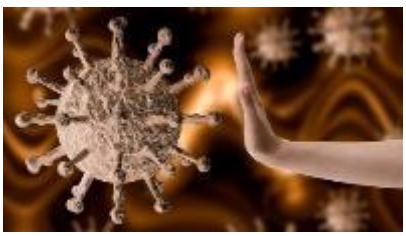
Warwick Medical School

MB ChB Phase II

Clinical History & Examination Sequences Set

Handbook

2022-23



Student Name: _____

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South Warwickshire NHS Foundation Trust

George Eliot Hospital NHS Trust

CHESS Book Contents

Acknowledgements

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CHESS Book: Introduction

History and Examination Sequences for Learning, Feedback, Revision and Assessment

There are many ways of taking a clinical history and conducting a clinical examination of a patient. In most cases, an experienced clinician will carry an approach that is individual to the patient's personal and clinical needs. There are with numerous books on the subject. You can then add on the many thousands of slight variations introduced by individual experienced clinicians. There are at least a thousand clinicians that you could potentially encounter during the 4 years of the Warwick Medical School MB ChB programme. There is, essentially, no single standard sequence for clinical history or examination.

For teaching purposes, we would advise Warwick Medical School students to use the following examination sequences where possible in the early stages of developing clinical experience and mastery. However, always learn from your tutors and integrate what you reasonably see as best practice into your own clinical history and examination sequences. There are a set of Clinical Skills videos which can be accessed on YouTube by searching for **"Warwick Medical School Clinical Skills videos"**. These were created by Dr James Gill and based on the sequences in this workbook.

In clinical practice, the clinician is integrating history with examination right from the start of the consultation. The actual sequence of the history will be individualised to the patient to minimise interruption and facilitate clinical dialogue. Often, there will be well thought out omissions and shortcuts in both the clinical history and examination. A novice clinician is not encouraged to work in the same way as this experienced clinician. The student, as a novice clinician, will have to demonstrate practice and knowledge of the full history and examination sequences for most of the cases they are examined on. The actual process of obtaining a clinical history in terms of the communication skills, is as important as the content. The former facilitates the latter.

If you see important differences in what is taught at the Medical School and your Clinical Education settings, please do email the clinical tutors and me and we should be able to advise on a way forward together. In most instances this CHESS book will be revised. Recently the Musculo-skeletal section was entirely by Mr Sunit Patil and medical students that were attached to the Orthopaedics department at UHCW. All clinical tutors will have access to the CHESS Book and will often use these sequences in their teaching. Warwick Medical School Clinical assessments, such as OSCE examinations, will be based on the CHESS Book sequences. The anatomy nerve roots for myotomes and reflexes have been agreed with the clinical anatomy and imaging team via Dr Erin Fillmore.

At all times ensure that the highest standards in relation to patient confidentiality are observed and demonstrated. Summarised GMC guidance is given in this handbook. Always use the WMS encrypted memory stick as directed. Especially, during these times of the Covid-19 pandemic, please ensure that you observe the strictest regard to your personal protective equipment, infection control and personal welfare.

Here's to mastery in clinical history-taking and examination!

Professor Vinod Patel
BSc (Hons), MB ChB, MD, FRCP, FHEA, DRCOG, MRCGP, RCPath ME
Professor, Clinical Skills, and Diabetes
Hon. Consultant in Diabetes and Endocrinology, and Acute Medicine

How to use this workbook

- **Clinical Sequences:** The sequences should all be read through during Advanced Cases 1. This should give you an opportunity to do some directed learning to know the basics well, such as related clinical anatomy or specific tests.

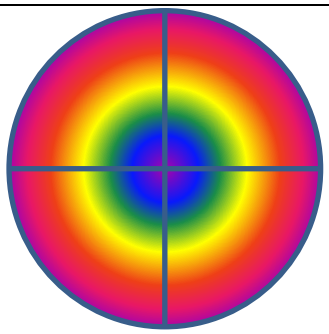
- **Your Clinical Notes:** Please use the notes pages to write in aspects of history, examination, differential diagnosis and final diagnosis as you encounter clinical cases. This booklet has the potential to become an important revision aid throughout your course. Use the sequences to carry out self-assessment, peer assessment and tutor assessment. The i-COMPAT worksheet will be very useful for recording clinical notes on aspects of history-taking, examination, differential diagnosis and management including drug therapies. This can be used in many clinical settings including General Practice, Clinical Wards, and Out-patient Clinics. This has the potential to be very useful for revision for your clinical examinations.

- **Multiple Uses:** This workbook will be supplied as a Word Document and as a PDF. You should be able to edit and add clinical notes as you see fit. The PDF version, which you can email to yourself, can then be used as an iBook on your phone or computer.

Clinical Notes

Experience and an Approach to Clinical History and Examination

The following table attempts to differentiate the approaches to history and examination used by differently experienced clinicians. Even as a medical student, we would expect you to progress through the stages on some cases.

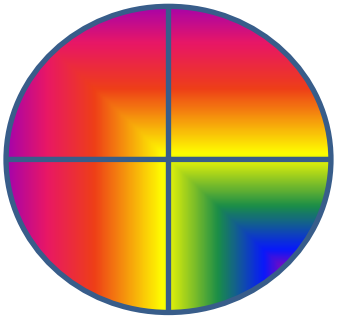


Apprentice

Definition: *Someone who has agreed to work for a skilled person for a period of time and often for low payment, in order to learn that person's skills*

Eg Medical Student, F1 doctor

History: Systematic, one section to the next with clear set of questions in each domain. Eg all the social history questions, family history, ICE, pets, the lot! Can appear like form filling and not-integrated as a whole. Important information will not be missed. Important in creating fluency and patient-centeredness in the consultation.
Examination: Thorough, eg general then a full inspection, palpation, percussion, auscultation of all the main systems. In most cases you would focus on a quick general examination then a detailed specific examination and then a quick overview of the main systems.

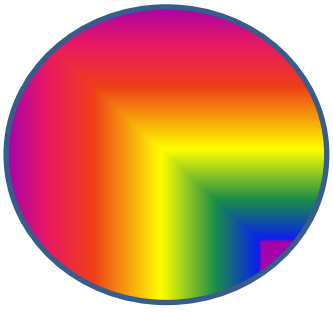


Journeyman

Definition: *A worker who has a skills making them able to a particular job, and who usually works for somebody else*

Eg F2 and beyond not yet Specialist

History: Systematic, but starting to integrate questions, less appearance of form-filling and greater focus on targeted history pertaining to the actual problem. A clear 'line' of enquiry is appearing
Examination: Becoming targeted towards the main problems potentially associated with the history. Eg thorough respiratory examination and a very brief abdo palpation only.



Mastery

Definition: *A person who has control over a particular situation*

Eg Specialist, GP, Consultant, Senior Specialist Registrar

History: Integrated and very focussed on the specific line of enquiry judged from the history of presenting complaint and early history. Various sections such as FH may be omitted altogether.
Examination: Becoming targeted towards the main problems potentially associated with the history. Eg Inspection, and thorough specific sections of the respiratory examination only.

GMC Guidance: Confidentiality: disclosing information for education and training purposes 2017- updated version 2022

The use of information about patients is essential to the education and training of medical students, doctors in training and other healthcare students and trainees. This explanatory guidance sets out how the general principles in our guidance Confidentiality apply in the specific context of education and training.

Main Key Recommendations – usually stated *ad verbatim*

General Principles
For most education and training uses, anonymised information will be sufficient and must be used whenever practicable. If it is necessary to use identifiable information about a patient, or it is not practicable to anonymise information, you should usually ask for the patient's explicit consent before disclosing it to anyone who is not part of the team that is providing or supporting the patient's direct care. You should make sure that the patient is under no pressure to consent. In particular, you should avoid any impression that their care depends on giving consent.

Teaching and training of medical students, doctors in training and other healthcare students and trainees

- Most patients understand and accept that the education and training of medical students, doctors in training and other healthcare students and doctors in training relies on them having access to information about patients.
- If doctors in training or medical or healthcare students are part of the team providing or supporting a patient's direct care, they can have access to the patient's personal information, just as other team members do, unless the patient objects. If the doctor or student is not providing or supporting the patient's care, anonymised information should be used for education and training purposes whenever practicable. This may not be achievable, for example, on ward rounds, but it will then usually be possible to seek the patient's explicit consent to disclosure.
- In some cases it might be necessary to disclose personal information, or it might not be practicable to anonymise it or to ask for a patient's consent. In such cases you may disclose relevant personal information to medical students, doctors in training and other healthcare students and trainees, as long as you are satisfied that information has been made readily available to the patient about the disclosure and of their right to object, and they have not objected. You must also be satisfied that they understand that the information is given in confidence, which they must respect.

Patients who lack capacity

- You should not disclose personal information for education and training purposes about patients who lack capacity if you can use information about other patients instead.
- If you wish to disclose personal information about a patient who currently lacks capacity (for example, because they are acutely unwell), but who is likely to regain capacity, you should wait and ask for their consent later if you can.
- If you are asked, or want, to disclose information about a patient who lacks capacity, you should seek the views of anyone the patient asks you to consult, or who has legal authority to make decisions on their behalf, or who has a close personal relationship with the patient. They may be able to give you an indication of the patient's previously expressed preferences, views and beliefs.
- In the absence of any indication about the preferences of a patient who lacks capacity, you should not publish information that could identify that patient. In exceptional cases, however, you may disclose relevant personal information to medical students, doctors in training and other healthcare students and trainees if it is necessary for their education and training. You must be satisfied there is no reasonably practicable alternative to using personal information, and you should have no reason to believe that it is contrary to the interests of the patient to do so.

Disclosing information to secondary school and college students

- Doctors are sometimes asked to provide work experience for secondary school or further education college students, which may include allowing them to be present during consultations with patients.
- You should ask for the patient's explicit consent to a student observing their care. You should also satisfy yourself that the student's presence does not adversely affect the patient's care, for example by inhibiting frank discussion.
- You should satisfy yourself that the student understands the importance of respecting confidentiality and that their school or college takes seriously its responsibilities for its students' conduct.

Training records and case studies

- You must anonymise patient information in training records and case studies as far as it is possible to do so. The anonymisation code of practice published by the Information Commissioner's Office considers data to be anonymised if it does not itself identify any individual, and if it is unlikely to allow any individual to be identified through its combination with other data. Simply removing the patient's name, age, address or other personal identifiers is unlikely to be enough to anonymise information to this standard.
- If it is difficult to anonymise information about patients while retaining enough detail to make a training record useful, or if it is necessary to include potential identifiers to allow the record to be audited, you should ask for the patient's consent to use their information if you can. If it is not practicable to seek the patient's consent, you may use potentially identifiable information in a training record as long as you are satisfied that the record will be kept securely and will be managed in accordance with other data protection requirements. You must still remove as many identifers as you can.
- If the information is likely to be more widely accessible (for example, in discussion at a seminar or conference, or published in a journal), and you consider that the patient could be identifed, you should usually use the information only when you have the patient's explicit consent.
- When asking for the patient's consent, you must give the patient enough information about the nature and purpose of the disclosure to enable them to make an informed decision. This should include a description of the information to be disclosed and an indication of who will have access to it and how it will be used.
- You may disclose information only for the purposes for which the patient has given consent, and you must remove as many identifers as you can. You must respect a patient's refusal to consent to the publication of their identifable information.
- If for any reason you cannot get a patient's consent – for example, because the information you want to disclose is so old that efforts to trace the patient have been or are likely to be unsuccessful – you will need to consider whether disclosing potentially identifable information can be justifed in the public interest.You should seek advice from a Caldicott or data guardian or a legal adviser, who is not directly connected with the use for which the disclosure is being considered, before disclosing personal information without consent.

Additional WMS Notes

- There is a named Caldicott guardian at each trust. Your Undergraduate Co-ordinator can advise you of if needed. In the first instance all concerns/problems should be communicated to the Undergraduate Co-ordinator and the WMS School office.

- Do not use initials, name of patient, date of birth, age (use age band e.g. 50-65) or specific occupation in notes.

- Do not leave any clinical environment with clinical notes or any clinical information. This includes Handover Notes, Clinical letters, ECGs, and Imaging reports.

Receiving and Giving Feedback

One of the key teaching outcomes is to have received and given feedback. Your clinical tutors will often give feedback and this should be sought out as it is a very powerful impetus to further learning and improvement.

Previously you should have demonstrated to the tutor and peers

- Your ability to conduct a clinical history
- Your ability to conduct a general examination
- Your ability to conduct a systems examination
- Your ability to give constructive feedback to a fellow student

The tutors will also expect you to complete your "Personal Reflections on Clinical Performance" table (see table at end of this section). This will be a useful summary of your stronger areas of performance and add focus to areas for improvement or further learning.

Giving Feedback: Pendleton's Rules and ALOBA (Agenda-Led Outcomes Based Analysis)

All students value constructive feedback given in a professional well-meaning manner. This should be done sensitively. It is important to be specific. So for example do not use*: "that was not great, in fact it was quite poor"*. You could be more specific (and helpful) such as: *"although you started to examine the palms in detail, you only appeared to glance at the nails and did not check thoroughly for clubbing or capillary return."*

The following format, after Pendleton (1984), is useful. It is often clear that students know what they did well and what they should have done differently! It is also important to ensure that the student is happy to have feedback from you. A brief chat about the importance or not of the clinical skill being assessed is often useful.

Pendleton's Rules of Feedback
Student: **First discuss what went well.** Ask: *what did you do well?*
Teacher: **Then discusses what went well**. State: *what went well*
Student: **What could have been better and recommendations for change**. Ask: *how could you have done it better?*
Teacher: **Discusses what could have been better and recommendations for change** State: *how could it have gone better*
Allow further discussion and an action plan for improvement may be suggested

Agenda-Led Outcome-Based Analysis

Feedback Principles for teachers or group facilitators

Start with the learner's agenda	Ask what problems the learner experienced the last time they performed this task and what help they would like.
Always look at the outcome the learner (and patient if appropriate) could achieve	Thinking about where you are aiming and how you might get there encourages problem solving – effectiveness, important patient outcomes including safety should be considered.
The student may do the task at this point	
Encourage self-assessment and self-problem-solving first	Always allow the learner space to make suggestions before giving ideas.
Involve the whole group in problem solving if the student is in a group	The group should work together to generate solutions not only to help the learner but also to help themselves in similar situations.
Use descriptive feedback to encourage a non-judgmental approach	Descriptive feedback ensures that non-judgmental and specific comments are made and prevents vague generalisation.
Or the student may do the task at this point, and the preceding three steps could help the student to plan the task better.	
Provide balanced feedback	Provide a balance in feedback of what worked well and what didn't work so well: this supports the learner and maximises learning. Base the feedback discussion around the agenda that was set in step 1, and any other planning that occurred before they did the task. It may be appropriate to involve other students who were watching in providing feedback. Phrasing observations of poor performance using a statement followed by a question can make it easier to provide feedback. For example, 'I noticed that you didn't ask the patient if they smoked. This is an important question to ask. Why didn't you ask it? What information might you have missed?'
Make offers and suggestions, provide alternatives	Make suggestions rather than prescriptive comments and reflect them back to the learner for consideration.
Rehearse suggestions	Rehearse and practise suggestions by role play - when learning any skill, observation, feedback and rehearsal are required to effect change.
Be well intentioned, valuing and supportive	It is the facilitator's/group's responsibility to be respectful and sensitive to each other.
Value the feedback session as a gift of raw material for the group	The feedback discussion can provide useful material for other students to discuss: group members can learn as much as the learner having feedback.
Opportunistically introduce teaching exercises and research evidence	The facilitator should opportunistically offer to introduce teaching exercises and research evidence to help to draw out principles and to illuminate learning for the group as a whole.
Structure and summarise learning so that a constructive endpoint is reached	The facilitators should summarise the session to ensure that learners piece together the individual skills that have arisen into an overall conceptual framework. This also sets the agenda for the next time the student does the task.

Adapted from:
Silverman, Draper and Kurtz: Education for General Practice vol 7 no 4 and vol 8 no 1.
Kurtz et al (1998) ***Teaching and Learning Communication Skills in Medicine***

Preparing for Feedback

- Review previous sessions
- Revise reading material for the specific sections
- Recognise your strengths and weakness in the skills taught to date so that you can specifically concentrate on any areas that need attention
- Use the Clinical History and Clinical Examination Sequences in this Handbook

Clinical Histories
For practising clinical history-taking, take the history or part of the history with a real patient. Ideally use cases that you have seen yourself on the wards. Any information that is missing in case scenarios can be added with artistic licence. Use sufficient details to allow a more thorough and realistic history to be elicited in role play by your fellow student. The template can then be used to practise history-taking with a peer student or tutor. Ensure patient confidentiality at all times.

General Examination
Use the clinical template supplied to observe a peer student conduct a General Examination and give feedback using the Pendleton Model or ALOBA Principles.

Systems Examination
Use the clinical template supplied to observe a peer student conduct a systems examination and give feedback using the Pendleton Model or ALOBA Principles.

Tutor/Peer Feedback Grades:
Use the Clinical History and Clinical Examination sequences as an OSCE and give a tentative grade using the following criteria. Have a discussion with the tutor/student and try to agree a final grade based on objective feedback (if possible!).

Grade	Criteria
Excellent	**Consistently demonstrates mastery of all components for this level in the MB ChB course.**
Good	**Competent in almost all components to a high standard and to a satisfactory standard in all. No significant omissions.**
Pass	**Competent in a large majority of components. Few minor omissions.**
Borderline	**Competent in a bare majority of components. A number of omissions.**
Fail	**Some major omissions. Competent in a minority or only a few testable components Not competent for this level in the MB ChB course.**

Personal Reflections on Clinical Performance
"What went well"
Your ability to conduct a clinical history
Your ability to conduct a general examination
Your ability to conduct a systems examination
Your ability to present
Your ability to give constructive feedback to a fellow student
"Areas of improvement"
Your ability to conduct a clinical history
Your ability to conduct a general examination
Your ability to conduct a systems examination
Your ability to present
Your ability to give constructive feedback to a fellow student
Plan for Improvement

Summary

Guidelines for GIVING Constructive Feedback

- Give feedback only when asked to do so or when your offer is accepted.
- Give feedback as soon after the event as possible.
- Focus on the positive initially.
- Be descriptive (of behaviour) not evaluative (of motives).
- Talk about specific behaviours and give examples where possible.
- Use "I" and give your experience of the behaviour ("When you said…, I thought that you were…").
- When giving negative feedback, suggest alternative behaviours.
- Ask yourself, "Why am I giving this feedback?" (Is it for you or for the person concerned?)
- Remember that feedback says a lot about you as well as about the person to whom it is directed.
- Try to confine negative feedback to things that can be changed. You are trying to help someone achieve their full potential.
- Do not overload.

Guidelines for RECEIVING Constructive Feedback

- Listen to it, pause and think before responding (rather than prepare your response/defence).
- Ask for it to be repeated if you did not hear it clearly.
- Assume it is constructive until proven otherwise; then consider and use those elements that are constructive.
- Ask for clarification and examples if statements are unclear or unsupported.
- Accept it positively (for consideration) rather than dismissively (for self-protection).
- Ask for suggestions of ways you might modify or change your behaviour.
- Respect and thank the person giving feedback.

Examples of useful feedback you have received
•
•
•
•
•
•
•
•

Clinical History

The Warwick 4 Frames

Consider recap or summary at end to patient to check information

1: Presenting Complaint

- History of PC ? SQITAS
- Click into one system:eg cvs, rs, git, cns
- Systems review
- Check Red Flags

2: Past Medical Hx, Drugs, Allergies

- Ops, Serious illnesses, Past and current
- Drugs: POM, OTC, Recreational
- Allergies: drugs, penicillin, foods

3: Social and Family Hx (Lifestyle Factors)

- Smoking, Alcohol, Occupation, Home Situation
- Effect of condition on life and ADL
- Family Hx

4: Ideas, Concerns, Expectations, ?, ?

- Ideas, Concerns, Expectations
- Do you have any other information for me?
- Do you have any questions for me?

Clinical Notes

Clinical History Process vs content

Initiating the Consultation

- Introduction, Infection control
- Explain process and consent
- Open statement to start

Gathering Information

- Facilitates responses: silence, repetition, paraphrase
- Clear language, avoids jargon
- Sequence of events, analysis of symtoms
- Systems review and PMH
- Effects of symptoms on patient's life, feelings
- Appropriately & actively determines ICE

Building the Relationship

- Acknowledges pts views/feelings, not judgemental
- Provides support: expresses concern, understanding, willingness to help

1: Presenting Complaint

- History of PC ? SQITAS
- Click into one system: eg cvs, rs, git, cns
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- Smoking, Alcohol, Occupation, Home Circs
- Effect of condition on life and ADL
- Family Hx

4: Ideas, Concerns, Expectations, ?, ?

- Ideas, Concerns, Expectations
- Do you have any other information for me?
- Do you have any questions for me?

Clinical Notes

The Warwick 4 Point Presentation:

Histories, examinations, biochemistry, CXR, ECG, shoes,

General Findings
On Examination the patient was comfortable

Important Positive Findings
My main findings were jaundice and an enlarged liver that was hard and nodular

Important "Negative" Findings
However, there was no ascites

Clinical Conclusion
These findings would be consistent with malignancy

Examination Outline

Introduction

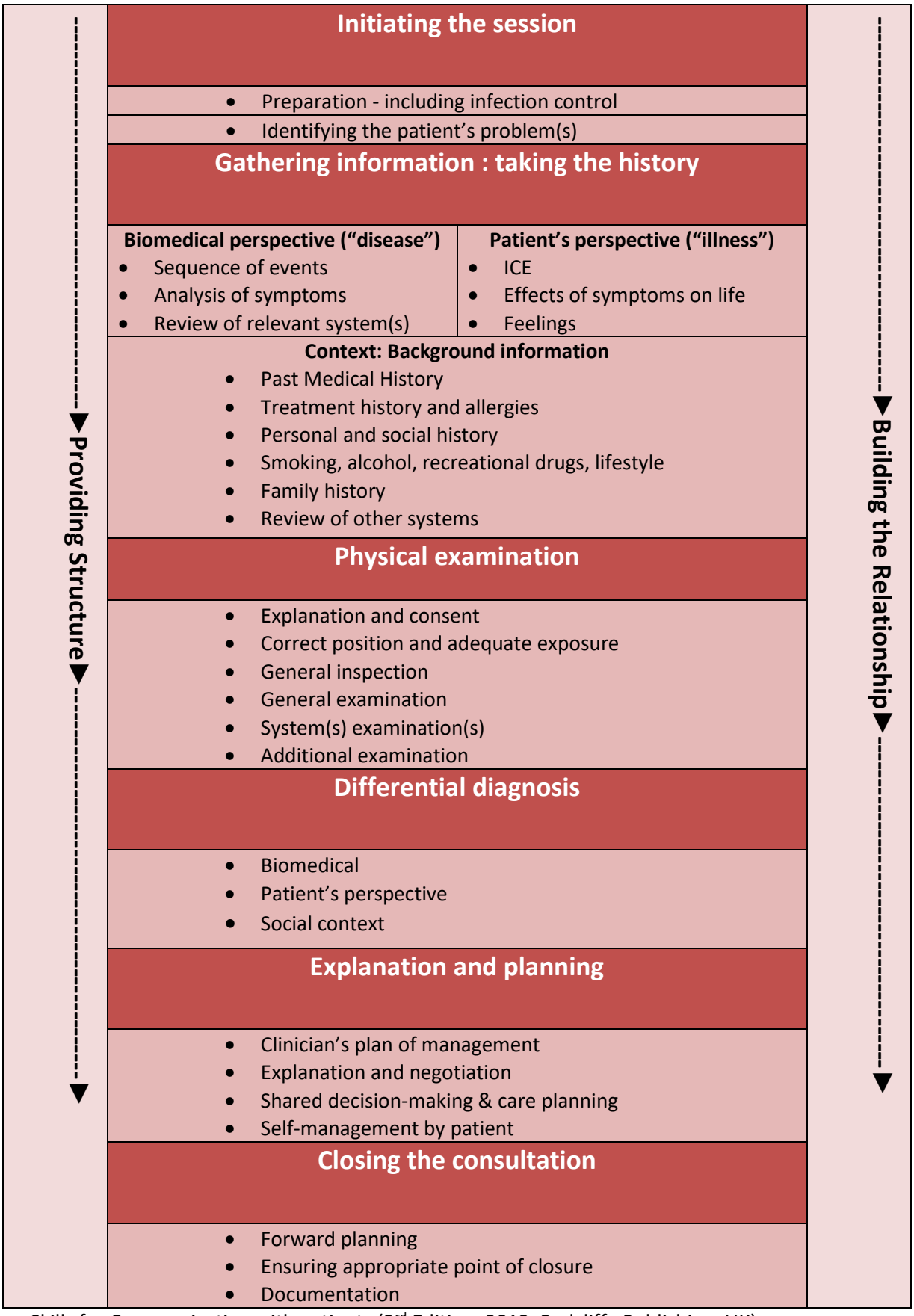
General Observations
- End of Bed inspection
- Specific: BP, Pulse rate, Temp

General Examination
Hands, Pulse, Neck, tongue, lymph-nodes, oedema

Systemic Examination
CVS, RS, Abdo, CNS, other

Clinical Presentation
Clinical Conclusion

The Calgary-Cambridge Approach to Clinical Consultation (modified 2011)



Skills for Communicating with patients (3rd Edition, 2013, Radcliffe Publishing, UK)

Clinical history: *Quick template*

PC

HPC ► "open"

► **"closed"**
► **specific system: cover mode of onset, progress, current status,? SQITAS ? SOCRATES**
► **red flags**

► **systems review**
CVS, RS, GIT
UT, CNS
Locomotor/Skin **FH**
Endo
Red flags(if not done above)

SHx / FHx

Smoking?

