **W**ash hands
- **I**ntroduce yourself and identify patient
- **P**ermission – explain procedure and gain consent
- **P**osition – 45° (cardiovascular and respiratory)
- **P**ain – check that the patient is comfortable
- **E**xposure – adequately expose the whole upper torso (or at least from the bottom of the sternum to thorax)

General observation: Look at the patient and around the room/bed (if in their home) for any clues as to what is going on: sputum pot, supplemental oxygen, GTN spray or other medication, walking aids, catheter etc.

- Do they appear to be in pain?
- Do they look unwell?
- Is the patient cyanosed?
- Is the patient thin or cachetic?
- Is the patient breathless at rest or on moving? Are they using any accessory muscles such as the sternocleidomastoid?
- Do they have a hoarse voice?

<p>Hands and nails</p>  <p>Figure 1 Assessing for CO2 retention flap</p>  <p>Figure 2 Finger clubbing</p>	<p>Look at the hands first then move up to wrist to check pulse.</p> <ul style="list-style-type: none"> • Clubbing. When associated with painful wrists and ankles, this is hypertrophic, pulmonary osteoarthropathy (HPOA) and associated with lung cancer. • Tar staining of the fingers (smoking) • Capillary refill time • Peripheral cyanosis • Palmar erythema • Dupuytren's contracture • Asterixis – CO₂ retention flap. Looking for a jerking flap of the hands involves asking the patient to stretch out their arms and hyperextend their wrists, so their hands are up in the air. You look for a coarse upward and downward bobbing motion of the hands. This is found in CO₂ retention and in liver failure. <p>Check respiratory rate.</p>
<p>Face and eyes</p>  <p>Figure 3 Superior vena cava obstruction (SVCO)</p>	<p>A dusky appearance and swelling of the face and neck can be caused by a mediastinal tumour pressing on the superior vena cava (SVC).</p> <p>Eyes</p> <ul style="list-style-type: none"> • Conjunctival pallor (anaemia)? • Drooping of the eyelid (Ptosis) or a smaller pupil on one side, indicative of Horner's syndrome (interruption of the sympathetic chain, this can occur because of a lung cancer at the lung apex).
<p>Mouth</p>	<p>Central cyanosis—check under tongue. Pursed lip breathing on expiration. Look for oral candidiasis (associated with corticosteroid and antibiotic use)</p>
<p>Neck</p>	<p>JVP can be raised in Cor Pulmonale* or SVC obstruction and acutely raised in tension pneumothorax and PE. Examine the lymph glands by standing behind the patient</p>

CHEST	Examine anterior chest then get patient to sit forwards to examine the posterior chest.
Inspection	Shape of chest and movements of chest wall. <ul style="list-style-type: none"> • A barrel shaped chest indicates hyperinflation from chronic airway obstruction. • You may see scars on the chest wall, or drains or pacemakers. • Is there any intercostal recession indicating forced rapid inspiration seen in acute infection and asthma?
Palpation  <p>Figure 4 Assessing for tracheal deviation</p>  <p>Figure 5 testing for chest expansion</p>	<p>Tracheal deviation can be assessed by placing 3 fingers (gently and with warning) into the sternal notch – if central, the trachea should be felt under your middle finger.</p> <p>Check for expansion—cup your hands (fingers spread) around the patient's upper anterior chest pressing finger tips into the mid axillary line, pull your hands slightly together and raise your thumbs off the chest wall, as the patient breathes in you can see how much each of your thumbs move (should be about 5cm) and if there is an asymmetry.</p> <p>Repeat on the lower anterior chest wall and on the back.</p> <p>Tactile vocal fremitus (or vocal resonance, see below)*. Place the edge of your hands on the front of the patient's chest and ask them to say "99". Repeat this with the hands placed more laterally. Increased fremitus may be felt if there is underlying consolidation.</p> <p>Apex beat (lowest, most lateral position of cardiac impulse) – as should be 5th intercostal space, mid-clavicular line. Mediastinal masses may displace the apex, the apex beat may be absent in large pleural effusion or pneumothorax. Hyperinflation may make it difficult to feel (and hear). If it is difficult to feel you can ask the patient to lean to their left side.</p> <p>Feel for right ventricular heave (palm left of the sternum).</p>
Percussion	Produces a hollow resonance, it produces a dull thud without resonance over fluid and consolidation. Apply middle finger of your non-dominant hand along an intercostal space and tap it with the flexed index or middle finger of your dominant hand. Percuss down the chest comparing left with right, avoid the scapula so move out as you move down. Hyperresonance can be hard to assess but accompanied by absent breath sounds indicates pneumothorax.