Alcohol?

Occupation?

Home circumstances?
Social input?

Effect of problem on life?

PMH: *?major illnesses ? ops* **Drugs:** *Prescribed, OTC, Recreational* **Allergies:**

Be specific, many cases
ask about penicillin
Ask about intolerances and reactions

Ideas **Concerns/Feelings** **Expectations:**

Further Information? **Any questions for me?**

The history should then allow you to move onto basic aspects of management

- **General and relevant examination**
- **Working Diagnosis/Problem List**
- **Presentation of the case: see Warwick 4 Point Presentation**
- **Investigation and Management Plan**
- **Information given to patient (throughout the clinical process)**

Clinical Notes

Systems Review: Cardinal Symptoms ICE??

"Click" into relevant system and then conduct Brief Systems Review

Brief Systems Review

"Do you have any other symptoms at all?" …… "Can I just check?"

Red Flag Check

- **Lumps or bumps anywhere ?**: breast, neck, tummy, skin
- **Blood loss or bleeding ?:** from anywhere: mouth, coughing, vomiting, bowels, urine, genitalia
- **Any change in bowel habit?:** dark stools, blood, diarrhoea, constipation, mucous
- **Any change in weight or appetite?**: ? unintentional weight gain versus intentional
- **Any nausea or vomiting?:** think malignancy, pregnancy
- **General symptoms:** change in mood, fever, itching, energy

Cardiovascular	Respiratory
• Chest pain • Palpitations (heart racing or thumping) • Shortness of breath (dyspnoea): tolerance • PND and orthopnoea • Peripheral oedema • Pain in legs on walking, cold limbs (PVD)	• Shortness of breath (dyspnoea): tolerance • Cough: duration, haemoptysis • Sputum: amount, character, blood, pink • Chest pain on breathing (pleuritic pain) • Wheeze, stridor, snoring
Gastro-intestinal	**Neurological & Psychiatric**
• Difficulty/pain chewing or swallowing, ulcers • Nausea, vomiting, ? blood • Indigestion or heartburn or abdo pain/mass • Change in appetite, weight loss, weight gain • Bowel habit: changes, blood, mucous, melaena, pale stools or floating (steatorrhoea)	• Headache, fits, faints, dizzy, blackouts, • Numbness (or any change in sensation), weakness or clumsiness in arms or legs • Changes in vision, double vision, hearing (deafness, tinnitus), speech, taste, smell, • Change in mood, stress levels, thoughts
Genito-urinary	**Diabetes & Endocrinology**
• Pain or difficulty passing urine, ? dribbling • Day urination versus nocturia • ? Amount ? need to drink fluids overnight • Vaginal or penile discharge, lesions • Periods: last one, changes, usual pattern,	• Polyuria, polydipsia, weight loss/gain, , blurred vision, thrush • Heat or cold intolerance, neck swelling. • Change in appearance, sweating, hirsutism, periods, energy, libido, ED
Musculo-skeletal and Skin	
• Pain, stiffness in joints ? circadian rhythm • Pain, stiffness in muscles • Tingling/weakness in hand eg CTS	• Falls, difficulty walking or dressing or ADL • Any skin lesions: rash, ulcer, blisters, heat bruising, itching, bleeding, colour change

ICE ??

Ideas: ***"What do you think is going on with you?"***
Concerns: ***"What concerns you the most?"***
Expectations: ***"How can we best help you with this problem?"***
? : *"Is there anything else that you want to tell me about this problem?"*
? : *"Do you have any questions for me?"*

Pain History in detail

SQITAS
Site, **Q**uality, **I**ntensity, **T**ime course/timing, **A**ggravating/Relieving factors, A**s**sociated **S**ymptoms

SOCRATES
Site, **O**nset, **C**haracter, **R**adiation, **A**ssociated symptoms, **T**ime course/timing, **E**xacerbating/Relieving, **S**everity

Intensity or Severity: How bad is the pain? 10 is very severe like a fracture, 1 very mild pain.

Avoid jargon or explain it as you go along

SIGNS AND SYMPTOMS OF CANCER

MACMILLAN CANCER SUPPORT
RIGHT THERE WITH YOU

WHAT MEN SHOULD LOOK OUT FOR

If you have any signs or symptoms of cancer, get them checked by your doctor. The earlier cancer is found, the more likely it is to be cured.

Abnormal moles (ABCDE)

Asymmetry: Melanomas (cancerous moles) are likely to have an irregular or uneven (asymmetrical) shape.

Border: Melanomas are more likely to have uneven borders with jagged edges.

Colour: Melanomas tend to be more than one colour, and may have shades of brown, mixed with black, red, pink, white or a blue tint.

Diameter: Melanomas are usually more than 6mm wide.

Evolving: Look for changes in the size, shape or colour of a mole. Changes to a mole can be a sign of a melanoma.

You should also look out for a mole that tingles, itches, bleeds or is crusty.

Lung

- A cough that lasts for three weeks or more.
- A change in a cough you have had for a long time.
- A chest infection that doesn't get better.
- Feeling breathless for no reason.
- Coughing up blood.
- A hoarse voice that lasts for three weeks or more.
- Pain in your chest or shoulder that isn't going away.
- Losing weight for no obvious reason.
- Feeling more tired than usual.

Mouth and throat

- An ulcer in your mouth that doesn't heal.
- A sore tongue, mouth or throat that doesn't get better.
- A new swelling or lump in your mouth or neck.
- Changes to your voice, such as hoarseness.
- Difficulty or pain when chewing, swallowing or speaking.
- Feeling that something is caught in your throat.
- Changes in hearing, earache or pain around the ear.
- Loose teeth or badly fitting dentures.
- A blocked nose or altered sense of smell or taste without having a cold.
- Bleeding in the mouth or tasting blood.
- Losing weight for no obvious reason.

Kidney

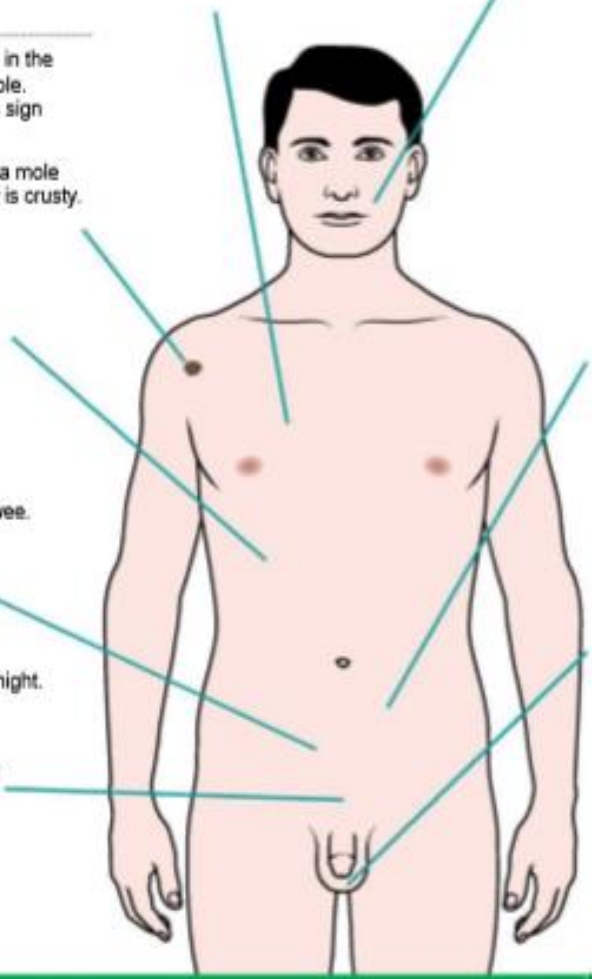
- Blood in your wee.
- A lump in your tummy, side or back.

Bladder

- Blood in your wee.
- Needing to wee very often.
- Needing to wee suddenly.
- Pain or a burning feeling when you wee.
- Pain in your lower back or tummy.

Prostate

- Difficulty starting to wee.
- Needing to wee often, especially at night.
- A weak flow of wee.
- Urgently needing to wee.
- A feeling of not completely emptying your bladder.
- Blood in the wee or semen.
- Pain when weeing or ejaculating.



Bowel

- Bleeding from your bottom.
- Blood in your poo for three weeks or more.
- A change to your normal bowel habit, such as looser poo.
- Pain or a lump in your tummy or back passage (rectum).
- Feeling that you haven't emptied your bowel properly after going to the toilet.
- Losing weight for no obvious reason.
- Feeling more tired than usual.

Testicle

- A painless lump or swelling in a testicle.
- A dull ache or pain, or heaviness in your scrotum.

Health & care information you can trust

The Information Standard

Reduce your cancer risk

- Don't smoke.
- Eat a well-balanced diet.
- Keep to a healthy weight.
- Be physically active.
- Cut down on alcohol.
- Take care in the sun.
- Don't use sunbeds.
- Get to know your body so you can spot any changes.
- Go to screenings when invited.

Other symptoms

- A lump anywhere on your body.
- Unexplained weight loss or tiredness.
- Blood in your wee, poo, spit or vomit.

DO YOU HAVE ANY SYMPTOMS?

If you have any signs or symptoms, get them checked by your doctor.

For support, guidance or more information, call Macmillan free on **0808 808 00 00**, 7 days a week, 8am to 8pm, or visit **macmillan.org.uk**

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MACMILLAN CANCER SUPPORT

WHAT WOMEN SHOULD LOOK OUT FOR

If you have any signs or symptoms of cancer, get them checked by your doctor. The earlier cancer is found, the more likely it is to be cured.

Abnormal moles (ABCDE)

Asymmetry: Melanomas (cancerous moles) are likely to have an irregular or uneven (asymmetrical) shape.

Border: Melanomas are more likely to have uneven borders with jagged edges.

Colour: Melanomas are usually more than one colour, and may have shades of brown, mixed with black, red, pink, white or a blue tint.

Diameter: Melanomas are usually more than 6mm wide.

Evolving: Look for changes in the size, shape or colour of a mole. Changes to a mole can be a sign of a melanoma.

You should also look out for a mole that tingles, itches, bleeds or is crusty.

Bowel

- Bleeding from your bottom.
- Blood in your poo for three weeks or more.
- A change to your normal bowel habit, such as looser poo.
- Pain or a lump in your tummy or back passage (rectum).
- Feeling that you haven't emptied your bowel properly after going to the toilet.
- Losing weight for no obvious reason.
- Feeling more tired than usual.

Bladder

- Blood in your wee.
- Needing to wee very often.
- Needing to wee suddenly.
- Pain or a burning feeling when you wee.
- Pain in your lower back or tummy.

Cervix

- Bleeding during or after sex, or between periods.
- Bleeding after the menopause.
- Pain or discomfort during sex.
- Vaginal discharge that smells unpleasant.
- Pain in the lower back or pelvic area.

Lung

- A cough that lasts for three weeks or more.
- A change in a cough you have had for a long time.
- A chest infection that doesn't get better.
- Feeling breathless for no reason.
- Coughing up blood.
- A hoarse voice that lasts for three weeks or more.
- Pain in your chest or shoulder that isn't going away.
- Losing weight for no obvious reason.
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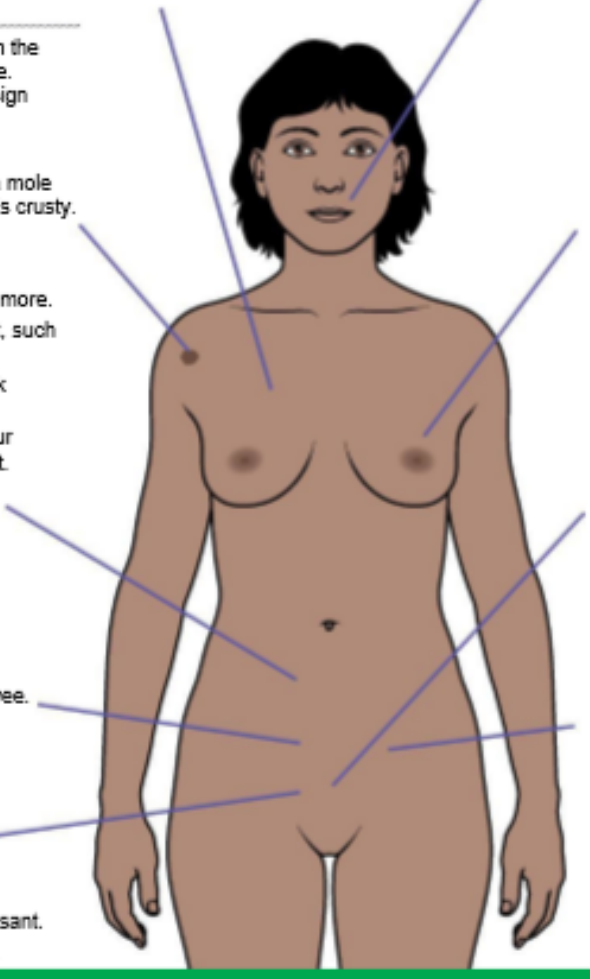

Mouth and throat

- An ulcer in your mouth that doesn't heal.
- A sore tongue, mouth or throat that doesn't get better.
- A new swelling or lump in your mouth or neck.
- Changes to your voice, such as hoarseness.
- Difficulty or pain when chewing, swallowing or speaking.
- Feeling that something is caught in your throat.
- Changes in hearing, earache or pain around the ear.
- Loose teeth or badly fitting dentures.
- A blocked nose or altered sense of smell or taste without having a cold.
- Bleeding in the mouth or tasting blood.
- Losing weight for no obvious reason.

Breast

- A new lump or an area that feels denser in your breast or armpit.
- A change to your nipple, such as a rash, discharge or the nipple changing direction or turning in.
- A change to the skin on your breast, such as puckering, dimpling or redness.
- A change in the size or shape of your breast.
- Constant discomfort or pain in one breast.

Womb

- Bleeding in between periods or after the menopause.
- Heavier periods than usual, if you have not been through the menopause.
- A watery or bloody vaginal discharge.

Ovary

- Feeling bloated (a swollen tummy) most of the time.
- Feeling full quickly or not wanting to eat much.
- Pain in your lower tummy or pelvis most of the time.
- Needing to wee more often than normal.
- A change in bowel habit, such as diarrhoea or constipation.
- Back pain.
- Feeling tired all the time.

Reduce your cancer risk

- Don't smoke.
- Eat a well-balanced diet.
- Keep to a healthy weight.
- Be physically active.
- Cut down on alcohol.
- Take care in the sun.
- Don't use sunbeds.
- Get to know your body so you can spot any changes.
- Go to screenings when invited.

Other symptoms

- A lump anywhere on your body.
- Unexplained weight loss or tiredness.
- Blood in your wee, poo, spit or vomit.

DO YOU HAVE ANY SYMPTOMS?

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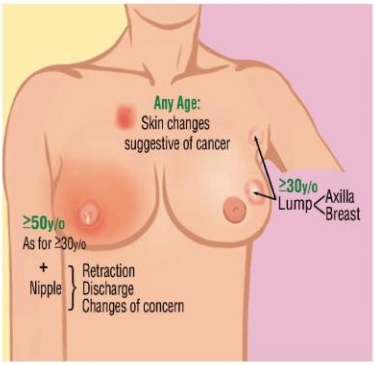
SIGNS & SYMPTOMS OF CANCER

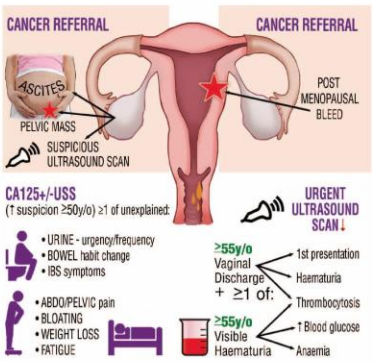
NICE Cancer Referral Guidelines

BREAST

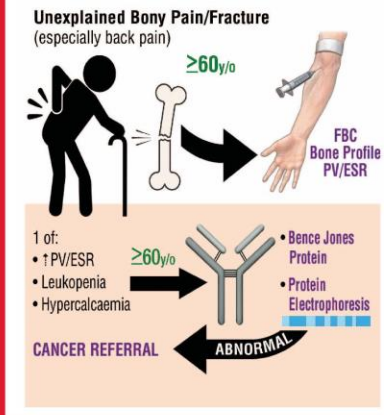
CANCER REFERRAL



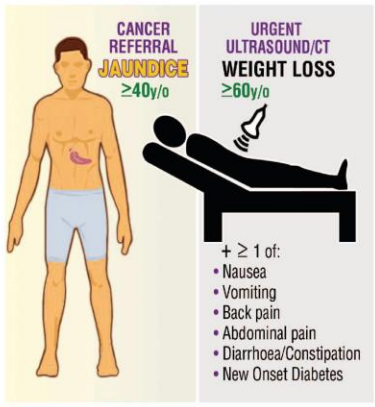
OVARIAN • ENDOMETRIAL



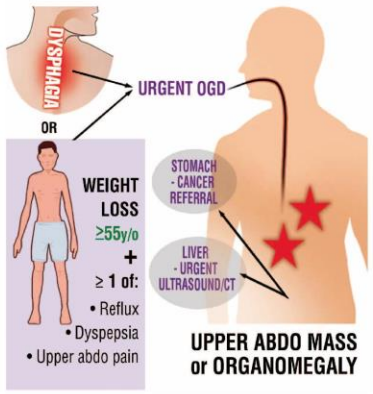
MYELOMA



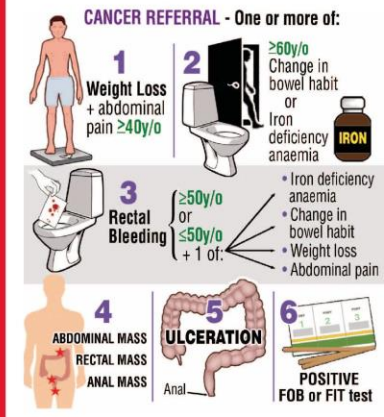
PANCREATIC



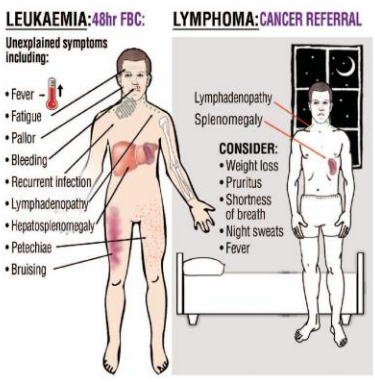
UPPER GI



LOWER GI

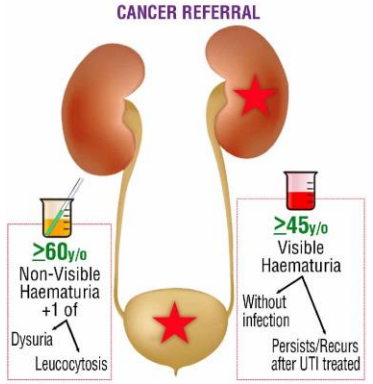


HAEMATOLOGY (adults only)

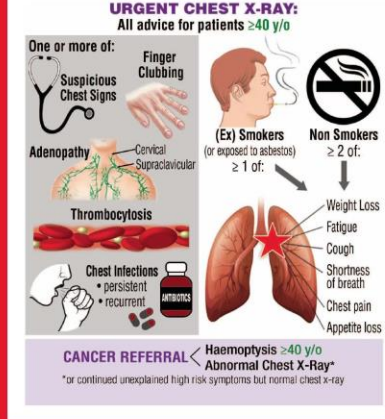


RENAL & BLADDER

CANCER REFERRAL



LUNG CANCER & MESOTHELIOMA



NFH Consultancy Ltd
www.nfhconsultancy.co.uk

NHS
East Midlands Cancer Alliance

Signs and Symptoms of Blood Cancers

- A lump(s) in your neck, armpits and / or groin areas
- A bloated, hard tummy and / or tender left side of your tummy
- Unintentional weight loss of >10% in 6 months
- Drenching night sweats
- Signs or symptoms of low blood counts (such as shortness of breath, tiredness, recurrent infections, bleeding, extensive bruising or petechial rash)
- Itching, particularly after a hot bath or shower
- Bony pain either localised outside the joint or involving the breastbone or pelvic area, or non-traumatic bone fractures

Clinical Notes

Template for Clinical History Taking: The 4 Frames Approach

Patient Name/Demographics
Frame 1. Presenting Complaint
History of Presenting Complaint: ► "open" ► "closed" ► mode of onset, progress, specific system, SQITAS ? ► ?red flags
Systems review: *CVS, RS, GIT, UT, CNS, Locomotor/Skin, Endo, Red flags(if not done above)*
Frame 2. Past Medical History: ?major illnesses ? ops
Drug History*:* Prescribed, OTC, Recreational
Allergies
Frame 3. Social History: smoking, alcohol, occupation, home circumstances/social input
Family History
Frame 4. ICE: Ideas Concerns Expectations
ICE: Further information and Questions from Patient
Working Diagnoses/Problem List
Information given to patient

Health Promotion: Making Every Contact Count

4 As Approach

Brief Intervention

Brief interventions with respect to life-style changes have been proven to be the most cost-effective method in persuading people to adopt healthier lifestyle choices. A Cochrane review (Kaner et al CD 004148, 2009) showed that in 7000 participants randomised to brief-intervention or control intervention with respect to safer alcohol consumption, the brief-intervention group drank 4 to 6 units less (per week) at the end of the 12 month study. With respect to smoking the quit rate was 69% higher with Brief Intervention. Longer counselling was actually found to confer little additional benefit. The 5 minute brief intervention can usefully be structured using the 4 As Approach below.

- **Throughout:** try to ascertain and work out the stage that the patient is terms of readiness to change using the stages of change or similar model.
- **Prochaska and DiClemente model** is: ***Pre-contemplation, Contemplation, Preparation, Action and Maintenance.***
- **Actively engage** in Clinical Conversation with ideas and reflections from the patient during the consultation.
- **Positively reinforce** maintenance of beneficial behaviours- do this initially- eg: they may not smoke, or have an active lifestyle

4 As Approach	
Ask	• "Can I explore lifestyle factors that may apply to your current problem. .?" • Do general lifestyle history of the **"Big 5"** at least: **Smoking, Alcohol, Physical activity, Diet and weight, Mental health** • "Moving onto your social history, can I ask whether you smoke? … Drink alcohol?...how active are you do you think? … Have you had difficulty with weight control? … Can you tell me about your diet? … You have any mental health concerns such as low mood, stress or anxiety?" **Focus on one specific important issue- initially. This may be all there is time for**
Assess	• **Smoking history:** eg cigarettes daily x years = pack years • **Alcohol:** units/week, ? safe (≤ 14 units), ? binge drinking (6 units in a session) • **Physical activity:** ? 30 mins x 5 per week, ? SOB , hot, sweaty • **Weight/diet:** ? normal BMI… ? 5 fruit and vegetables per day? • **Mental Health:** Low mood, stress or anxiety? **Assess stage of change:** " How do you feel about your smoking…?
Advise	• **Cover harms and benefits** of lifestyle factor- use facts from MECC cards or HEALTH Passport, for example. Personalise; "How will this help you?" • **Assist whatever stage** the patient is at • **Clear, personalised, supportive, evidence-based, non-confrontational messages.** " the most importance factor…. etc • **5 Rs:** Clear basic advice on how to address the problem: relevance, risk, rewards, roadblocks, repetition **Use:** MECC Conversation cards, Quitlines, Information, Change for Life Websites etc
Arrange	**Follow-up:** ? visit, ? email, ? questionnaire, ? signpost to community support, friends, family, websites, Apps, etc

Throughout and again at the end: Opportunity to ask questions or offer further information. Person-centred consultation/interview style.

At end: Ask patient what changes they think they can make. Finish on a positive.

PS: This is far more difficult than Cranial Nerve Examination!

Clinical Examination Sequences

General Examination Sequence

Objective: specifically looking for JACCOLG: **J**aundice, **A**naemia, **C**lubbing, **C**yanosis, **O**edema, **L**ymphadenopathy, **G**oitre

- The general examination introduces you to the process of examining a patient and specific signs you may find on observation.
    - Be aware, in your OSCE examinations, you may be asked to perform a general examination with a focus on a particular system (i.e., cardiovascular system.)

Introduction

- WIRC (wash hands, introduction, reasoning, consent).
- You should offer a chaperone to your patient; however, it is not mandatory for this examination.

Positioning and exposure

- Your patient should be semi- reclined at 45˚ for this examination.
- They should be undressed to the waist to allow adequate inspection of the chest & arms. Remove socks/trousers to adequately visualise lower limbs.
    - Ensure you maintain patient dignity by covering them with a sheet and only expose relevant areas when necessary.

General inspection

- From the end of the bed comment on any relevant observations:
    - Patient: Appears well? Comfortable? In distress? Cyanosed?
    - Environment: Presence of walking aids, oxygen therapy, nebulisers? Intravenous medications?

General Examination

1. Hands & Nails: (not an exhaustive list)

Gastrointestinal (GI)	Thyroid	Respiratory	Cardiovascular
• Palmar erythema • Dupuytren's contracture • Liver flap **Nails:** • Clubbing • Leukonychia • Koilonychia	• Temperature • Sweating • Scaly or dry skin • Palmar erythema • Muscle wasting **Nails:** • Brittle (as seen in hypothyroidism) • Onycholysis • Clubbing (Grave's disease)	• Temperature • Tremor • Tar staining • Evidence of CO2 retention (Flap). **Nails:** • Peripheral cyanosis • Clubbing	• Temperature • Tar staining **Nails:** • Capillary refill time (press for 5s) • Peripheral cyanosis • Clubbing • Janeway lesions • Osler nodes • Koilonychia • Splinter haemorrhages

System specific causes for clubbing: (not an exhaustive list)

Gastrointestinal (GI)	Thyroid	Respiratory	Cardiovascular
Crohn's disease Ulcerative colitis α1-antitrypsin deficiency Biliary atresia	Grave's disease (thyrotoxicosis)	Lung carcinoma Bronchiectasis Cystic fibrosis Interstitial fibrosis	Infective endocarditis Cyanotic congenital heart disease Chronic congestive heart failure

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2. Radial pulse:

- Assess rate, rhythm, character:
  - Rate –e.g., slow (bradycardia), fast (tachycardic)
  - Rhythm – regular or irregular

---

3. Carotid/brachial pulse:

- Assess volume and character:
  - Character – subjective term (e.g., weak, thready, bounding.)

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4. Check Vital signs (see 'Vital signs examination' for full details)

Temperature	**Blood pressure**
Respiration rate	**Oxygen saturations / requirements**
Heart rate	**Level of consciousness (AVPU)**

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5. Eyes: (not an exhaustive list)

Gastrointestinal (GI)	Thyroid	Respiratory	Cardiovascular
Signs of anaemia: • pale conjunctiva Signs of jaundice: • yellow sclera	Thyroid eye disease: • lid retraction • exophthalmos (proptosis)	Signs of Horner's syndrome: • ptosis • miosis • anhidrosis Signs of anaemia: • pale conjunctiva	Signs of hypercholesterolaemia: • xanthelasmata • corneal arcus Signs of anaemia: • pale conjunctiva Jaundice of sclera

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6. **Face & Mouth:**

Gastrointestinal (GI)	Thyroid	Respiratory	Cardiovascular
• Jaundiced skin	• Waxy appearance of skin	**Odour:** • Cigarettes	• Malar flush **Tongue:**

Odour: • Hepatic foetor (liver failure) • Pear drops (DKA) • Alcohol **Tongue:** • Hydration • Macroglossia **Mouth:** • Ulcers • Dentition • Angular stomatitis		**Tongue:** • Central cyanosis • Hydration status • Dilated sublingual veins (SVC obstruction)	• Central cyanosis • Glossitis • Hydration status

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7. **Neck:**
    - Assess cervical lymph nodes
        - Submental, submandibular, tonsillar, preauricular, postauricular, anterior/posterior cervical chains, occipital, supraclavicular (Virchow's Left side).
    - Inspect neck for masses (e.g., goitre).

Inspection of Chest

- Scars (also check axillae)
- Chest abnormalities (i.e., pectus excavatum, carinatum, barrel shaped)
- Spider naevi
- Gynaecomastia
- Excoriations (scratch marks)

Assess for peripheral oedema

- Press firmly on the skin 2cm above the medial malleolus for ten seconds, then remove your hand. If the skin is pitting, this may indicate congestive heart failure.

Assessment of Feet

- Assess temperature (comparing both).
- Assess pulses (dorsalis pedis, posterior tibial)
- Observe for deformity of the ankles, toes, nails.

Additional Examinations, if clinically indicated:

- Assessment of axillary lymph nodes:
    - Anterior (pectoral), posterior (subscapular), central (apical), humeral, infraclavicular.

- Assessment of inguinal lymph nodes (if enlarged this may indicate widespread metastases).

Conclude the examination

- Cover your patient (if not already done so)
- Thank your patient
- Ask if they have any questions
- Wash hands

Additional information on palpation of radial pulse:

Brachial pulse: Place patient's elbow into your palm with your thumb placed medial to the biceps tendon.
Radial pulse: Palpate using two fingers at radial side of the wrist. Radio-radial delay: Circle the patient's wrist and ask the patient to hold their hands up with their palms facing towards them and elbows bent.

Clinical Notes

Notes on BP Measurement: Manual and Automated

Blood Pressure Measurement

Using Automated Blood Pressure Monitors

BIHS
British and Irish Hypertension Society
Committed to preventing cardiovascular disease

- The patient should be seated in a chair with a back rest and feet on the floor for at least 5 minutes and relaxed and not speaking
- Check the pulse. If any irregularity is found, use a manual device. A manual method of measurement should always be accessible
- The arm should be supported at the level of the heart, resting on a cushion, pillow or arm rest. Ensure no tight clothing constricts the arm
- Place the cuff on neatly 2cm above the brachial artery and aligning the 'artery mark'. The bladder should encircle at least 80% of the arm but not more than 100%
- Use the cuff size recommended by the manufacturer of the monitor
- Some monitors allow manual blood pressure setting selection where you choose the appropriate setting. Other monitors will automatically inflate and re-inflate to the next setting if required. Warn the patient that this might happen to avoid alarm
- Repeat 3 times and record measurement as displayed. Initially test blood pressure in both arms and use arm with highest reading for subsequent measurement

Points to note:

It is good practice to occasionally check the monitor against other validated devices, using the same patient at the same time and not connecting the two machines together.

It is important to have the monitor serviced and calibrated according to the manufacturer's guidelines

Blood Pressure Measurement

Using Manual Blood Pressure Monitors

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- The arm should be supported at the level of the heart, resting on a cushion, pillow or arm rest. Ensure no tight clothing constricts the arm
- Place the cuff on neatly 2cm above the brachial artery and aligning the 'artery mark'. The bladder should encircle at least 80% of the arm but not more than 100%
- Use the cuff size recommended by the manufacturer of the monitor
- Estimate the systolic beforehand:
  - Palpate the brachial artery
  - Inflate cuff until pulsation disappears
  - Deflate cuff
  - Estimate systolic pressure
- Then inflate to 30mmHg above the estimated systolic level to occlude the pulse
- Place the stethoscope diaphragm over the brachial artery and deflate at a rate of 2-3mm/sec until you hear regular tapping sounds
- Measure systolic (first sound) and diastolic (disappearance) to nearest 2mmHg

Points to note:

The date of next servicing should be clearly marked on the sphygmomanometer (annually). All maintenance necessitating handling of mercury should be conducted by the manufacturer or specialised service units.

Before measuring blood pressure in pregnancy or other special circumstance, ensure that the device used is clinically validated for that setting (http://bihsoc.org/)

Vital Signs Examination Sequence

Objective: specifically examining temperature, BP, pulse, respiratory rate, oxygen saturation and level of consciousness.

Introduction

- WIRC (wash hands, introduction, reasoning, consent).
- You should offer a chaperone to your patient; however, it is not mandatory for this examination.

Positioning and exposure

- Ensure that your patient is sitting comfortably, with their feet flat on the floor. Alternatively, your patient can be lying in bed. Instruct your patient to sit quietly (~5mins) to normalise their blood pressure.
    - Before proceeding with BP, place the arm horizontally on a pillow to support it.

Vital signs measurements:

1. Temperature	**2. Blood pressure**
3. Respiration rate	**4. Oxygen saturations / requirements**
5. Heart rate	**6. Level of consciousness (AVPU)**

1. Temperature

- Check that your patient does not have any ear pain or discomfort before you begin.
- Gently insert the ear probe into the ear canal so the tip sits in the external auditory meatus.
- Obtain the temperature reading by pressing the button found on the handle. Record on observation sheet.
- Dispose of the tip into an appropriate bin. Clean handset with alcohol wipes.

---

2. Blood pressure

- Ensure the patient is resting comfortably before proceeding. (See above).

- Check cuff size:
    - Ensure that the bladder encircles at least 80% of the arm circumference (it should not be more than 100%).
    - Apply the cuff 2cm above the brachial artery (use the arrow to assist you).

- Estimate systolic blood pressure by using the brachial artery (or radial artery if difficulty finding brachial):
    - Place your fingers on the pulse and inflate the cuff rapidly to 70mmHg, then in increments of 10mmHg thereafter.
    - Stop when the pulse disappears.
    - Then slowly deflate the cuff and note when the pulse returns. The number where the pulse disappears/reappears should be the same (estimated systolic BP).

Clinical relevance: Finding the estimated systolic BP, prevents clinicians from causing undue discomfort during this procedure.

- BP through auscultation:
    - Place the diaphragm of your stethoscope on the brachial artery just above the antecubital fossa.
    - Inflate the cuff to 30mmHg above your estimated systolic.
    - Slowly deflate the cuff, until a clear repetitive tapping sound appears. When you hear 2 consecutive beats this is the first Korotkoff's sound – the ***systolic BP***.
    - Continue deflating the cuff and listen for when the sounds disappear, the 5th Korotkoff sound – the ***diastolic BP.***

- Record the systolic and diastolic readings by rounding upwards to the nearest even number
    - E.g., 152/86

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3. Respiration Rate

- Measure the respiratory rate – usually over 30 seconds and multiply number of breaths by 2.
    - Try to measure whilst obtaining heart rate, (otherwise your patient may become self-conscious and lead to inaccurate measurements.)

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4. Oxygen saturations/requirements

- Place saturation probe on your patient's finger. Ensure optimal conditions to achieve accurate readings (i.e.,):
    - Hands not cold
    - Device attached properly
    - No nail varnish on nails

---

5. Pulse/Heart rate

- Measure your patient's pulse - usually over 30 seconds and multiply by 2:
    - Radial pulse – to assess rate & rhythm
        - Rate –e.g., slow (bradycardia <60), fast (tachycardia >100)
        - Rhythm – regular or irregular
    - Carotid/brachial pulse – to assess character & volume
        - Character – subjective term (e.g., weak, thready, bounding.)

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6. Level of consciousness

- Using the AVPU scale:
    - A – alert
    - V – opens eyes to voice
    - P – opens eyes to pain
    - U – unresponsive

<u>Additional bedside investigation:</u>

- Urine output
- Blood glucose

<u>Conclude the examination</u>

- Thank your patient
- Ask if they have any questions
- Wash hands

Abdominal Examination Sequence

Objective: Examination in relation to abdominal disease, specifically for jaundice, liver, spleen, kidneys, bladder, abdominal aortic aneurysm, ascites.

Introduction

- WIRC (wash hands, introduction, reasoning, consent).
- You should offer a chaperone to your patient; however, it is not mandatory for this examination.

Positioning and exposure

- Your patient should be semi-reclined at 45˚ for the first half of the examination and flat for the latter half.
- They should be undressed to the symphysis pubis to allow adequate inspection of the chest & abdomen.
    - Ensure you maintain patient dignity by covering them with a sheet and only expose relevant areas when necessary.

General inspection

- From the end of the bed comment on any relevant findings:
    - Appears well? Comfortable? In distress?
    - Jaundiced? Urinary catheters? Stomas? IV medications/fluids? Patient controlled analgesia (PCA)?

General Examination

- **Assess vital signs:**

Temperature	**Blood pressure**
Respiration rate	**Oxygen saturations / requirements**
Heart rate	**Level of consciousness (AVPU)**

- **Hands & Nails:**
    - Palmar erythema, Dupuytren's contracture, liver flap
    - Clubbing, Leukonychia, Koilonychia

- **Radial pulse:**
    - Assess rate, rhythm, character.
        - Rate –e.g., slow (bradycardia <60bpm), fast (tachycardia >100bpm)
        - Rhythm – regular or irregular
        - Character – subjective term (e.g., weak, thready, bounding.)

- **Eyes:**
    a. Signs of anaemia: pale conjunctiva
    b. Signs of jaundice: yellow sclera

- **Mouth:**
    a. **Teeth & lips**: Ulcers, dentition, gingivitis, angular stomatitis, hydration status
    b. **Tongue**: Size, surface (smooth – glossitis), colour (beefy red – B12, iron def. - pale), evidence of candidiasis (thrush).
    c. **Odour**: Hepatic foetor (liver failure), pear drops (DKA), alcohol.

- **Neck:**
    - Assess cervical lymph nodes
        - Submental, submandibular, tonsillar, preauricular, postauricular, anterior/posterior cervical chains, occipital, supraclavicular (Virchow's left side).

- **Chest**:
    a. Spider naevi
    b. Gynaecomastia (men)

At this point, make sure your patient is lying flat on the examination couch.

Inspection of the Abdomen

- Distension, swellings (i.e., hernia, ascites).
- Scars, skin changes or fistulae.
- Dilated veins (i.e., caput medusae).
- Visible peristalsis or pulsation.

Palpation of the Abdomen

General:

- Check that your patient is not in pain before you begin. If they are, start your palpation away from this area.

- Palpate the 9 areas of the abdomen **superficially** to assess for pain and guarding:
    - Use one hand to palpate and use a bouncing movement with your fingers.
    - Avoid the use of fingertips!
    - Observe the patients face for signs of pain throughout.

- Palpate the 9 areas of the abdomen **deeply**, to feel for any masses. Follow the same principles above.
    - Use two hands to palpate. Press in and rotate your fingers in small circles to aid detection.

Organ specific:

- Aim to detect organomegaly (enlarged organs) for the following:

1. **Liver**
    - Using the radial border of the right hand, start palpation in the right iliac fossa (RIF) and move vertically (upwards) towards the liver.
    - Advance hand upwards on expiration. 'Press in' during inspiration to feel for the liver edge moving down.
        - It is normal to not feel the liver edge or feel it's edge just below the costal margin.
        - Note if you detect a liver edge and the distance from the costal margin.
2. **Spleen**
    - Start palpation in the right iliac fossa (RIF) and move diagonally (upwards) towards the spleen (LUQ).
    - Ask the patient to roll to their right side, to feel if the spleen drops down against your hand.
        - Note if you detect an edge. Normally, you should not.
3. **Kidneys**
    - Place one hand beneath the flank of the patient and one hand on the top of the abdomen.
    - "Ballot the kidney" between your two hands and note any enlargement. Reach over to repeat on the other side.
        - Normally, you should not be able to feel the kidney.

Assessment for Abdominal Aortic Aneurysm (AAA)

- Complete your palpation of the abdomen by assessing for a AAA:
    - First identify the position of the strongest impulse of the AA by feeling down from the epigastrium to around 2-3cm above the umbilicus.
    - Then use the radial edge of your hands on either side to map the diameter of the vessel and feel for expansile movement (hands pushed away from the centre).
        - A diameter of >4cm would be suggestive of a AAA.

Percussion of the Abdomen

- Percuss to identify the borders of the liver, spleen & bladder.
    - **Liver** – RIF to RUQ. Once inferior border identified, percuss from nipple line down, to identify superior border.
    - **Spleen** – Umbilicus to left mid axillary line.
    - **Bladder** – Epigastrium to suprapubic area.

Test for Shifting Dullness, (necessary when ascites present):

- Place your hand vertically on the umbilicus. Aim to strike the middle finger with the others acting to stabilise the hand.
- Percuss from umbilicus to the flank. When the sound changes from resonant to dull, keep your hand in position and ask the patient to roll on to the opposite side.
- Wait 10 seconds to allow the ascites to redistribute and then percuss again. If percussion is now resonant, it confirms the presence of ascites.
- Keep your hand in place and ask the patient to lie back to supine position. Percuss again to check percussion is now dull.

Auscultation of the Abdomen

- Listen for bowel sounds to the right of the umbilicus. Listen for up to 2 minutes if necessary.
- Check for renal bruits – 1 inch superior & lateral to the umbilicus.

Assess for peripheral oedema

- Press firmly on the skin 2cm above the medial malleolus for ten seconds, then remove your hand. If the skin is pitting, this could be an indication of low protein states (i.e., hypoalbuminemia) or heart failure.

Additional Examinations, if clinically indicated:

1. Rectal examination (PR)
2. Examination of external genitalia.
3. Examination of inguinal lymph nodes.
4. Check of hernial orifices.

Bedside investigations:

- Urine dip – testing for blood, glucose, protein, ketones, nitrites, leukocytes.
- Glucose (Finger-prick)
- Stool sample

Conclude the examination

- Cover your patient (if not already done so), Thank your patient
- Ask if they have any questions
- Wash hands

Digital Rectal Examination Sequence

Objective: Rectal Examination in relation to abdominal disease, specifically for malignancy, blood loss, abscesses, fistula, constipation, neurological injury, fissures, bed ulcers

- **W**ashes hands, **I**ntroduction, **P**atient Consent, **E**xplains procedure, **Chaperone**
- **Gather equipment:** gloves, lubricating gel, wipes

Correct position and adequate exposure

- Remove sufficient lower clothing to expose buttocks, cover with towel or bed-sheet
- Positions patient flat with one pillow, roll patient over onto left side
- Patient asked to bring knees up as far possible to the chest, but comfortably
- Expose anal area for examination maintaining patient dignity.

General inspection

- Perineal area, perineum buttocks
- ? soiling, ulcers, masses, blood, melaena, fistula, abscess, anal tags, other skin changes

Rectal Examination

- Warn patient that you are about to commence, and tell you if very uncomfortable, and that you will take about 20-30 seconds.
- Introduce lubricated index finger gently into the anal canal and then further into the lower rectum
- ***Note anal tone***- patient may need to be asked to squeeze the finger
- Check rectal contents by feel: indentable mass usually faeces ? soft ? hard ?
- ***Check for Rectal/Anal mass***: ? soft, hard, firm)
- Sweep finger over the full 360° circumference of the anal canal and rectal mucosa
- ***Males***: Prostate examination ? firm or hard ? nobbly, ? tender ? median sulcus palpable
- ***Females:*** may be able to feel cervix ? firm ? hard ? nobbly ? tender
- ***Remove finger and inspect glove:*** ? blood ? melaena ? slime ? normal faeces
- ***Wipe off lubricant from patient examination area***

Additional examination if indicated : e.g. external genitalia, vaginal examination

Bedside tests: stool for faecal occult blood (rarely done), sample for C&S, occasional ova, cysts and parasites

Professionalism: Covers patient, give tissue to patient, patient given privacy to get dressed thanks patient, explanation to patient, washes hands.

Respiratory Examination Sequence

Objective: Examination in relation to respiratory disease, specific general examination, followed by system examination

Introduction

- WIRC (wash hands, introduction, reasoning, consent).
- You should offer a chaperone to your patient; however, it is not mandatory for this examination
  - For female patients, a chaperone would be advisable in view of exposure of the chest.

Positioning and exposure

- Your patient should be semi- reclined at 45˚ for this examination.
- They should be undressed to the waist to allow adequate inspection of the chest & arms.
  - Ensure you maintain patient dignity by covering them with a sheet and only expose relevant areas when necessary.

General inspection

- From the end of the bed comment on any relevant findings:
  - Appears well? Comfortable? In distress? Cyanosed?
  - Are their lips pursed? Are they short of breath (dyspnoeic)? Are they using accessory muscles, oxygen therapy, nebulisers?

General Examination

- **Assess vital signs:**

Temperature	**Blood pressure**
Respiration rate	**Oxygen saturations / requirements**
Heart rate	**Level of consciousness (AVPU)**

- **Hands & Nails:**
  - Temperature, peripheral cyanosis, clubbing
  - Tremor, tar staining, evidence of CO2 retention (flap).