<p>Auscultation</p> 	<p>Ask patient to take normal breaths in and out through their mouth (can ask patient to breathe more deeply if breath sounds are quiet).</p> <p>Compare left to right starting with the bell of the stethoscope over the apex of the lung. Work your way down comparing left to right. Think about the surface anatomy of the lungs as you listen. Listen to the lateral chest in the mid axillary line.</p> <p>Note if the breath sounds are</p> <ul style="list-style-type: none"> • normal (vesicular), soft and muffled, or absent • loud and harsh (bronchial and indicates underlying consolidation). • asymmetrical (if they are different side to side) <p>And if there any added sounds (inspiratory stridor, wheeze, crackles, pleural rubs) if you hear crackles, ask the patient to cough. If there are crackles decide if they are fine or coarse and if they change with the breath.</p> <p>Vocal resonance (or tactile vocal fremitus)*: Breath sounds can reveal consolidation (bronchial breath sounds) air or fluid in the pleura (absent breath sounds) this can be confirmed by asking the patient to generate laryngeal sounds on purpose (Ask the patient to say “99” and move the stethoscope in the same places you auscultate).</p>
<p>Posterior chest</p>	<p>Repeat inspection, palpation (and lymph glands if not already done), percussion and auscultation and check for sacral oedema.</p>
<p>Lower limb</p>	<p>Check for swelling indicative of DVT. Pitting oedema.</p>
<p>Investigations</p>	<p>Check Oxygen saturations and Peak expiratory flow rate if relevant. Look at Chest X-ray—if available.</p>
<p>Closing</p>	<p>Cover patient/help them dress or get off couch if required, thank patient. Explain any findings to patient. Wash hands.</p>

* You do not need to do both vocal resonance and tactile fremitus as they work on the same principle

Examining the ear (from Macleod)

Explain to the patient what you are going to do/doing!

Inspection: Pinna skin, shape, size, position, scars from previous surgery/trauma, deformity.

Palpation:

- Gently pull on the pinna and push on the tragus to check for pain.
- Gently palpate over the mastoid bone behind the ear to assess for pain or swelling.

Otoscopy

- Use the largest otoscope speculum that will comfortably fit the meatus.
- Hold the otoscope in your right hand for examining the right ear (left hand to examine left ear).
- Rest the ulnar border of your hand against the patient's cheek to enable better control and to avoid trauma if the patient moves
- Gently pull the pinna upwards and backwards to straighten the cartilaginous external auditory canal. Use the left hand to retract the right pinna.
- Inspect the external auditory canal through the speculum, noting wax, foreign bodies or discharge. You should identify the tympanic membrane and the light reflex anteroinferiorly.

Resources and acknowledgement

Hippocrates, the Bristol Medical School website.

This website shows the different elements of an FP10: <https://geekymedics.com/prescribing-in-primary-care/> [02.09.24]

The “The stages of prescribing” table is based upon “Take a medication history” from the Ross & Maxwell curriculum document (BJCP 2011), expanded to include other issues (e.g. medication adherence, dose adjustment, drug monitoring). For further reading: <https://pharmaceutical-journal.com/article/ld/how-to-take-an-accurate-and-detailed-medication-history> [02.09.24]

“How to take a good medication history” was originally written by Dr Rupert Payne, July 2018.