- **Radial pulse:**
  - Assess rate, rhythm, character.
    - Rate –e.g., slow (bradycardia <60bpm), fast (tachycardia >100bpm)
    - Rhythm – regular or irregular
    - Character – subjective term e.g., weak, thready, bounding.

- **Respiratory rate and rhythm**
  a. Note the respiratory rate whilst assessing the radial pulse. This will prevent the patient subconsciously altering their rate.
- **Eyes:**
  a. Look for signs of Horner's syndrome: ptosis, miosis, anhidrosis
  b. Signs of anaemia: pale conjunctiva

- **Face & Mouth:**
  a. Hydration status, central cyanosis, dilated sublingual veins (indicating SVC obstruction)

- **Neck:**
  - Assess cervical lymph nodes
    - Submental, submandibular, tonsillar, preauricular, postauricular, anterior/posterior cervical chains, occipital, supraclavicular (Virchow's left side).

- Inspect JVP
    - Elicit hepatojugular reflux if clinically indicated

Inspection of Chest

- Scars (also check axillae)
- Chest abnormalities (i.e., pectus excavatum, carinatum, barrel shaped)
- Ask the patient to take a deep breath.
    - Is there symmetrical chest movement? Is there any pain?

Palpation of Chest

- Trachea – assess position within neck (?central ?deviated)
    - Place a finger either side of the trachea to check for equal space between the trachea and the sternocleidomastoid muscles.

If trachea is deviated this may indicate that something is pushing the structure away (i.e., tension pneumothorax) or it is occupying an empty space (i.e. lung collapse).

- Chest expansion – assess for symmetrical movements on inspiration/expiration
    - Using both hands, encircle the chest bringing the thumbs of both hands close to the midline.
    - Ask your patient to take a deep breath in and out and observe the movement of the hands.

- Apex beat **-** This is the lowest, most lateral position at which a cardiac impulse can be detected. There are 2 methods to find the apex beat.

    - Try to locate the impulse by starting in the 5th ICS mid clavicular line and then move inferiorly or laterally until detected.

    OR

    - Search for the impulse and once detected, note the position.
    - *If unable to feel the impulse, ask the patient to roll on to their left side while palpating.*

Note if you have a female patient, the apex beat may be beneath the breast tissue. Ask your patient to lift their breast to assist you.

- Heaves (abnormally strong impulse from cardiac contraction may lift your hand off the chest)
    - Place the heel of your hand on the left parasternal border and note excessive movement (right ventricular heave due to RV hypertrophy or dilatation).

Percussion of the Chest

- Percuss the chest comparing one side to the other.
    - Start percussion with the supraclavicular fossae, then directly over the clavicles and proceed to a further 3 positions over the anterior chest and 3 in the mid axillary line (as a minimum).

Auscultation of Chest

- Listen to both sides of the chest including the supraclavicular fossae and axillae in the same areas percussed (except over the clavicle).
- Assess vocal resonance by listening in the same areas and asking your patient to say “123”.
    - Note: 111 or 99 can also be used.

Now repeat inspection, palpation, percussion and auscultation on the <u>posterior</u> aspect of the chest.
Note: Ask your patient to cross their arms over their chest when percussing/auscultating posteriorly. This will stop the scapula obstructing access to the lung tissue.

<u>Assess for peripheral oedema</u>

- Press firmly on the skin 2cm above the medial malleolus for ten seconds, then remove your hand. If the skin is pitting, this may indicate congestive heart failure.

- If ankle oedema is present, check for sacral oedema by pressing firmly on the skin above the sacrum.

<u>Additional Examinations, if clinically indicated:</u>

- Assessment of axillary lymph nodes:
  - Anterior (pectoral), posterior (subscapular), central (apical), humeral, infraclavicular (note: this will be covered in the breast examination).

- Assessment of inguinal lymph nodes (if present this would indicate widespread metastases).

<u>Bedside investigations:</u>

- Peak flow
- Oxygen saturations

<u>Conclude the examination</u>

- Cover your patient (if not already done so)
- Thank your patient
- Ask if they have any questions
- Wash hands

Clinical Notes

Cardiovascular Examination Sequence

Objective: Examination in relation to cardiovascular disease, specific general examination, followed by system examination

Introduction

- WIRC (wash hands, introduction, reasoning, consent).
- You should offer a chaperone to your patient; however, it is not mandatory for this examination
  - For female patients, a chaperone would be advisable in view of exposure of the chest.

Positioning and exposure

- Your patient should be semi- reclined at 45˚ for this examination.
- They should be undressed to the waist to allow adequate inspection of the chest & arms.
  - Ensure you maintain patient dignity by covering them with a sheet and only expose relevant areas when necessary.

General inspection

- From the end of the bed comment on any relevant findings:
  - Appears well? Comfortable? In distress?
  - Nutritional status, oxygen therapy, GTN spray
  - Congenital abnormalities? (features of Down's syndrome or Marfan's)

General Examination

- **Assess vital signs:**

Temperature	**Blood pressure**
Respiration rate	**Oxygen saturations / requirements**
Heart rate	**Level of consciousness (AVPU)**

- **Hands & Nails:**
  - Temperature, capillary refill time, peripheral cyanosis, clubbing
  - Janeway lesions, Osler nodes, koilonychia, splinter haemorrhages, tar staining

- **Radial pulse:**
  - First assess rate and rhythm
  - Then assess for radio-radial delay (see diagram below)
  - Finally assess for collapsing pulse

- **BP:**
  - Perform manual sphygmomanometry by auscultation:
    - Be aware that if unable to palpate the brachial, you may use the radial pulse to estimate systolic BP.

- **Eyes:**
  a. Look for signs of high cholesterol: xanthelasmata, corneal arcus
  b. Signs of anaemia: pale conjunctiva
  c. Jaundice of sclera/skin which may indicate haemolysis due to a mechanical valve.

- **Face & Mouth:**
  a. Malar flush, glossitis, hydration status, central cyanosis

- **Neck:**
  - Inspect JVP
  - Elicit hepatojugular reflux
  - Assess carotid pulse – for character and volume.

Inspection of Chest

- Scars (also check axillae)
- Presence of pacemaker
- Any visible pulsations

Palpation of Chest

- Apex beat **-** This is the lowest, most lateral position at which a cardiac impulse can be detected. There are 2 methods to find the apex beat.

    - Try to locate the impulse by starting in the 5th ICS mid clavicular line and then move inferiorly or laterally until detected.

    OR

    - Search for the impulse and once detected, note the position.
    - *If unable to feel the impulse, ask the patient to roll on to their left side while palpating.*

Note if you have a female patient, the apex beat may be beneath the breast tissue. Ask your patient to lift their breast to assist you.

- Heaves (abnormally strong impulse from cardiac contraction may lift your hand off the chest)
    - Place the heel of your hand on the left parasternal border and note excessive movement (right ventricular heave due to RV hypertrophy or dilatation).
    - Place the heel of your hand over the apex and note excessive movement (left ventricular heave due to LV hypertrophy).

- Thrills – palpable vibration of murmurs
    - Use the flat of your hand to feel for thrills over the apex first, then both the left and right parasternal areas simultaneously.
    - To localise the thrills further use your fingertips or ulnar aspect of your hand.

Auscultation of Chest

- You are listening for 2 heart sounds: S1 ("Lub") & S2 ("Dub").
    - S1 represents the closure of the mitral and tricuspid valves.
    - S2 represents the closure of the aortic and pulmonary valves.

- The presence of additional sounds to these are known as murmurs.

- Using the diaphragm of your stethoscope, listen for heart sounds and presence of murmurs in the following areas.

Mitral 5th Intercostal space (ICS), mid-clavicular line	**Tricuspid** 4th Intercostal space, left parasternal border
Aortic 2nd ICS, right parasternal border	**Pulmonary** 2nd ICS, left parasternal border

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Special Manoeuvres and Radiation of Murmurs:

Mitral stenosis		**Aortic regurgitation**	
Manoeuvre (to accentuate murmur) Roll patient to their left, place BELL of stethoscope at apex (5th ICS mid-clavicular line).	**Sound** Mid diastolic murmur	**Manoeuvre (to accentuate murmur)** Listen over the 3rd/4th ICS left parasternal border. Lean the patient forward, ask them to breathe out and hold their breath.	**Sound** Early diastolic murmur
Mitral regurgitation		**Aortic stenosis**	
Radiation of murmur Listen at the left mid-axillary line.	**Sound** Pansystolic murmur	**Radiation of murmur** Listen at the carotid arteries on both sides. Ask the patient to hold their breath if sound is interfering with auscultation.	**Sound** Ejection systolic murmur

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Assess for pulmonary oedema

- Check for signs of pulmonary oedema by percussing and auscultating the base of the lungs.
    - First, ask your patient to cross their arms over their chest (to move scapula out of the way).
    - Auscultate starting at the bases then move up to the midback, listening for crackles.
        - If coarse crackles are detected, this may indicate congestive heart failure.

Assess for peripheral oedema and Achilles xanthomas

- Press firmly on the skin 2cm above the medial malleolus for ten seconds, then remove your hand. If the skin is pitting, this may indicate congestive heart failure.

- If ankle oedema is present, check for sacral oedema by pressing firmly on the skin above the sacrum.

- Inspect for Achilles tendon xanthomas (lipid deposits) by lifting each ankle in turn.

Additional examinations, if clinically indicated:

1. Examination of peripheral pulses:
    - Dorsalis pedis, posterior tibialis, popliteal (if pedal pulses impalpable), femoral pulse
    - Radio-femoral delay – to check for coarctation of the aorta.
2. Abdominal examination:
    - Assess for hepatomegaly (present in cardiac failure)
    - Presence of AAA?

Bedside examinations:

- ECG

Conclude the examination

- Cover your patient (if not already done so)

- Thank your patient
- Ask if they have any questions
- Wash hands

Additional information on palpation of radial pulse:

Brachial pulse: Place patient's elbow into your palm with your thumb placed medial to the biceps tendon.
Radial pulse: Palpate using two fingers at radial side of the wrist.
Radio-radial delay: Circle the patient's wrist and ask the patient to hold their hands up with their palms facing towards them and elbows bent.

Neurological Examination Sequence: Cranial Nerves

Objective: To examine cranial nerves I-XII and have an introduction to ophthalmoscopy

Introduction

- WIRC (wash hands, introduction, reasoning, consent)
- You should offer a chaperone to your patient. However, it is not mandatory for this examination.

Positioning and exposure

- Your patient should be sitting for the duration of this examination.
- This can be on a bed or chair depending on availability.

General inspection

Sitting parallel to your patient (about an arm's length away), assess them for:

- Facial asymmetry
- Evidence of Bell's palsy (facial drooping with forehead involvement)
- Horner's syndrome (triad of ptosis, miosis and anhidrosis)
- Squint
- Parkinsonism ('mask-like' facies)

Cranial Nerve 1 – Olfactory Nerve

1. Ask your patient if there has been any change to their sense of smell.
2. Then ask your patient to close their eyes and occlude one nostril. Instruct them to take a deep breath in and out with their mouth firmly closed.
    - This is to check that the nostril isn't blocked.
3. Next, you will ask them to identify a substance solely by smell.
    - Scent tubes will be available containing either orange peel or coffee grounds.
4. Repeat with the other nostril.

Cranial Nerve 2 – Optic Nerve

1. Check your patient's visual acuity using a Snellen Chart
    - Ask your patient to stand 6 metres from the chart.
    - Ask them to cover one eye (glasses to remain in situ) and read from the top line down towards the bottom to a point where they can no longer distinguish the letters.
    - Switch over and repeat with the other eye.
        - If the patient cannot read to line 6 (i.e., 6/6 vision), place a pinhole directly in front of their eye to correct any refractive errors.
            - The lens usually acts to focus the light rays onto a small part of the retina. A pinhole assists the lens by focusing the light that enters the eye. Thus, the light that reaches the lens is already focused, the lens simply needs to transmit the light onto the retina.
        - If your patient cannot see the top line at 6 metres, reduce the distance to 3 metres and subsequently, 1 metre.
        - If they cannot see at 1 metre, check:
            - Can they count fingers?
            - Can they see hand movements?
            - Can they distinguish light from dark?
    - Record their results as "Right eye: visual acuity 6 (metres)/line number completed"
        - i.e., 6/60 = at 6 metres, your patient can only see letters they should be able to read 60 metres away,

Clinical significance:

- ***Normal vision is said to be 6/6.***
- ***In the UK, a visual acuity of 6/10 or better is required for a driving licence.***

2. Assess visual fields by direct confrontation:
    - Ensure you are sitting an arm's length from your patient.
    - Ask your patient to cover one eye and fix their gaze on your opposite eye.
    - Cover your own eye (the one adjacent to the patient).
    - Test each quadrant separately – superotemporal, superonasal, inferotemporal, inferonasal (10, 2, 8 and 4 o'clock respectively).
        - Wiggle your fingertip from the extreme periphery towards the centre in a diagonal direction.
    - Add horizontal plane by checking movement from 3 and 9 o'clock
        - Stop when your patient sees your finger move.
        - Compare this to your own visual field.

3. Check pupillary light reflexes
    - Ask your patient to fix their gaze on a distant object (e.g., adjacent wall).
    - Shine the pentorch into one eye twice, - the first time observing for a direct reflex (constriction of the pupil on the same eye) and the second "consensual reflex" (constriction of the pupil in the other eye).

4. Check for the accommodation reflex
    - Ask your patient to fix their gaze on a distant object (e.g., adjacent wall).
    - Quickly bring your index finger into their line of vision and ask your patient to focus on your fingertip.
        - You should see their pupils constrict and converge.

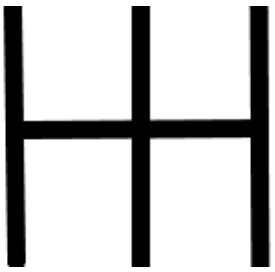
5. Perform direct ophthalmoscopy
    - At this level, you are not expected to be able to competently visualise a retina.
    - You are simply expected to be familiar with the equipment and know how to elicit the red-light reflex and the correct approach to visualise the retina.
    - To examine the patient's right eye, hold the ophthalmoscope in your right hand and approach the patient with the ophthalmoscope at your right eye. Switch over to your left hand and left eye to examine the patient's left eye.

Additional Examinations (if clinically indicated):

- Check colour vision using Ishihara plates.
- Check for red desaturation (to exclude optic neuritis).
- Identify your patient's blind spot.

Cranial Nerve 3, 4 & 6: Occulomotor, Trochlear and Abducens

1. Inspect for evidence of squint and ptosis
2. Assessment for diplopia (double vision)
    - If your patient is wearing glasses, ask them to remove them for this test (glasses can cause diplopia at the edge of refractive index).
    - Sitting 1m from your patient, trace a 'modified H' (or '6 gearstick') into the space between you (see image).
    - Ask your patient to follow your finger while keeping their head still and inform you of any double vision they experience.



- For the lateral movement of the eyes, avoid moving to the extremes as this will cause physiological nystagmus to occur. Once the whites of the lateral sclera disappear, stop.

**** Revision tip: use LR6, SO4 CN3 as a mnemonic to remember the ocular muscles.***

Cranial Nerve 5: Trigeminal Nerve

1. Assess facial sensation using light touch (cotton wool) & superficial pain (pin prick):
   - Ask your patient to close their eyes, then test the following areas:
     - Ophthalmic division – lateral forehead
     - Maxillary division – high cheekbones
     - Mandibular division – jaw line

**** Always demonstrate light touch and pin prick on the patient's sternum before proceeding to the face. This ensures the patient knows what to expect.***

2. Assess the muscles of mastication:
   - Ask your patient to clench their teeth twice. Place your hands on their temples and angle of the jaw in turn.
     - Note the contraction of the temporalis and masseters.

3. Jaw jerk
   - Ask your patient to hang their mouth loose and slightly open.
   - Place your index finger in the space between the lower lip and chin.
   - Tap gently over your finger using a tendon hammer.
   - Positive reflex (jaw clamps shut) in bilateral UMN lesions above the pons.

Extra:

- Corneal reflex – rarely assessed in clinical practice. Be aware of how to perform this but you do not need to demonstrate it.
  - Lightly touch the lateral edge of the cornea with a wisp of damp cotton wool and look for direct and consensual blinking.

Cranial Nerve 7 – Facial Nerve

1. Inspect your patient for any facial asymmetry.

2. Ask if there's been any change in sense of taste.
   - Facial nerve is responsible for taste perception for the anterior 2/3 of the tongue (via chorda tympani)

3. Assess the muscles of the face:
   - Frontalis
     - Ask your patient to raise their eyebrows.
   - Obicularis oculi
     - Ask your patient to close their eyes tightly and resist you opening them.
   - Obicularis oris/buccinators
     - Ask your patient to puff out their cheeks with their mouth closed.
   - Obicularis oris
     - Ask your patient to bare their teeth.
     -

Cranial Nerve 8 – Vestibulocochlear Nerve

1. Assess hearing:
   - Ask your patient to occlude one ear and whisper a number into the other.

- Ask the patient to repeat this number back to you. Repeat with the other ear.

2. Weber's lateralising test:
   - Place a vibrating 512 or 256Hz tuning fork on the middle of their forehead.
   - Ask the patient to lateralise the sound. Does it sound louder in one ear or the same in both?
   - If louder in one ear, it may indicate a conductive hearing loss on that side or a sensorineural hearing loss on the contralateral side.

3. Rinne's test
   - Using the same tuning fork as above, place the base of the fork on the mastoid process (assessing bone conduction) – the patient should be able to hear a sound from the fork.
   - When the patient can no longer hear any sound, remove the base of the fork and place the pronged end parallel to the ear canal (assessing air conduction). The patient should be able to hear the ongoing sound from the fork.

**** In healthy patients, air conduction should be better than bone conduction.***

<u>Cranial Nerve 9 & 10 – Glossopharyngeal & Vagus</u>

1. Assess the movement of the soft palate
   - Ask your patient to say 'Aaahh' and look at the position of the soft palate and uvula.
   - In vagus nerve palsy, the uvula will deviate <u>away</u> from the side of the lesion.

2. Check phonation
   - Ask your patient to repeat the term 'baby hippopotamus'
     - Assesses lip movements, labial sounds
   - Ask your patient to repeat the term 'yellow lorry'
     - Assesses tongue movements, lingual sounds

Extras

3. Gag reflex – this is rarely performed in clinical practice. Be aware of how to perform this but you do not need to demonstrate it.
   - Test of pharyngeal sensation, using wooden stick
   - Alternatively, can use water swallow test (in fully conscious patients)

****Glossopharyngeal nerve supplies taste to the posterior 1/3 of the tongue and afferent limb of the gag reflex.***
****Vagus nerve is efferent in the gag reflex and responsible for the motor supply to the pharynx, soft palate and larynx.***

<u>Cranial Nerve 11 – Accessory Nerve</u>

1. Assess the trapezius muscles
   - Place your hands on your patient's shoulders and ask them to shrug against resistance.

2. Assess the sternocleidomastoid (SCM) muscles
   - Place your hand on the patient's cheek and ask them to turn their head against your hand.
   - Resist their movement to assess SCM power. Repeat on the other side.

<u>Cranial Nerve 12 – Hypoglossal Nerve</u>

1. Assess your patient's tongue
   - Ask your patient to open their mouth to visualise their tongue in situ.

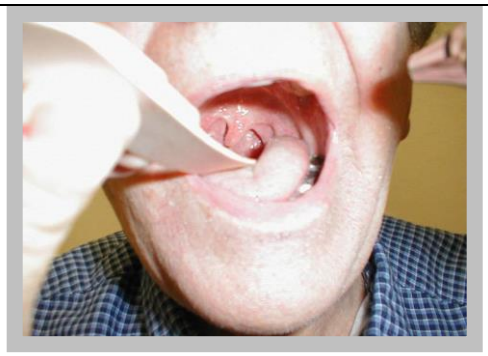
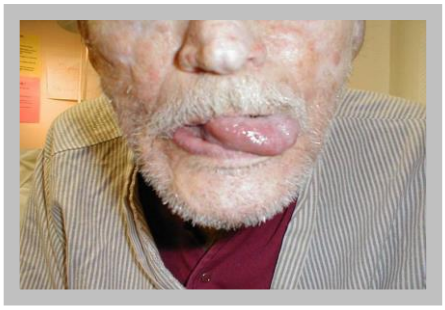
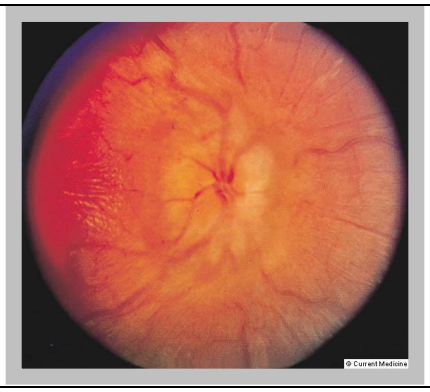
- Look for muscle wasting or evidence of fasciculations.
- Ask your patient to protrude their tongue and look to see if the tongue deviates to one side (this would be abnormal). If there is a hypoglossal nerve lesion, the tongue will deviate towards the affected side.

2. Assess the power of the tongue
   - Place your hand on your patient's cheek and ask them to push against the inside of their cheek while you resist this movement externally ("Can you push your tongue into your cheek?"). Repeat on both sides.

Conclude your examination:

- Thank your patient for their participation.
- Answer any questions.
- Wash your hands.

Images:

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Left Facial Nerve Lesion:
Left facial muscle weakness and loss of tone</td><td>Left Vagus Palsy:
On phonation, uvula deviates to the right</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Left Hypoglossal Nerve lesion:
Tongue deviates to the left</td><td>Papilloedema:
Blurred optic disc margin - raised ICP</td></tr>
</table>

Neurological Examination Sequence: Upper Limb

Objective: Examine the limbs in terms of inspection followed by tone, power, co-ordination, sensation and reflexes

Introduction

- WIRC (wash hands, introduction, reasoning, consent)
- You should offer a chaperone to your patient. However, it is not mandatory for this examination.

Positioning and exposure

- Your patient should be sitting for this examination, either upright in a chair or semi-reclined on an examination couch.
- Your patient should remove any clothing obscuring their arms and shoulders.

General inspection

Observe your patient from a distance. Comment on the presence of any:

- Muscle wasting
- Fasciculations or tremors
- Abnormal movements
- Scars
- Arthritic changes

Tone

Assess the tone in the wrist, elbow and shoulder in turn.

- Take your patient's hand in yours (handshake approach), support their forearm and ask them to give you the weight of their arm. Passively flex, extend, pronate and supinate the wrist. Repeat while changing the speed of movement i.e., fast and slow movements, as tone may change with velocity.
- Move your arm up to support the humerus and passively flex & extend the elbow, then passively circumduct the shoulder. Vary the speed of movement as before.

Comment on the tone, which can be divided into:

1. **Normal** – no stiffness. The limb moves freely with no resistance.

2. **Decreased** "Hypotonia". The limb feels 'floppy'. Indicative of a LMN lesion.

3. **Increased** "Hypertonia". Indicative of UMN lesion.
    - This can be divided into spasticity or rigidity:
        i. ***Spasticity*** – velocity-dependant resistance to passive movement, which can be detected with rapid movements as a 'catch' at the beginning and end of movement.
            - e.g., 'Clasp knife' – a type of spasticity where there is an initial increased resistance, followed by a sudden decrease. This resembles the opening and closing of a pocketknife with spring action.

        ii. ***Rigidity*** – is sustained resistance throughout the movement. Most easily detected when the limb is moved slowly.
            - e.g., 'Cog wheel' – associated with Parkinson's Disease. When rigidity is associated with a tremor, there may be regular interruptions to the movement, giving it a 'jerky' feel.
            - e.g., 'Lead pipe' – also associated with Parkinson's disease. In this case, the rigidity is constant throughout movement.

Power

The instructions you provide to your patient are key to facilitate your assessment.
Test active movements against resistance. Perform each in turn, comparing one side to the other.
Use equivalent force e.g., if resisting thumb movement, use your thumb and not your whole hand.

1. Shoulder abduction (**C5**)
2. Shoulder adduction (**C6, C7, C8**)

3. Elbow flexion (**C5, C6**)
4. Elbow extension (**C7, C8**)

5. Wrist flexion ('palmar flexion' – **C6, C7**)
6. Wrist extension ('dorsiflexion' – **C6, C7**)

7. Finger flexion (**C8**)
8. Finger extension (**C7**) – *"stop me bending your fingers"*
9. Finger abduction ('dorsal interossei', **T1, Ulnar N**.) – *"spread your fingers and stop me pushing them together"*
10. Thumb abduction ('abductor pollicus brevis', **T1, Median N.**) – *"point your thumb to the ceiling and stop me pushing it down"*
11. Thumb to little finger ('opponens pollicus', **Median N.**) – *"put your thumb and little finger together and stop me pushing them apart"*
12. Grip using index and middle finger ('palmar interossei and opponens pollicus', (**C7, C8**- **Median and some ulnar component**) *"hold this paper between your fingers and stop me from pulling it out"*

During each movement, keep note of any abnormalities and comment on the power of the movement using the MRC scale below:

0= nil
1= flicker/fasciculations
2 = movement if gravity eliminated (i.e., if arms resting on table can move across table but not lift)
3 = able to move against gravity but not resistance
4 = able to move against gravity and resistance but weaker than normal
5 = normal

Co-ordination

1. Finger to nose test:
   - Place your index finger an arm's length away from your patient. Ask them to touch their nose with their finger, then touch your finger. Repeat this action 3 -4 times. Then ask your patient to increase the speed of their movements. Then move your finger position in the same plane several times to ascertain if they can adjust to meet your finger.
   - Repeat this action on both sides.

2. Alternating hand movements:
   - Assessing for 'dysdiadochokinesia'.
   - Ask your patient to place one hand on the other, then turn the top hand over and back again, repeating the action 3-4 times and as fast as they can.
   - Perform on both sides.

Sensation

- Assess sensation using light touch, pin prick, temperature and vibration sense.
- Demonstrate each sensation on the patient's sternum first, so your patient knows what to expect.
- Ask your patient to close their eyes, while you assess each dermatome in turn.

- Compare one side to the other throughout (i.e., C4 right limb, C4 left limb).

Assess sensation of dermatomes using:

- Light touch - using cotton wool
- Pin prick – using a neurotip
- Temperature – using a tuning fork for 'cold' and plastic end of tendon hammer for 'warm'
- Vibration – using a 128 (ideally) or 256Hz tuning fork.
    - Start distally on the tip of the middle finger
    - When vibration is noted, allow it to persist for a few seconds then ask the patient when it stops (manually stop the vibration of the fork yourself)
    - If no vibration noted, move proximally: DIP → PIP→ MCP →radial styloid wrist →elbow→clavicle→ sternum. Keep moving proximally until vibration noted.

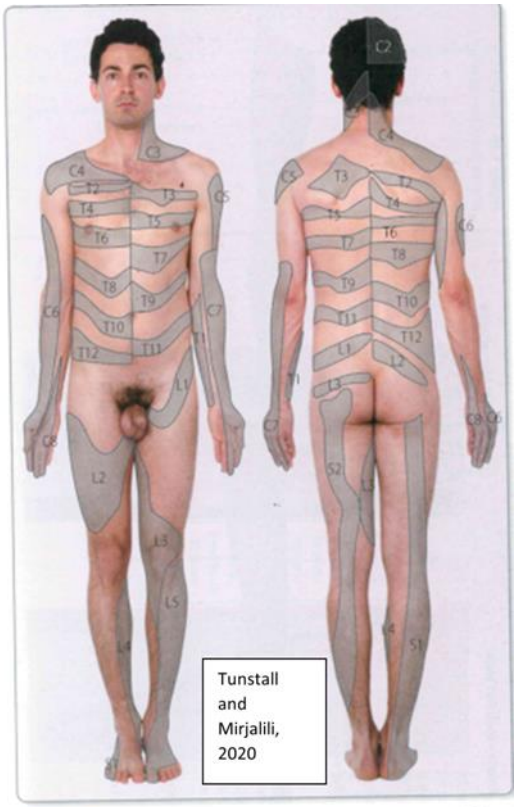


Figure 1.38 An evidence-based dermatome map. Based on Lee MWL, McPhee RW, Stringer MD. An evidence-based approach to human dermatomes. Clin Anat 2008; 21:363–373.

Dermatomes of the upper limb (see image)**:**

- C4 – shoulder tip
- C5 – deltoid
- C6 – thumb
- C7 – middle finger, palmar surface
- C8 – little finger, palmar surface
- T1 – medial aspect, elbow

Please note:

Dermatomes - there are areas of major variability and overlap. It can be difficult to say whether a certain area/body part 'belongs' to one dermatome, and there may be slight variation between different sources. Please refer to the image seen here.

Proprioception

1. Start your assessment at the distal joint of the middle finger.
2. Stabilise the joint, holding the sides with the index finger and thumb to direct movement.
3. Demonstrate the movements, "up, middle, down" first with the patient's eyes open.
4. Ask the patient to close their eyes and identify the position of joint movement.

Reflexes

1. Biceps (**C5, C6**)
2. Supinator (C6, **C7, C8**)
3. Triceps (C6, **C7, C8**)
4. Finger jerk (**C8**)

Ensure the upper limb is completely relaxed. If needed, use reinforcement, by asking the patient to make a fist with the other hand or clench their teeth, just before striking the tendon hammer.

Note: you may be shown different ways of eliciting reflexes by tutors, choose the method that suits you.

Use the following scale to describe the response:

0 absent
+ reduced response
++ normal
+++ increased response (brisk)
++++ increased with clonus (a rhythmic series of contractions evoked by a sudden stretch in muscles)

Additional Examinations (if clinically indicated):

- **Assessment of function**: undoing buttons, writing, holding a cup, reach out for object.
- **Carpal Tunnel Syndrome:** Median nerve compression causes muscle wasting (abductor pollicis brevis, opponens pollicis and thenar eminence), sensation loss in the lateral half of the palm and lateral 3.5 digits (palmar surface). The following are special tests to provoke paraesthesia (pins and needles) in the median nerve distribution.
    - **Tinel's sign**: tapping over the flexor retinaculum, lightly then firm.
    - **Phalens's sign**: 60-second wrist flexion.

Conclude your examination:

- Cover your patient.
- Thank your patient for their participation.
- Answer any questions.
- Wash your hands.

Neurological Examination Sequence: Lower Limb

Objective: Examine the limbs in terms of inspection followed by tone, power, co-ordination, sensation and reflexes

Introduction

- WIRC (wash hands, introduction, reasoning, consent)
- You should offer a chaperone to your patient. However, it is not mandatory for this examination.

Positioning and exposure

- Your patient will be standing for the initial part of the examination and lying supine for the latter.
- Your patient should undress to expose the lower limbs.

General inspection

Ask your patient to stand in the anatomical position and comment on the presence of:

- Muscle wasting
- Fasciculations or tremors
- Scars
- Charcot Marie Tooth disease
- Arthritic changes

Gait

Ask your patient to walk in a straight line and assess gait:

1. Instruct your patient to take at least 5 paces.
    - This is necessary as anxiety may cause a patient to subconsciously alter their gait.
    - Look for any abnormalities:
        - Antalgic gait– painful, "limping".
        - Trendelenburg gait – due to poor abductor function on the contralateral side.
        - High stepping gait – due to common peroneal nerve palsies.

2. Ask the patient to walk in a straight-line putting heel to toe
    - To assess for ataxia

3. Check for foot drop by asking for the patient to walk on their heels
    - If there were damage to the common peroneal nerve, your patient would be unable to dorsiflex their foot.

Romberg's Test

- Ask the patient to stand with their feet slightly apart (~2cm) and stretch their arms out in front of them.
- Observe the patient standing with their eyes open, then with their eyes closed for 30 seconds.
    - If sensory ataxia is present the patient will be more unsteady on their feet when their eyes are closed.

**** Patient safety must be ensured. Make sure the environment is safe and if the patient looks unsteady on their feet be ready to support them.***

Tone

1. Ask your patient to relax and roll the thigh from side to side on the examination couch.
    - Observe the movement of the foot.

2. Place your hand under the lower thigh and lift the knee briskly from the couch.
    - Observe the movement of the foot.

3. Comment on the tone of the limb: is it normal (slight delay between movement of the knee and foot), increased (hypertonia – whole limb moves stiffly, knee and foot move as one) or decreased (hypotonia – floppy limb)?

Power – against resistance

Test active movements against resistance. The instructions you provide your patient are key to facilitate proper assessment.

1. Hip flexion (**L1, L2**)
2. Hip extension (**L5, S1**)
3. Hip abduction (**L4, L5, S1**)
4. Hip adduction (**L2, L3**)

5. Knee flexion (**S1**)
6. Knee extension (L2, **L3, L4**)

7. Ankle dorsiflexion (**L4**)
8. Ankle plantarflexion (**S1, S2**)
9. Ankle inversion (**L4, L5**)
10. Ankle eversion (**L5, S1**)

11. Great toe plantar flexion (**S1, S2**)
12. Great toe extension (**L5**)

During each movement, keep note of any abnormalities and comment on the power of the movement using the MRC scale below:

0= nil
1= flicker/fasciculations
2 = movement if gravity eliminated
3 = able to move against gravity but not resistance
4 = able to move against gravity and resistance but weaker than normal
5 = normal

Co-ordination

1. Heel to shin test
    - Ask your patient to take the heel of one foot and place it on the knee of their other leg.
    - Ask your patient to run the heel down the shin, up into the air and then return to their knee in a circular motion. Repeat this action 2 or 3 times.
    - Repeat the actions above with the other leg.

2. Foot tapping movements
    - Place your hands beneath your patient's feet and ask them to 'tap' their feet alternately and repeatedly against your hands.

Sensation

- Demonstrate each sensation on the patient's sternum first, so your patient knows what to expect.
- Then ask your patient to close their eyes, whilst you assess each dermatome in turn.
- Compare one side to the other throughout (i.e., L1 right limb, L1 left limb).

Assess sensation of dermatomes using:

- Light touch - using cotton wool
- Pin prick – using a neurotip
- Temperature – using a tuning fork for 'cold' and plastic end of tendon hammer for 'warm'

- Vibration – using a 128 (ideally) or 256Hz tuning fork.
    - Start distally on the tip of the great toe
    - When vibration is noted, allow it to persist for a few seconds then ask the patient when it stops (manually stop the vibration of the fork yourself)
    - If no vibration noted, move proximally: medial malleolus → patella→ sternum → medial forehead. Keep moving proximally until vibration noted.

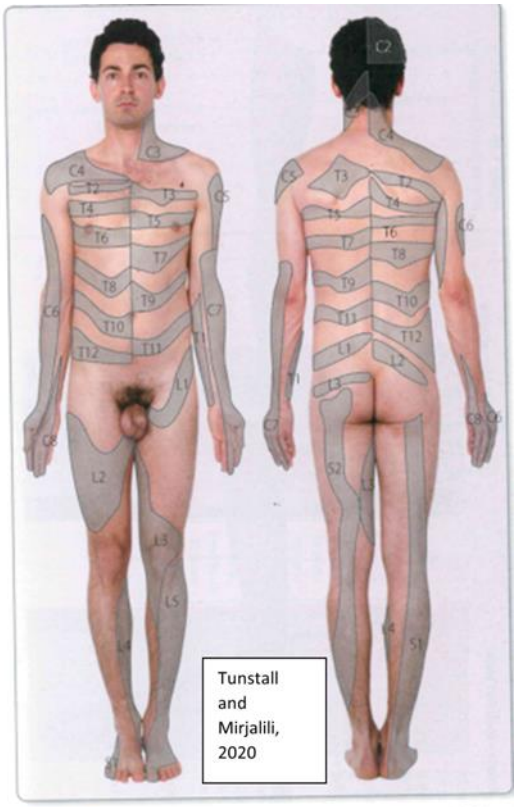


Figure 1.38 An evidence-based dermatome map. Based on Lee MWL, McPhee RW, Stringer MD. An evidence-based approach to human dermatomes. Clin Anat 2008; 21:363–373.

Dermatomes of lower limb (see image):

- L1 – Groin
- L2 – Anterior thigh
- L3 – Medial knee
- L4 – Medial calf
- L5 – Lateral calf
- S1 – Lateral foot

Please note:

Dermatomes - There are areas of major variability and overlap. It can be difficult to say whether a certain area/body part 'belongs' to one dermatome, and there may be slight variation between different sources. Please refer to the image seen here.

Proprioception

1. Start your assessment at the distal joint of the great toe.
2. Stabilise the joint, holding the sides of the toe to direct movement.
3. Demonstrate the movements, "up, middle, down" first with the patient's eyes open.
4. Ask the patient to close their eyes and identify the position of joint movement.

Reflexes

1. Patella reflex (L2, **L3, L4**)
2. Ankle reflex (Calcaneal) (**S1, S2**)
3. Plantar reflex (Babinski) (**S1, S2**)

Ensure the lower limb is completely relaxed. If needed, use reinforcement, by asking the patient to interlock their fingers and pull apart (Jendrassik manoeuvre), just before striking the tendon hammer.

Note: you may be shown different ways of eliciting reflexes by tutors, choose the method that suits you.

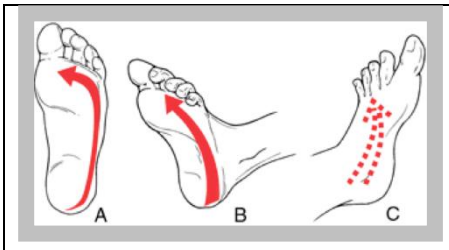
Use the following scale to describe the response:

0 absent
+ reduced response
++ normal
+++ increased response (brisk)
++++ increased with clonus (a rhythmic series of contractions evoked by a sudden stretch in muscles)

Conclude your examination:

- Cover your patient.
- Thank your patient for their participation.
- Answer any questions.
- Wash your hands.

Images:

		
Babinski Sign: Plantar extension can indicate a UMN Lesion.	**Reflexes:** Note the tendon hammer is held at the very end, correct swinging action is essential to deliver short sharp knocks (2 or 3 usually)	**Co-ordination:** Checking for dysdiadochokinesia **Be bare below elbows!**

Clinical Notes

Eye General Examination and Retinal Examination using a Direct Ophthalmoscope

Explanation and consent

- Washes hands with alcohol gel or soap and water.
- Expains procedure to patient and obtains verbal consent.

Correct position

- Comfortably seated, patient's eye level appropriate.

General inspection

- Inspects patient commenting on any relevant findings: checks for thyroid disorders, facial asymmetry, pupil size, xanthelesma, corneal arcus.
- Spectacles- magnifying lens long-sight or demagnifying lens with short-sight.

Assessment of vision

- Uses Snellen chart and records patient best vision.
- Express as Right 6/x- Left 6/y, explains meaning.
- States how to do gross testing of VA.
- Assesses each eye individually using a patch or card to cover the non-test eye.
- Use pinhole to attempt to correct for any refraction problem.
- Visual fields by confrontational field testing.

External examination

- Inspects Lids, Conjunctiva, Cornea, Anterior chamber and name one clinical condition for each site.

Assessment of ocular function

- **Checks Ocular position:** Looks for proptosis, **ex**ophthalmos, and **en**ophthalmos.
- **Checks Ocular movement:** lid lag, ocular palsy, nystagmus, diplopia.
- **Checks Ocular alignment:** assesses symmetry of corneal reflection. Uses the Cover test squints.
- **Examines Pupils: ?**inequality of size and shape. Assesses direct and consensual reflexes, and accommodation-convergence reflex. Looks for relative afferent pupillary defect.

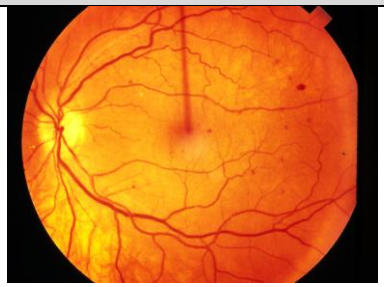
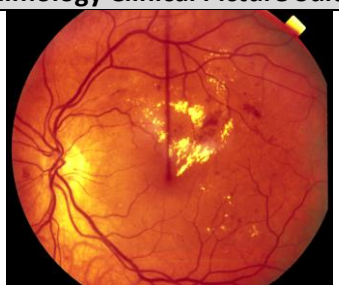
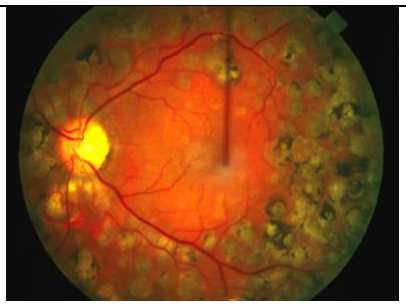
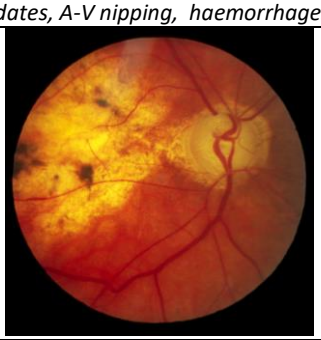
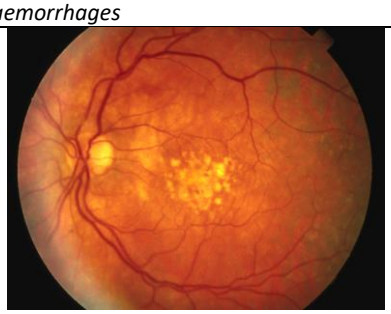
Direct Ophthalmoscopy

- Considers using short-acting mydriatic if detailed examination necessary (e.g. tropicamide drops).
- Asks patient to remove spectacles (contact lenses can be left in situ) and look straight ahead. Examine the right eye with your right eye and vice versa.
- Looks for **red reflex** and states why (?cataracts).
- Adjusts Ophthalmoscope lens if needs and correct position relative to patient.
- Examine the optic disc for colour, margins, cup/disc ratio. (papilloedema, disc cupping).
- Systematically examine four quadrants of retina, periphery and specifically the macula.
- States looking for: haemorrhages, exudates, cotton wool spots, pigmentation changes, scarring, drusen.
- Examine vessels for: emboli, proliferative retinopathy, IRMA, silver/copper wiring, A-V nipping.

Additional examination

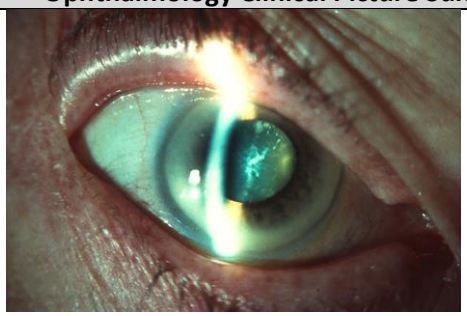
- Considers Intraocular pressure testing ?headache or red eye.
- Considers formal assessment of visual acuity (Snellen chart), visual fields (perimetry) and colour vision (Ishihara charts).

Retinal Examination Images

Ophthalmology Clinical Picture Suite 1		
		
Background Diabetic Retinopathy (BDR): If the visual acuity is 6/12 or worse this is maculopathy. Otherwise BDR Lesions: *Microaneurysm, dot haemorrhage*	**Diabetic Maculopathy:** Hard exudates within the macular area. Lesions*: hard exudates, circinate hard exudates, MA, haemorrhages*	**Pre-proliferative DR:** Lesions: *intra-retinal micro-vascular abnormalities (IRMA), cotton wool spots, haemorrhages*
		
Proliferative DR Lesions*: new vessels on the disc, haemorrhages*	**Proliferative DR with Hypertensive Changes.** Lesions*: new vessels on the disc, hard exudates, A-V nipping, haemorrhages*	**Advanced Proliferative DR:** Lesions*: new vessels on the disc and elsewhere, pre-retinal fibrosis, exudates haemorrhages*
		
Pan Retinal Laser Photocoagulation Macular spared, NVD have regressed and no longer seen. Lesions*: laser scars, retinal pigment epithelium and fibrosis.*	**Age-related macular degeneration (ARMD) and glaucoma** Lesions*: dry macular degeneration, pale optic disc with glaucomatous cupping*	**Macular Drusen** Precursor to ARMD in many cases. Can just be normal variant *Lesions: drusen*
		
Retinal Detachment Due to trauma in this case can be DR. Lesions. *Margin between normal and detached retina*	**Optic Atrophy** Pale disc. Incidental findings: blurring of the disc margin due to myelinated nerve fibres, choroidal vessels	**Papilloedema:** The optic disc is swollen and raised. Lesions. *Papilloedema, congested retinal veins, blurred disc margin.*

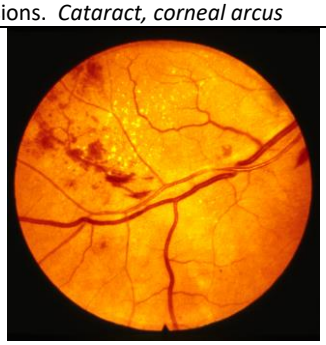
Ophthalmology Clinical Picture Suite II

Cortical Cataract and Corneal arcus:
The red reflex is abnormal due to cataract most apparent "4-10pm" Lesions. *Cataract, corneal arcus*

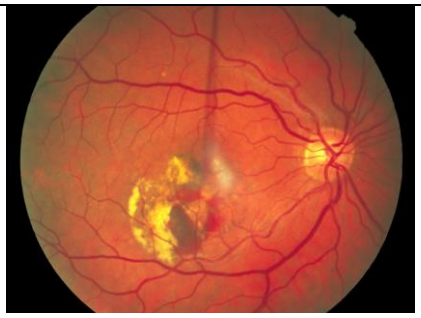


Central cataract formation seen with slit lamp
This can be due to steroid use or more commonly due to aging alone.

Thrombotic Glaucoma due to Diabetes:
The pupil is irregular, corneal suffused, abnormal mesh of vessels in the iris can be seen with difficulty.

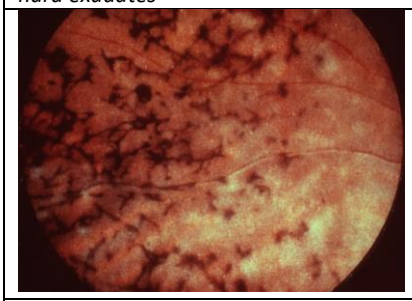


Branch Retinal Vein Occlusion:
At point X there is marked A-V nipping with thrombotic occlusion of the distal retinal vein. Lesions: *haemorrhages, hard exudates*



Macular degeneration with haemorrhage:
This will be associated with marked oedema Lesions: *retinal scarring, haemorrhages*

Myelinated Nerve Fibres:
This is a normal variant, enlargement of the blind spot is rarely clinically apparent. Lesion: *myelinated nerve fibres*

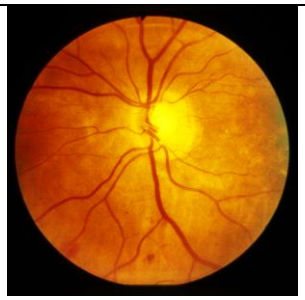


Retinitis Pigmentosa
Results in poor rod function with night blindness and tunnel vision. Lesions: *speculated peripheral lesions*

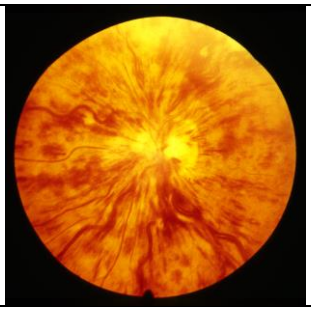
Severe Retinal Haemorrhage in Hyperviscosity Syndrome
Often due to myeloma and bleeding diatheses. Lesions: *haemorrhages*

Tigroid retinal with myopic crescent
The tiger skin appearance is a normal but striking variant. In myopia the elongated eyeball stretches the globe Lesions: *tigroid retina, myopic crescent*

Central Retinal Artery Occlusion
This results in a pale retina and optic disc, the choroidal artery supply is still present and is seen as the "cherry red spot" (also seen in lipid storage disorders)



Cholesterol Embolus
Also known as a Hollenhorst Plaque, causes retinal TIA (amaurosis fugax).
Embolus can originate from carotid artery, aortic valve or arch.



Central Retinal Vein Occusion
Retinal artery is patients and allows blood into the retinal but there is no outflow. Lesions: papilloedema, haemorrhages,

Thyroid Status Examination Sequence

Introduction

- WIRC (wash hands, introduction, reasoning, consent).
- You should offer a chaperone to your patient; however, it is not mandatory for this examination.

Positioning and exposure

- Your patient should be sat upright for this examination.
- Expose the neck and upper chest for adequate visualisation.

General inspection

- From the end of the bed comment on any relevant findings:
  - Tremor, extremes of weight (obesity/cachexia), waxy skin (myxoedema), dry hair, balding, loss of lateral eyebrows, voice, mood (low/anxious).

General Examination

- **Hands & Nails:**
  - **Hands**: Temperature, sweating, scaly or dry skin, palmar erythema, muscle wasting of thenar eminence (evidence of carpal tunnel).
  - **Nails:** Brittle (as seen in hypothyroidism), onycholysis, clubbing (Grave's disease)

- **Assess for tremor**
  a. Place a sheet of paper on top of outstretched hands and observe.

- **Radial pulse:**
  - Assess rate, rhythm, character.
    - **Rate** –e.g., slow (bradycardia <60bpm), fast (tachycardia >100bpm)
    - **Rhythm** – regular or irregular (atrial fibrillation is associated with hyperthyroidism)
    - **Character** – subjective term e.g., "weak", "thready", ("bounding" may be indicative of hyperthyroidism).

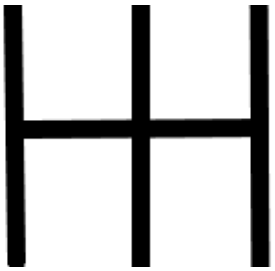
- **Eyes:**
  a. Inspect for lid retraction (sclera visible above and below the iris)
  b. Inspect for exophthalmos (proptosis)**:**
     i. Look at the eyes from the front, side and from above the patient.
     ii. You are noting if the eyes are protruding.

  c. Examine for lid lag:
     i. With your finger extended (~1m from the patient) move it vertically in a downwards direction (at a speed of 1m/sec).
     ii. Ask your patient to follow your finger and note any lag (or delay) between lid and eye movement (sclera will be visible above the iris).
     iii. Repeat if required.

  d. Check for evidence of diplopia (double vision):
     i. If your patient is wearing glasses, ask them to remove them for this test (glasses can cause diplopia at the edge of refractive index).

ii. Crudely check vision in both eyes, by asking the patient to cover one eye and identify how many fingers are being presented to them. Repeat with the other eye.

iii. Sitting 1m from your patient, trace a 'modified H' (or '6 gearstick') into the space between you (see image).



iv. Ask your patient to follow your finger while keeping their head still and inform you of any double vision they experience.

v. For the lateral movement of the eyes, avoid moving to the extremes as this will cause physiological nystagmus to occur. Once the whites of the lateral sclera disappear, stop.

Inspection of Thyroid

- Check for evidence of swelling (goitre)
- Scars or skin changes
- Ask your patient to swallow some water:
  - Observe for movement of any mass during swallowing – a thyroid mass would move upwards.
- Ask your patient to stick their tongue out:
  - Again, observe for any masses.
  - A mass that moves up on tongue protrusion may indicate a thyroglossal cyst.

Palpation of Thyroid

- Check that your patient is not in any pain before proceeding.
- Palpate the thyroid gland whilst standing behind your patient.
  - Assess size, shape, consistency, masses, thrills, tracheal rings (may be impalpable if a large mass is present)
- Ask your patient to swallow some water again while palpating for masses that move with swallowing.
- Measure any masses/nodules found.
- Assess cervical lymph nodes
  - Submental, submandibular, tonsillar, preauricular, postauricular, anterior/posterior cervical chains, occipital, supraclavicular (Virchow's left side).

Percussion of Thyroid

- Percuss over the upper sternum to check for presence of a retrosternal goitre.
- Start at the sternal notch and percuss downwards (approximately four finger breadths). Dullness on percussion suggests a retrosternal goitre.

Auscultation of Thyroid

- Using the diaphragm of your stethoscope, listen on either side of the thyroid for a bruit (this can be venous or arterial in origin).
- Listen for any evidence of stridor during your assessment.
    - This may indicate tracheal compression.

Assessment of lower limbs

- Inspect the shins for signs of pretibial myxoedema.

- Test ankle reflexes with patient lying on bed or kneeling on chair (if mobile patient).

Additional Examinations, if clinically indicated:

1. Blood pressure

2. Assess for signs of proximal myopathy
    - Upper limb – test power of shoulder abduction (also examined in UL peripheral nerve exam)
    - Lower limb – ask patient to cross their arms in front of them and stand up from a seated position (feet must be flat on the floor).

3. Signs of carpal tunnel syndrome:
    - Tinel's test – tap firmly on the flexor retinaculum to provoke symptoms.
    - Phalen's test – reverse prayer sign, press the dorsum of both hands firmly against each other, with elbows kept low to provoke similar symptoms.

Conclude the examination

- Thank your patient
- Ask if they have any questions
- Wash hands

Clinical Notes

Breast Examination Sequence

Objective: Assessment of breast for abnormal pathology

Introduction

- WIRC (wash hands, introduction, reasoning, consent)
- Ensure a chaperone is present for this examination

Positioning and exposure

- Your patient should be undressed to the waist for the initial inspection/palpation.
- Ensure you maintain patient dignity by covering them with a sheet as you examine their axillary lymph nodes.

General inspection

- Ask your patient to sit on the side of the examination couch, facing towards you. Carry out the initial inspection at a slight distance while lowering your eyes to nipple height.

- With the patient's hands resting on their thighs, inspect the breasts for:
  - Scars, swelling and asymmetry
  - Comment on any skin changes (dimpling, peau d'orange, Paget's…)
  - Nipple changes (nipple inversion, discharge…)

- Ask the patient to put their hands behind their head (or raise them above their head) to gently elevate the breasts. This will expose the whole breast tissue and exacerbate skin dimpling.
  - This action may be performed with both hands simultaneously or one at a time, if the patient finds this difficult.
  - In this position, repeat general inspection.

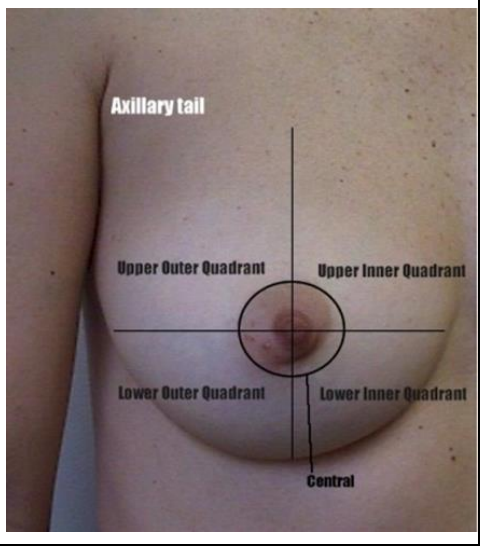
- Finally, conclude your general examination by asking your patient to put their hands on their hips and push down towards the couch. This will contract the pectoral muscles and will assist with the identification of tethered masses.
  - Repeat inspection.

Palpation

- Ask the patient to lie flat on the examination couch with their head positioned on a pillow for comfort
  - If the patient is unable to lie flat (i.e., breathing difficulties) you are permitted to raise the head of the bed until the patient is comfortable. Avoid raising the head to more than 45 degrees if possible.

- Identify which side is the affected (symptomatic) side and begin palpation on the other breast. This will ensure that you have something to compare to.

- Ask the patient to place their hand behind their head during the examination of that side.



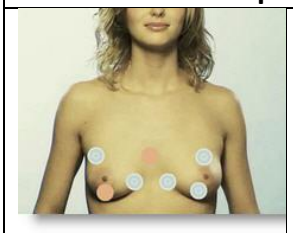
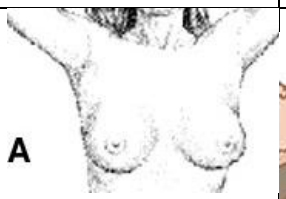
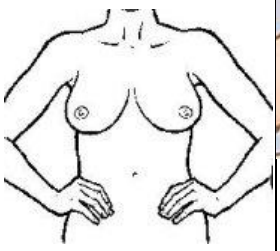
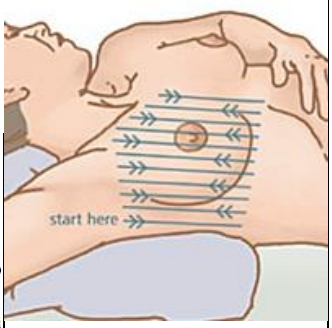
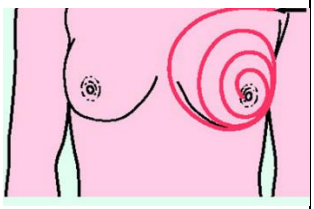
Unaffected side:

- Systematically palpate the whole breast, including the tail of Spence (axillary tail), areola and nipple.

- Use a systematic method of your choice e.g. concentric circles or lawnmower technique.
- When assessing the nipple, check for discharge:
  - To do this, gently compress the areola on either side with the finger and thumb. You can elicit this yourself or invite the patient to do so.
  - Never compress the nipple itself!

Affected side:

- Repeat palpation technique on the affected side, ensuring the whole breast is assessed again including the Tail of Spence, areola and nipple.
    - Ask the patient to switch the hand beneath their head before palpation begins.

Inspection		Palpation	
	 		
1	2	3	4
1**: Adequate exposure:** maintain comfort and dignity 2: **Inspection**: a) Ask the patient to lift her hands above her head or place them behind her head. b) Ask the patient to push her hands into her hips to contract the pectoral muscles.		3. **Palpation:** with the patient lying down flat (or at 45 degrees), and hand behind the head. Palpate all 4 quadrants and axillary tail in a stepwise fashion using <u>lawnmower technique.</u> **OR** 1. **Palpation:** with the patient lying down, palpate all 4 quadrants and axillary tail in a stepwise fashion using the <u>concentric circles technique.</u>	

If a lump is detected, note it's position, size, shape, surface, consistency, mobility, tenderness, temperature, any skin changes; and it's relation to overlying skin and underlying muscle.
Cancers are typically hard, with an irregular shape and surface and may be tethered or fixed to skin or muscle.

Examination of Axillary Lymph Nodes

Once palpation is complete, sit the patient up with their legs overhanging the side of the examination couch.

- Minimise exposure of the breasts by using a sheet to cover or redressing appropriately.

- Support the patient's arm adequately and palpate the axillary borders for lymph nodes:
    - Anterior (pectoral)
    - Posterior (subscapularis)
    - Central/apical (press up towards clavicle)
    - Humeral (underside of arm)
    - Infraclavicular
    - Supraclavicular (whilst standing behind patient).
        - Here, examine first in relaxed position, then with shoulders up and forward)

Conclude the examination

- Cover your patient (if not already done so)

- Thank your patient
- Ask if they have any questions
- Wash hands

Tips for the breast exam:

1. There are multiple techniques for palpation:
    - Lawnmower, concentric circles, clockface…
    - Please choose the method that best suits you. You will not be penalised for choosing one over the other. However, you will be penalised for not palpating all of the breast tissue.

2. When palpating the breast tissue, make sure that you use the pads of the fingers and not the tips. Using the tips of your fingers will cause discomfort.

3. Ensure that you palpate the tail of Spence. Breast tissue extends to this area and you may miss a mass if it is forgotten. You can palpate this region either at the beginning or the end of your palpation sequence but don't forget it!

4. You are trying to detect a mass either in the breast tissue or lymph nodes. The best way to do this is to push the lump against a solid structure. Always ensure that you are palpating the breast tissue against the chest wall – this may require you to use your other hand to keep the breast in place (or you may have to ask your patient to do this.)

5. If you find a lump, note it's location, and come back to it at the end of your palpation sequence. Only once you have assessed the breast, areola and nipple on that side, should you return to describe the lump.

Endocrinology History and Examination Checklist

History	Examination
Thyroid	
Hypothyroidism *(Hashimoto's, other causes)*	
Goitre, change in voice (hoarse) Fatigue, mental slowing, depression Cold intolerance Weight gain and constipation Carpal tunnel symptoms Dry / thinning hair and dry skin Peripheral oedema Menorrhagia	Goitre Periorbital and peripheral oedema Heart failure, Bradycardia Carpal tunnel syndrome Hoarse voice, Glossomegally Slow relaxing reflexes Dry / thinning hair and dry skin Cognitive impairment
Hyperthyroidism *(Grave's disease, other causes)*	
Goitre Fatigue, sleep disturbance Heat intolerance, increased sweating Palpitations, nervousness, anxiety, Weight loss, loose motions, diarrhoea, Greasy hair and skin, Dyspnoea, ankle swelling Oligomenorrhoea	Goitre Exophthalmos, Periorbital oedema, lid lag Diplopia, conjunctival oedema Heart failure, Tachycardia (esp. AF), HTN Tremors, sweaty hands, palmar erythema Brisk reflexes Weight loss, Greasy hair and skin
Adrenal Cortex	
Adrenal Insufficiency (Addison's Disease)	
Weakness, fatigue, sleepiness Dizziness on standing Pallor Weight loss or gain Abdominal pain	Pigmentation of skin especially palmar creases, scars, lips, buccal mucosa: vitiligo possible Postural hypotension Hypoglycaemia Weight loss
Glucocorticoid Excess (Cushing's Syndrome)	
See pituitary gland	
Aldosterone Excess (Conn's Syndrome)	
Often no specific symptoms	*Hypertension*
Headache	Tachycardia HF/pulmonary oedema/LVH Hypertensive retinopathy Proteinuria/haematuria
Androgen Excess : females esp PCOS	
(adrenal and ovary)	
Hirsutism, irregular periods, failure to conceive, weight gain, voice change	Hirsutism: lips, face, peri-areolar area, abdomen, acanthosis nigricans, skin tags Facial acne with greasy skin Increased shoulder girdle muscle bulk, obesity Clitoromegaly
Adrenal Medulla	
Catecholamine Excess (phaeochromocytoma)	
Headaches Sweating Palpitations Anxiety	Hypertension (see above under Conn's) Tachycardia Restlessness Neuromas, Café au lait skin lesions
Anterior Pituitary	
Prolactin Excess (hyperprolactinaemia)	

Female	
Menstrual irregularity Infertility Galactorrhoea Headaches Low mood, tiredness	Galactorrhoea
	Visual field defect (bitemporal hemianopia), diplopia, corneal reflex reduced (all rarer than in male)
Male	
Galactorrhoea, gynaecomastia Erectile dysfunction Headaches Low mood, tiredness	Galactorrhoea, gynaecomastia
	Visual field defect (bitemporal hemianopia), diplopia, corneal reflex reduced
Glucocorticoid Excess (Cushing's Syndrome)	
(pituitary and adrenal)	
Weight gain Depression Weakness Infection Easy bruising	Central obesity with proximal muscle wasting
	"Moon face" with plethora
	Abdominal striae
	Acne, hirsutism
Gonadotrophin Deficiency (LH, FSH)	
Female	
Amenorrhoea, oligomenorrhoea Infertility, lack of libido Dyspareunia Breast atrophy Loss of secondary sexual hair	Breast atrophy
	Reduced or absent secondary sexual characteristics
Male	
Low libido/erectile dysfunction Infertility Testicular atrophy/softness Loss of secondary sexual hair	Testicular atrophy
	Reduced or absent secondary sexual characteristics
Growth Hormone Excess (Acromegaly)	
Enlargement of tissues: larger hands, rings not fitting, clothes size change Sweating Headaches Arthritis Visual field loss	Coarse facies with soft tissue enlargement: nose, lips, tongue (macroglossia), goitre
	Supra-orbital ridge enlargement
	Prognathism with teeth separation
	Hypertension
	Visual field defect (bitemporal hemianopia), diplopia, corneal reflex reduced
	Kyphosis, osteoarthritis
	Tall if pre-pubertal condition
Growth Hormone Deficiency	
Low mood, tiredness Social isolation Weight gain Reduced stamina and strength	Truncal obesity with increased waist hip ratio
	Reduction in muscle strength
	Low mood on full mental state examination
TSH Deficiency	
As for hypothyroidism TSH excess is extremely rare	
ACTH Deficiency	
As for adrenocortical insufficiency, *No skin pigmentation*	
Posterior Pituitary	

ADH Deficiency (diabetes insipidus)	
Polyuria, polydipsia Nocturia Copious light coloured urine	Carries water bottle
Diabetes Mellitus	
Polyuria Polydipsia Weight loss Tiredness Blurred vision Thrush Delayed wound healing History due to complications Precipitating factors: steroids, stress, infection, pancreatitis	*Foot:* dorsalis pedis, posterior tibial, neuropathy testing (10g monofilament), odour, ulcers, infection, maceration of skin, deformity, heat, cold
	Retina: background, maculopathy, pre-proliferative, proliferative, advanced, laser
	Hands: diabetes cheiroarthropathy, carpal tunnel
	General: obesity, injection sites esp. for hypertrophy and bruising, acanthosis nigricans, necrobiosis lipoidica diabetocorum
Parathyroid disorders	
Hyperparathyroid (Hypercalcaemia) Polyuria, Polydipsia, Tiredness Abdo pains, Low mood	Rarely enlarged palpable glands
Hypoparathyroid (Hypocalcaemia) Tingling around mouth, twitching, hand spasm	**Chvostek's sign;** is the twitching of the facial muscles in response to tapping over the facial nerve at the zygomatic arch **Trousseau's sign:** is carpal spasm caused by inflating a BP cuff to above systolic BP for 3 minutes.
Hyperlipidaemia	
Family history of atherosclerotic disease Atherosclerotic disease symptoms: angina, TIA, stroke, PVD	Corneal arcus, xanthelesmata
	Tendon xanthomata (Achilles, extensor tendons of hands)
	Eruptive xanthomata (especially buttocks and palms)
	Atherosclerotic disease: eg carotid stenosis, aortic sclerosis
	Lipaemia retinalis
Chronic Fatigue Syndrome ("ME")	
Fatigue, especially post exertion	Look tired/exhausted
Sleep disturbance	Dark glasses (photophobia)
Pain: myalgia, fibromyalgia	Tender lymph nodes
Headaches, neuropathic pain	Postural hypotension
General poorer cognition	Low temperature
Photophobia, phonophobia	Reduced reflexes, atonic pupils, reduced reflexes
Dizziness, abnormal thermoregulation, sweating	
Recurrent infections	

CFS Patient safety tips

Some memorable missed diagnoses include:

- **Hypothyroidism:** misdiagnosed as cardiac failure, depression or stroke
- **Addison's disease** or **diabetic ketoacidosis:** acute abdomen
- **Ovarian malignancy**: hirsutism and weight gain,
- **Hypopituitarism**: depression
- **Diabetes mellitus:** recurrent infections, incontinence and poor vision
- **Phaeochromocytoma:** anxiety with mild hypertension
- **Chronic fatigue/ME:** myasthenia gravis, Addison's disease, SLE, Ehlers-Danlos Hypermobile type, cerebral tumours, vitamin D or B12 deficiencies (common)

Clinical Notes

Thyroid and Neck Examination Sequence

Explanation and consent "WIPE"

- **W**ashes hands, **I**ntroduction, **P**atient Consent, **E**xplains procedure

Correct position and adequate exposure

- Ask patient to uncover and remove clothes such that neck is exposed and at least the top half of the sternum. Seated position is usually most suitable.

Inspection

- Inspect the neck for swellings: size, shape, asymmetry?, surface changes ? scars
- Ask the patient to stick out their tongue to see if any mass moves (thyroglossal cyst)
- Ask the patient to swallow (have a glass of water handy).

Palpation

- Use the right index and middle finger to feel below the thyroid cartilage where the normal isthmus of the gland overlies the trachea. Then palpate the two lateral lobes of the thyroid gland.
- With the next slightly flexed ask the patient to hold some water in the mouth and swallow as you palpate. If mass ? soft ? firm ? hard, nodular or diffusely enlarged ? moves on swallowing,
- Check for lymphadenopathy: supraclavicular, cervical, sub-mandibular, sub-mental, post-auricular, sub-occiptal
- Use note the examination can be quite uncomfortable for the patient: warn and re-assure.

Percussion

- Check for possible retro-sternal extension of the thyroid gland by percussion over the sternum

Auscultation

- Check for thyroid bruit and exclude stridor due to tracheal compression

Essential Extras:

- Reflexes: ?slow-relaxing ankle or biceps reflex. ? a brief, brisk contraction followed by a more prolonged relaxation phase.

- Examine for pre-tibial myxoedema. Consider examination for cardiac failure.

  Consider examination for Carpal Tunnel Syndrome in hypothyroidism with inspection, muscle power in hands (abductor pollicis brevis, flexor pollicis brevis, opponens pollicis), Tinel's sign, Phalen's sign, sensation radial side of palm (3 and a half digits).

Professionalism: Maintains dignity of patient, communicates sensitively with patient, thanks patient, washes hands, writes appropriate record

Musculoskeletal System History and Examination

(From Arthritis Research UK Clinical Assessment of the Musculoskeletal System: A guide for Medical students and Healthcare Professionals 2011, updated 2021)

Overview

Musculoskeletal disorders are the commonest cause of disability in the UK. Each year 15 per cent of patients on a general practitioner's list will consult their doctor with a locomotor problem, and such conditions form 20–25 per cent of a GP's workload. About 30 per cent of those with any physical disability, and 60 per cent of those with a severe disability, have a musculoskeletal disorder as the primary cause of their problems.

Clinical skills – i.e. competent history taking and examination – are the key to making an accurate diagnosis and assessment of a patient complaining of joint problems. This booklet aims to outline the methods you might use. It is not intended to replace clinical teaching and experience but to be used as an aid to learning.

'Arthritis' is a term that is frequently used to describe any joint disorder (and not infrequently any musculoskeletal problem). It could be argued that the term 'arthritis' should be used to describe inflammatory disorders of the joint whilst 'arthropathy' should be used to describe non-inflammatory disorders. Other musculoskeletal problems should similarly be described according to their anatomical site (e.g. muscle or tendon) and whether they are of inflammatory or non-inflammatory aetiology. However, the term 'arthritis' is in such widespread general use to describe any disorder of the joint that, for the purpose of this guide, it will be used in that sense.

There are over 200 different types of 'arthritis' (both inflammatory and non-inflammatory) and, in general, it is not necessary for a practising clinician to know about all of these. A more realistic approach is to adopt a classification scheme, and to learn how to place patients' problems within this classification, using information gained through a full history and examination (as described in detail in the sections which follow).

The five key questions which need to be answered are:

- Does the problem arise from the joint, tendon or muscle?
- Is the condition acute or chronic?
- Is the condition inflammatory or non-inflammatory?
- What is the pattern of affected areas/joints?
- What is the impact of the condition on the patient's life?

The answers to these questions should enable you to produce a succinct summary of the patient's condition. An example of a patient summary produced using this method might be:

> ***'This patient has a chronic symmetrical inflammatory polyarthritis, mainly affecting the small joints of the hands and feet, which is causing pain, difficulty with dressing and hygiene, and is limiting her mobility.'***

This would result in the patient being placed as indicated on the classification tree (see Figure 1).

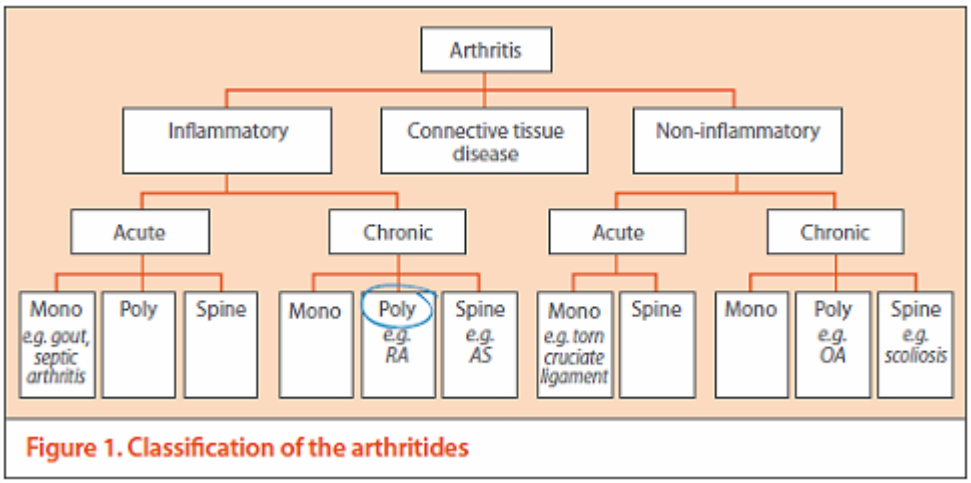


Figure 1. Classification of the arthritides

ABBREVIATIONS: CMC(J) carpometacarpal (joint); CT computerized tomography; DEXA dual-energy x-ray absorptiometry; DIP(J) distal interphalangeal (joint); ESR erythrocyte sedimentation rate; GALS gait, arms, legs and spine; MCP(J) metacarpophalangeal (joint); MRI magnetic resonance imaging; MTP(J) metatarsophalangeal (joint); NSAID non-steroidal anti-inflammatory drug; OA osteoarthritis; PIP(J) proximal interphalangeal (joint); RA rheumatoid arthritis; REMS regional examination of the musculoskeletal system

The musculoskeletal history

History taking is one of the most important skills for any doctor or practitioner to acquire and this can only be achieved through regular practice. This handbook is primarily concerned with problems arising from the joints – that is from the articular and periarticular structures. (These structures are shown in Figure 2, while Figure 3 represents diagrammatically the changes which occur in the two main types of arthritis.) However, it is clearly important to identify those cases where pain may appear to arise from the joint but is in fact referred pain – for example, where the patient describes pain in the left shoulder, which might in fact be referred pain from the diaphragm, the neck, or perhaps ischaemic cardiac pain. In cases where examination reveals no abnormalities in the joint, other clues will be obtained by taking a full history.

Assuming the patient's problems do arise from the joint(s), the aims of the history will be to differentiate between inflammatory and degenerative/mechanical problems, to identify patterns that may help with the diagnosis, and to assess the impact of the problem upon the patient. There are four important areas which need to be covered when taking a musculoskeletal history:

- the current symptoms
- the evolution of the problem (is it acute or chronic?)
- the involvement of other systems
- the impact of the disease on the person's life.

The assessment of these four areas is discussed in the sections which follow.

Current symptoms

The main symptoms of musculoskeletal conditions are pain, stiffness and joint swelling affecting one or more joints. Assessment of the patient's current symptoms may allow differentiation to be made between inflammatory and non-inflammatory conditions. Inflammatory joint conditions are frequently associated with prolonged early morning stiffness that eases with activity, whilst non-inflammatory

conditions are associated with pain more than stiffness, and the symptoms are usually exacerbated by activity.

Pain

As with all pain, it is important to record the site, character, radiation, and aggravating and relieving factors. Patients may localize their pain accurately to the affected joint, or they may feel it radiating from the joint or even into an adjacent joint. In the shoulder, for example, pain from the acromioclavicular joint is usually felt in that joint, whereas pain from the glenohumeral joint or rotator cuff is usually felt in the upper arm. Pain from the knee may be felt in the knee, but can sometimes be felt in the hip or the ankle. Pain due to irritation of a nerve will be felt in the distribution of the nerve – as in sciatica, for example. The pain may localize to a structure near rather than in the joint – for example, the pain from tennis elbow will usually be felt on the outside of the elbow joint.

The character of the pain is sometimes helpful. Pain due to pressure on nerves often has a combination of numbness and tingling associated with it. However, the character of musculoskeletal pain can be very variable and is not always helpful in making a diagnosis.

Pain of a non-inflammatory origin is more directly related to use: the more you do the worse it gets. Pain caused by inflammation is often present at rest as well as on use, and tends to vary from day to day and from week to week in an unpredictable fashion. It flares up and then it settles down. Severe bone pain is often unremitting and persists through the night, disturbing the patient's sleep.

Stiffness

In general, inflammatory arthritis is associated with prolonged morning stiffness which is generalized and may last for several hours. The duration of the morning stiffness is a rough guide to the activity of the inflammation. Commonly, patients with inflammatory disease will also describe worse stiffness in the evening as part of a diurnal variation. With inflammatory diseases such as rheumatoid arthritis (RA), where joint destruction occurs over a prolonged period, the inflammatory component may eventually become less active and the patient may then only complain of brief stiffness in the morning. In contrast, osteoarthritis (OA) causes localized stiffness in the affected joints which is short-lasting (less than 30 minutes) but recurs after periods of inactivity. It is sometimes difficult for patients to distinguish between pain and stiffness, so your questions will need to be specific. It may help to remind the patient that stiffness means difficulty in moving the joint.

Joint swelling

A history of joint swelling, especially if it is intermittent, is normally a good indication of an inflammatory disease process – but there are exceptions. Nodal osteoarthritis, for example, causes bony, hard and non-tender swelling in the proximal interphalangeal (PIP) and distal interphalangeal (DIP) joints of the fingers. Swelling of the knee is also less suggestive of inflammatory disease as it can also occur with trauma and in OA. Ankle swelling is a common complaint, but this is more commonly due to oedema than to swelling of the joint.

Pattern of joint involvement

The pattern of joint involvement is very helpful in defining the type of arthritis, as different patterns are associated with different diseases. Common patterns of joint involvement include:

Monoarticular – only one joint affected

Pauciarticular (or **oligoarticular**) – less than four joints affected

Polyarticular – a number of joints affected

Axial – the spine is predominantly affected

As well as the number of joints affected, it is useful to consider whether the large or small joints are involved, and whether the pattern is symmetrical or asymmetrical. Rheumatoid arthritis, for example, is a polyarthritis (it affects lots of joints) which tends to be symmetrical (if it affects one joint it will affect the same joint on the other side), and if it affects one of a group of joints it will often affect them all, for example, the MCP joints. Note, however, that this describes established disease and early RA can affect any pattern of joints. Spondyloarthritides, such as psoriatic arthritis, are more likely to be asymmetrical and may be associated with inflammatory symptoms, such as early morning stiffness, involving the spine. Osteoarthritis tends to affect weight-bearing joints and the parts of the spine that move most (lumbar and cervical).

Clinical Diagrams: Arthritis

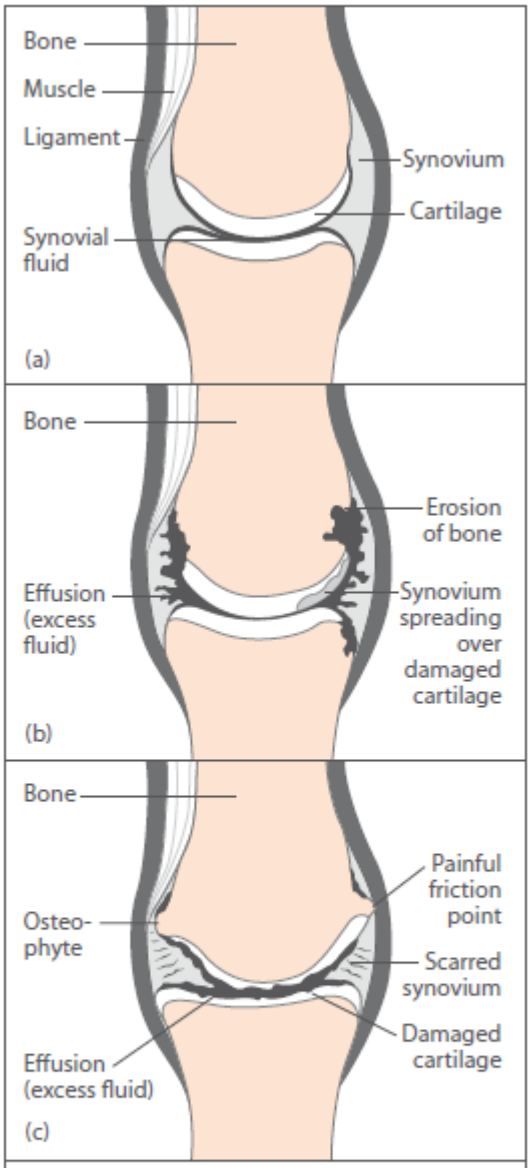


Figure 3. Diagrammatic representation of the two main types of arthritis: (a) a normal joint; (b) a joint affected by rheumatoid arthritis; (c) a joint affected by osteoarthritis

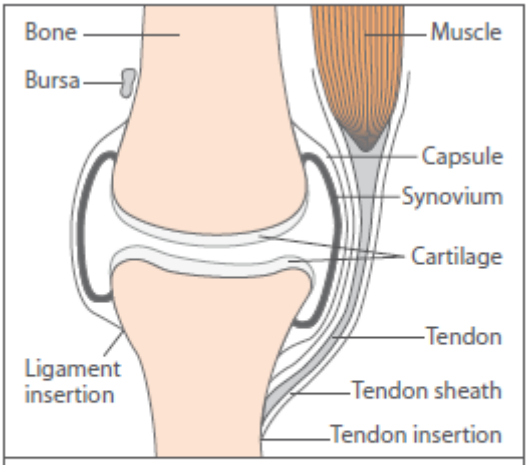


Figure 2. Cross-sectional diagram of a synovial joint and its periarticular structures

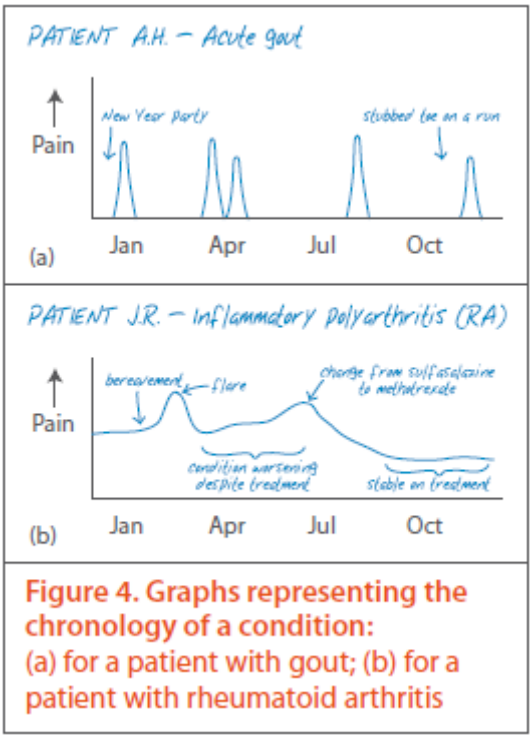


Figure 4. Graphs representing the chronology of a condition: (a) for a patient with gout; (b) for a patient with rheumatoid arthritis

Evolution of the problem: is it acute or chronic?

You will need to listen to the patient's history to find out:

- When did the symptoms start and how have they evolved? Was the onset sudden or gradual?
- Was the onset associated with a particular event, e.g. trauma or infection?
- Which treatments has the condition responded to?

The way in which symptoms evolve and respond to treatment can be an important guide in making a diagnosis. Gout, for example, is characterized by acute attacks – these often start in the middle of the night, become excruciatingly painful within a few hours, and respond well to non-steroidal anti-inflammatory drugs (NSAIDs).

Musculoskeletal symptoms lasting more than 6 weeks are generally described as chronic. Chronic diseases may start insidiously and may have a variable course with remissions and exacerbations influenced by therapy and other factors. It may be helpful to represent the chronology of a condition graphically (see Figure 4).

Involvement of other systems

Inflammatory arthropathies often involve other systems including the skin, eyes, lungs and kidneys. In addition, patients with inflammatory disease often suffer from general symptoms such as malaise, weight loss, mild fevers and night sweats. Fatigue and depression are also common. Osteoarthritis in contrast is limited to the musculoskeletal system. A comprehensive history must include the usual screening questions for all systems as well as specific enquiries relating to known complications of specific musculoskeletal disorders.

The presence of an arthritis does not exclude other diseases, and these other conditions may affect both the patient and their arthritis. A combination of two disabling diseases will be worse than either one alone, and the impact on the patient will therefore be greater. In addition, other conditions may be affected by the treatments prescribed for the arthritis – for example, the presence of liver disease may limit the use of disease-modifying drugs for inflammatory arthritis, because most of these drugs can upset the liver.

Impact of the condition on the patient

Understanding the impact of the disease on the patient is crucial to negotiating a suitable management plan. Ask open questions about functional problems and difficulty in doing things. It may be easiest to get the patient to describe a typical day, from getting out of bed to washing, dressing, toileting etc. Potentially sensitive areas, such as hygiene or sexual activity, should be approached with simple, direct, open questions. The impact of the disease on the patient's employment will be important.

A patient's needs and aspirations are an important part of the equation and will influence their ability to adapt to the condition. Questions concerning the things a person would like to do, but is currently unable to, may pinpoint key problems. Later negotiations with the patient on balancing the risks and benefits of an intervention will be greatly affected by the patient's priorities for treatment.

Medical students, doctors and practitioners should have an awareness of the relationship between functional loss, limitation of activity, and restriction of participation. Being unable to fully flex a finger (loss of function) might lead to difficulty, for example, with fastening buttons (activity) which might have a fairly minor impact on general life (participation). The same loss of function, however, might

prevent a pianist from playing (activity) which, for a professional musician, might have a significant impact on his/her way of life (participation) (see Figure 5).

Screening questions for musculoskeletal disorders

These screening questions should be incorporated into the routine systemic enquiry of every patient. The main symptoms arising from disorders of the mus- culoskeletal system are pain, stiffness, swelling, and associated functional problems. The screening questions directly address these aspects:

- 'Do you have any pain or stiffness in your muscles, joints or back?'
- 'Can you dress yourself completely without any difficulty?'
- 'Can you walk up and down stairs without any difficulty?'

A patient who has no pain or stiffness, and no difficulty with dressing or with climbing stairs is unlikely to be suffering from any significant musculoskeletal disorder. If the patient does have pain or stiffness, or difficulty with either of these activities, then a more detailed history should be taken (as described above).

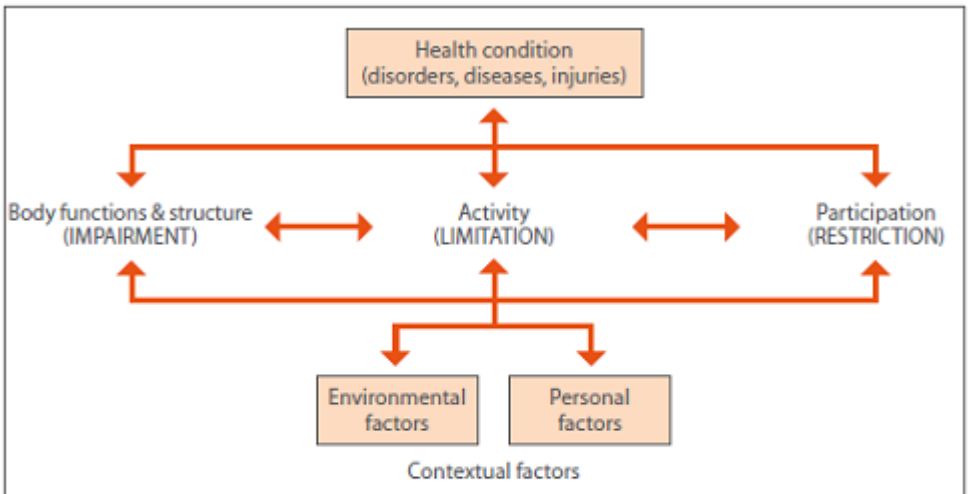


Figure 5. A model of disability – the relationship between loss of function, limitation of activity and restriction of participation.
Based on the World Health Organization's International Classification of Functioning, Disability and Health. Disability and function are the result of the interactions between a health condition and contextual factors (environmental and personal factors).

History taking: revision checklist
Current symptoms • Pain • Stiffness • Swelling • Pattern of joint involvement **Evolution** • Acute or chronic? • Associated events • Response to treatment **Involvement of other systems** • Skin, eye, lung or kidney symptoms? • Malaise, weight loss, fevers, night sweats? **Impact on patient's lifestyle** • Patient's needs/aspirations • Ability to adapt to functional loss
Screening questions: • Do you have any pain or stiffness in your muscles, joints or back? • Can you dress yourself completely without any difficulty? • Can you walk up and down stairs without any difficulty?

Abbreviations: CMC(J) carpometacarpal (joint); CT computerized tomography; DEXA dual-energy x-ray absorptiometry; DIP(J) distal interphalangeal (joint); ESR erythrocyte sedimentation rate; GALS gait, arms, legs and spine; MCP(J) metacarpophalangeal (joint); MRI magnetic resonance imaging; MTP(J) metatarsophalangeal (joint); NSAID non-steroidal anti-inflammatory drug; OA osteoarthritis; PIP(J) proximal interphalangeal (joint); RA rheumatoid

Clinical Notes

GALS Screening Examination

Screening examination for musculoskeletal disorders ('GALS')
A brief screening examination, which takes 2–3 minutes, has been devised for use in routine clinical assessment. This has been shown to be highly sensitive in detecting significant abnormalities of the musculoskeletal system. It involves inspecting carefully for joint swelling and abnormal posture, as well as assessing the joints for normal movement. This screening examination is known by the acronym 'GALS', which stands for **Gait**, **Arms**, **Legs** and **Spine**. The sequence in which these four elements are assessed can be varied – in practice, it is usually more convenient to complete the elements for which the patient is weight bearing before asking the patient to climb onto the couch. P-GALS (paediatric GALS) is a modification of 'GALS' for use in school-aged children.

When should I do GALS screen, and when I should I do a more detailed assessment like REMS? GALS screen is intended for patients who have presented with non-musculoskeletal problems, e.g, 70 year old who has presented with a community acquired pneumonia; while REMS is more suitable for patients who have active musculoskeletal problems.

Gait

Observe gait:

- Ask the patient to walk a few steps, turn and walk back.
- Observe the patient's gait for symmetry, smoothness and the ability to turn quickly.

Observe patient in anatomical position

- With the patient standing in the anatomical position, observe from behind, from the side, and from in front for:
    - bulk and symmetry of the shoulder, gluteal, quadriceps and calf muscles;
    - limb alignment; alignment of the spine; equal level of the iliac crests;
    - ability to fully extend the elbows and knees; popliteal swelling;
    - abnormalities in the feet such as an excessively high or low arch profile, clawing/retraction of the toes and/or presence of hallux valgus

Arms

Observe movement – hands behind head

- *Ask the patient to put their hands behind their head. Assess shoulder abduction and external rotation, and elbow flexion (these are often the first movements to* be affected by shoulder problems).

Observe backs of hands and wrists
With the patient's hands held out, palms down, fingers outstretched, observe the backs of the hands for joint swelling, deformity and muscle wasting.

Observe palms
Ask the patient to turn their hands over and look at the palms for muscle bulk and for any visual signs of abnormality.

Assess power grip and grip strength
Ask the patient to make a fist. Visually assess power grip, hand and wrist function, and range of movement in the fingers.

Assess fine precision pinch
Ask the patient to squeeze your fingers. Assess grip strength.
Ask the patient to bring each finger in turn to meet the thumb. Assess fine precision pinch (this is important functionally).

Squeeze MCPJs: Gently squeeze across the metacarpophalangeal (MCP) joints to check for tenderness suggesting inflammatory joint disease. (Be sure to watch the patient's face for non-verbal signs of discomfort.)

Legs

Assess full flexion and extension
With the patient lying on the couch, assess full flexion and extension of both knees, feeling for crepitus.

Assess internal rotation of hips
With the hip and knee flexed to 90º, holding the knee and ankle to guide the movement, assess internal rotation of each hip in flexion (this is often the first movement affected by hip problems).

Perform patellar tap
Perform a patellar tap to check for a knee effusion. Slide your hand down the thigh, pushing down over the suprapatellar pouch so that any effusion is forced behind the patella. When you reach the upper pole of the patella, keep your hand there and maintain pressure. Use two or three fingers of the other hand to push the patella down gently. Does it bounce and 'tap'? This indicates the presence of an effusion.

Inspect feet
From the end of the couch, inspect the feet for swelling, deformity, and callosities on the soles.

Squeeze MTPJs
Squeeze across the metatarsophalangeal (MTP) joints to check for tenderness suggesting inflammatory joint disease. (Be sure to watch the patient's face for signs of discomfort.)

Spine

Inspect spine
With the patient standing, inspect the spine from behind for evidence of scoliosis, and from the side for abnormal lordosis or kyphosis.

Assess lateral flexion of neck
Ask the patient to tilt their head to each side, bringing the ear towards the shoulder. Assess lateral flexion of the neck (this is sensitive in the detection of early neck problems).

Assess lumbar spine movement
Ask the patient to bend to touch their toes. This movement is important functionally (for dressing) but can be achieved relying on good hip flexion, so it is important to palpate for normal movement of the vertebrae. Assess lumbar spine flexion by placing two or three fingers on the lumbar vertebrae.

Your fingers should move apart on flexion and back together on extension

'GALS' screening examination: checklist

Introduction

- Introduce yourself
- Gain verbal consent to examine

Gait

- Observe gait
- Observe patient in anatomical position

Arms

- Observe movement – hands behind head
- Observe backs of hands and wrists
- Observe palms
- Assess power grip and strength
- Assess fine precision pinch
- Squeeze MCPJs

Legs

- Assess full flexion and extension
- Assess internal rotation of hips
- Perform patellar tap
- Inspect feet
- Squeeze MTPJs

Spine

- Inspect spine
- Assess lateral flexion of neck
- Assess lumbar spine movement

Performing a regional examination of the musculoskeletal system ('REMS')

Regional examination of the musculoskeletal system refers to the more detailed examination that should be carried out once an abnormality has been detected either through the history or through the screening examination (GALS). REMS involves the examination of a group of joints which are linked by function, and
may require a detailed neurological and vascular examination.

REMS was born out of a desire to standardize examination of the musculoskeletal system, allowing for more systematic teaching and learning. It was developed through a national consensus process involving UK consultants in rheumatology, orthopaedics and care of the elderly and selected general practitioners. It led to an agreed set of 'core' skills.It is important to note, however, that a number of other specific tests may be used by musculoskeletal practitioners as an adjunct to the REMS examination.

There are five key stages which need to be completed during an examination of the joints in any part of the body:

- Introduce yourself.
- Look at the joint(s).
- Feel the joint(s).
- Move the joint(s).
- Assess the function of the joint(s).

Introduction

It is important to introduce yourself, explain to the patient what you are going to do, gain verbal consent to examine, and ask the patient to let you know if you cause them any pain or discomfort at any time. In all cases it is important to make the patient feel comfortable about being examined. A good musculoskeletal examination relies on patient cooperation, in order for them to relax their muscles, if important clinical signs are not to be missed.

Look

The examination should always start with a visual inspection of the exposed area at rest. Compare one side with the other, checking for symmetry. You should look specifically for skin changes, muscle bulk, and swelling in and around the joint. Look also for deformity in terms of alignment and posture of the joint.

Feel

Using the back of your hand, feel for skin temperature across the joint line and at relevant neighbouring sites. Any swellings should be assessed for fluctuance and mobility. The hard bony swellings of osteoarthritis should be distinguished from the soft, rubbery swellings of inflammatory joint disease. Tenderness is an important clinical sign to elicit – both in and around the joint. Identifying inflammation of a joint (synovitis) relies on detecting the triad of warmth, swelling and tenderness.

Move

The full range of movement of the joint should be assessed. Compare one side with the other. As a general rule both active movements (where the patient moves the joint themselves) and passive

movements (where the examiner moves the joint) should be performed. If there is a loss of active movement, but passive movement is unaffected, this may suggest a problem with the muscles, tendons or nerves rather than in the joints, or it may be an effect of pain in the joints. In certain instances joints may move further than expected – this is called hypermobility.

It is important to elicit a loss of full flexion or a loss of full extension as either may affect function. A loss of movement should be recorded as mild, moderate or severe. The quality of movement should be recorded, with reference to abnormalities such as increased muscle tone or the presence of crepitus.

Function

It is important to make a functional assessment of the joint – for example, in the case of limited elbow flexion, does this make it difficult for the patient to bring their hands to their mouth? In the case of the lower limbs, function mainly involves gait and the patient's ability to get out of a chair.

For the purposes of this handbook the REMS examination has been divided into seven areas, each of which is described in detail below. However, it should be remembered that
this is an artificial division and that one group of joints may need to be examined in conjunction with another group (e.g. the shoulder and cervical spine).

Recording the findings from the regional examination

The positive and significant negative findings of the REMS examination are usually documented longhand in the notes. If no abnormality is found then 'REMS normal' is sufficient. You may find it helpful to document joint involvement on a homunculus such as the one shown in Figure 21. The total number of tender and swollen joints can be used for calculating disease activity scores – these are useful in monitoring disease severity and response to treatment over time.

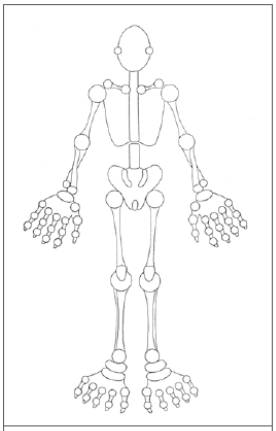


Figure 21. Printed homunculus for annotation

REMS general principles: checklist	
Introduction • Introduce yourself • Gain verbal consent to examine **Look for:** • scars • swellings • rashes • muscle wasting	**Feel for:** • temperature • swellings • tenderness **Move** • full range of movement – active and passive • restriction – mild, moderate or severe? **Function** functional assessment of joint(s)

Examination of the hand and wrist

This should normally take place with the patient's hands resting on a pillow as it can be painful for patients with elbow or shoulder problems to hold their hands up for long.

Look

With the patient's hands palms down:

- Look at the posture and for obvious swelling, deformity, muscle wasting and scars.
- Look at the skin for thinning and bruising (signs of long-term steroid use) or rashes.
- Look at the nails for psoriatic changes such as pitting or onycholysis, and evidence of nailfold vasculitis.
- Decide whether the changes are symmetrical or asymmetrical.
- Do the changes mainly involve the small joints – PIPs and DIPs, MCPs, or the wrists?

Ask the patient to turn their hands over:

- Does the patient have problems with this due to radioulnar joint involvement?

With the patient's hands palms up:

- Look again for muscle wasting – if present, is it in both the thenar and hypothenar eminences? If it is only in the thenar eminence, then perhaps the patient has carpal tunnel syndrome. Look for signs of palmar erythema. Check wrist for carpal tunnel release

Feel

With the patient's hands palms up:

- Feel for peripheral pulses.
- Feel for bulk of the thenar and hypothenar eminences and for tendon thickening.
- Assess median and ulnar nerve sensation by gently touching over both the thenar and hypothenar eminences, and the index and little fingers respectively – is sensation normal and equal?

Ask the patient to turn their hands back over, so their palms are face down:

- Assess radial nerve sensation by light touch over the thumb and index finger web space.
- Using the back of your hand, assess skin temperature at the patient's forearm, wrist and MCP joints. Are there differences?
- Gently squeeze across the row of MCP joints to assess for tenderness (watching the patient's face for signs of discomfort).
- Bimanually palpate any MCP joints and any PIP or DIP joints that appear swollen or painful. Is there evidence of active synovitis? (The joints will be warm, swollen and tender and may have a 'rubbery' feel, or you may even detect effusions).

- Are there hard, bony swellings? Check for squaring of the carpometacarpal (CMC) joint of the thumb and for Heberden's nodes on the DIPs and Bouchard nodes on the PIP. There may be evidence of previous synovitis (thickened, rubbery but non-tender joints).
- Compare one joint with another, or with your own, to decide whether the small joints are normal.

- Bimanually palpate the patient's wrists.
- Finally run your hand up the patient's arm along the ulnar border to the elbow. Feel and look for rheumatoid nodules or psoriatic plaques on the extensor surfaces.

Move

- Ask the patient to straighten their fingers fully (against gravity). If the patient is unable to do this it may be due to joint disease, extensor tendon rupture or neurological damage – this can be assessed by moving the fingers passively.
- Ask the patient to make a fist. If they have difficulty tucking the fingers into the palm, this may be an early sign of tendon or small joint involvement. Move the fingers passively to assess whether the problem is with the tendon or nerves, or in the joint.
- Assess wrist flexion and extension actively (e.g. by making the 'prayer' sign) and passively (see Figure 11).
- In patients where the history and examination suggest carpal tunnel syndrome perform Phalen's test (forced flexion of the wrists for 60 seconds) – in a positive test this reproduces the patient's symptoms.
- Assess the median and ulnar nerves for power. This can be done by abduction of the thumb, and finger spread, respectively.

Function

- Ask the patient to grip your two fingers to assess power grip.
- Ask the patient to pinch your finger. This assesses pincer grip, which is very important functionally.
- Ask the patient to pick a small object such as a coin out of your hand or check their ability to undo buttons. This assesses pincer grip and function.

Examination of the hand and wrist: checklist
• **Introduce yourself/gain consent to examine**
• **Inspect hands (palms and backs) for muscle wasting, skin and nail changes**
• **Check wrist for carpal tunnel release**
• **Feel for radial pulse, tendon thickening and bulk of thenar and hypothenar eminences**
• **Assess median, ulnar and radial nerve sensation**
• **Assess skin temperature**
• **Squeeze MCPJs**
• **Bimanually palpate swollen or painful joints, including wrists**
• **Look and feel along ulnar border**
• **Assess full finger extension and full finger tuck**
• **Assess wrist flexion and extension – active and passive**
• **Assess median and ulnar nerve power**
• **Assess function: grip and pinch, picking up small object**
• **Perform Phalen's test (if suggestion of carpal tunnel syndrome)**

Additional Notes: Tinel's sign: percussion of the Median Nerve at the wrist leading to tingling in lateral 3½ digits. Tendon thickening/fibrosis in palm- Dupuytren's contracture. Bouchard nodules at PIP in hands indicate OA. Palpate in the anatomical snuffbox for scaphoid tenderness (common site for OA). Screen for nerve problems by: assessing thumb abduction (median nerve), assessing little finger abduction (ulna nerve), assess light touch and pin prick sensation

Images in MSK examination

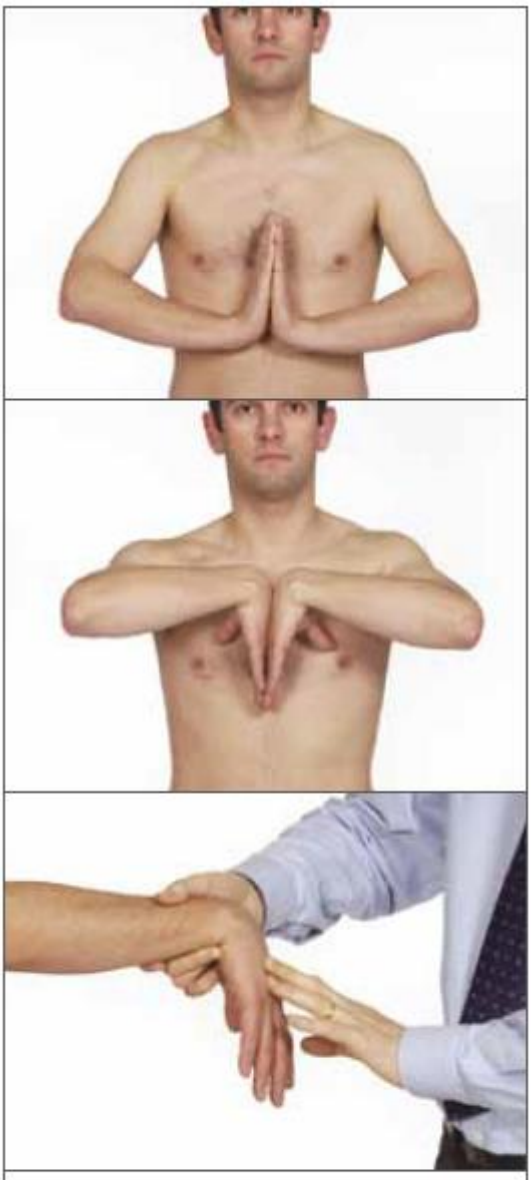


Figure 11. The 'prayer sign' assesses wrist flexion and extension. If the patient's history and examination suggest carpal tunnel syndrome, Phalen's test (forced flexion of the wrist for 60 seconds) may reproduce the patient's symptoms.

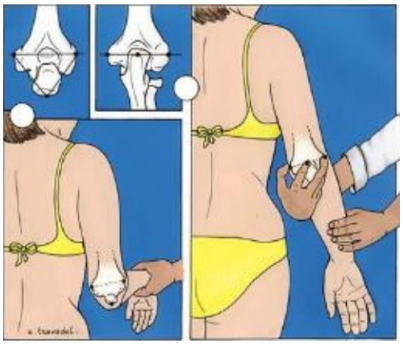
Figure 10. Fingernails affected by psoriasis: (a) pitting; (b) onycholysis

Examination of the Elbow

Look

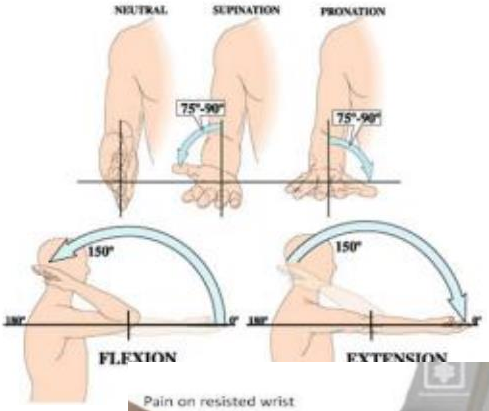
- With the patient standing, assess:
    - Symmetry
    - Skin changes and/or scars (rheumatoid nodules? Psoriatic plaques)
    - Carrying angle (cubital valgus or varus?)
    - Olecranon bursitis?
    - Abnormal bony prominence

Feel



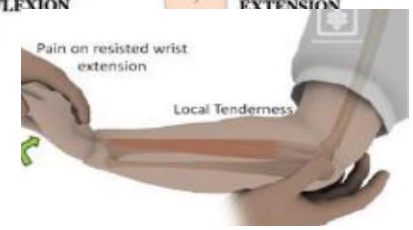
- Assess and compare the elbow joint temperature
- Palpate each elbow joint tracing along the:
    - Radial head
    - Radiocapitellar joint
    - Lateral epicondyle of the humerus
    - Olecranon
    - Medial epicondyle of the humerus
    - Palpate the relation between the 2 epicondyles and the tip of the olecranon (This should form an isosceles triangle when the elbow is flexed)
- Palpate the biceps with the elbow flexed at 90º and follow down to the elbow crease to assess the biceps tendon. Tenderness within this region would indicate rupture.

Move

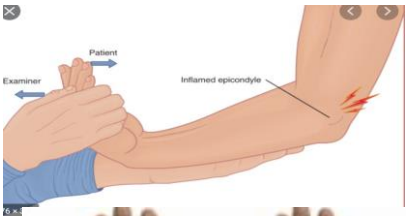


- Assess range of movement, including:
    - Flexion – ask the patient to bend their elbow
    - Extension – ask the patient to straighten out their arms
    - Pronation – ask the patient to turn their forearm so their palm is facing down
    - Supination - ask the patient to turn their forearm so their palm is facing up

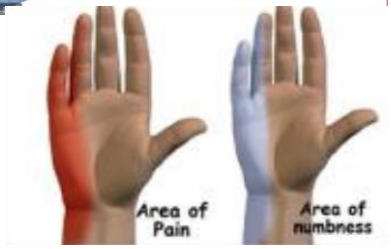
Special tests



- ***Test for Lateral epicondylitis***
    - Flex the patient's arm to 90º. Palpate the lateral epicondyle with your fingers. Ask the patient to make a fist and extend their wrist as you apply resistance. This will recreate the pain over the lateral epicondyle.



- ***Test for Medial epicondylitis***
    - Flex the patient's arm to 90º. Palpate the medial epicondyle with your fingers. Ask the patient to make a fist and flex their wrist as you apply resistance. This will recreate the pain over the medial epicondyle.
- ***Cubital tunnel syndrome***
    - Flex the elbow. Supinate the forearm and extend the wrist. This will worsen cubital tunnel pain.



Common diagnoses:

Olecranon bursitis, tennis elbow (lateral epicondylitis), golfer's elbow (medial epicondylitis), arthritis, post-traumatic stiffness

Clinical Notes

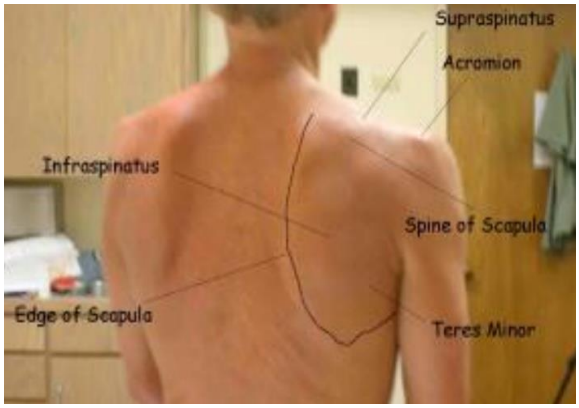
Examination of the shoulder

Look

- With the patient standing, assess:
    - Symmetry
    - Muscle bulk/wasting (particularly the deltoid and trapezius)
    - Posture
    - Skin changes and/or scars
    - Winging of the scapula (as shown in image)

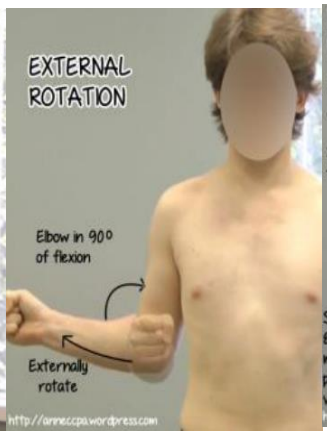
Feel

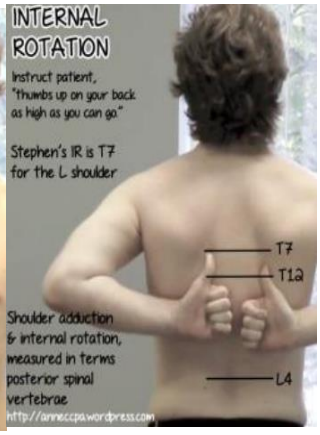
- Assess the temperature over the front of the shoulder.
- Palpate the bony landmarks for tenderness and integrity
    - starting at the sternoclavicular joint, then the clavicle, acromioclavicular joint, acromion process, head of the humerus (including greater tubercle) and spine of the scapula.
    - The joint line – anterior and posterior.
    - The muscle bulk of the supraspinatus, infraspinatus and deltoid muscles.



Move

- Assess the range of movement actively and passively, including:
    - Forward flexion – raise arms out in front of the patient
    - Extension – extend arms out behind the patient
    - Internal rotation – thumbs up behind their back as far as the patient can go
    - External rotation – With elbows tucked into the side (90º flexion), move the forearm outwards as far as the patient can go
    - Abduction – raise arms out to the sides (check for a painful arc between 10º and 120º) Can you passively take the arm further?





Special tests

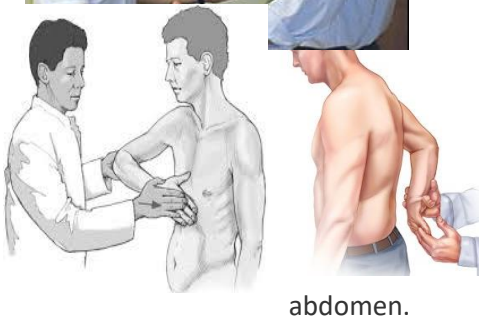
- **Impingement**
  - ***Neer's test***
    - Place one hand on the patient's scapula, and the other hand on the patient's arm below the elbow. The clinician will internally rotate the arm and passively flex the shoulder forward. The Neer test is considered positive if pain is reported in the anterior – lateral aspect of the shoulder.
  - ***Modified Hawkin's Kennedy test***
    - Place the patient's arm at a 90° angle and their elbow flexed to 90°. Internally rotate the patient's arm. The test is considered to be positive if the patient experiences pain with internal rotation.

- **Supraspinatus**
  - ***Drop test***
    - Patient is asked to actively lower their arm from full abduction to their side in a slow and controlled manner. In a positive test is an inability to smoothly control the lowering of their arm or the inability to hold the arm at 90 degrees of abduction.

  - ***Jobe's test***
    - Abduct the patient's arm to 30° and bring forward by 30°. Rotate the patient's arm so that their thumbs are facing downwards. Ask the patient to resist downward pressure exerted by the clinician. The test is considered positive if there is weakness compared to the opposite side.

- **Infraspinatus**
  - Ask the patient to resist pressure against external rotation. The test is considered positive if there is weakness compared to the opposite side.

- **Subscapularis**
  - ***Lift off test***
    - Place the dorsal aspect of the patient's hand on their lower back. Ask them to push backwards against resistance. The test is considered positive if there is weakness compared to the opposite side.



  - ***Belly press test***
    - Place the palm of the patient's hand on their abdomen. Ask the patient to move their elbow forward (increasing the internal rotation of the shoulder). The examiner pushes the elbow backwards and the patient tries to resist. If the patient has a subscapularis tear, he/ she would not be able to push the elbow forwards.

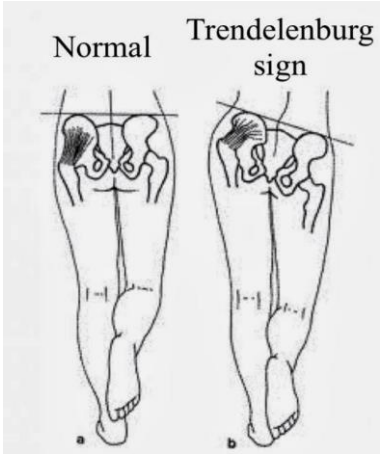
Examination of the shoulder: checklist
• Introduce yourself/gain consent to examine • Inspect shoulders from in front, from the side and from behind • Assess skin temperature • Palpate bony landmarks and surrounding muscles • Assess (actively and passively) external rotation, flexion, extension and abduction • Test Function (Impingement, supraspinatus, infraspinatus, subscapularis).

Clinical notes:

4 differential diagnoses:

1. Frozen Shoulder *(Global restriction of all shoulder movements)*
2. Glenohumeral Osteoarthritis *(Global restriction of all shoulder movements)*
3. Impingement syndrome +/- rotator cuff tear *(Pain on overhead activities; sometimes weakness and inability to actively abduct the shoulder)*
4. Instability *(usually patients in their teens or twenties with a h/o shoulder dislocation)*

Examination of the hip



Look

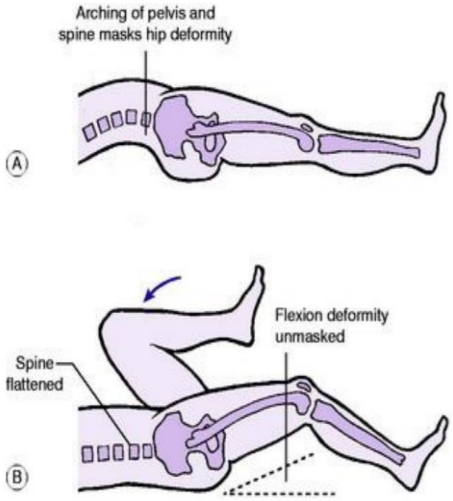
- Before the patient is on the couch assess:
    - Gait (antalgic, Trendelenburg, high stepping, stamping gait)
    - Muscle wasting (gluteal muscle bulk in particular).
    - Scars
    - Trendelenburg test (Patient stands on one leg. In a negative test the pelvis remains level or even rises. In an abnormal test the pelvis will dip on the contralateral side)
    - Spine (asymmetry, lordosis/kyphosis)

    When the patient is on the couch, comment on the apparent leg length and the attitude of the leg, e.g. the right leg appears short and is more externally rotated than the left

Feel

- With the patient lying flat and face up, observe the legs
    - Alignment of hip and leg (abduction or adduction deformity? Can patient fully extend?)
    - Local temperature of hip and legs
    - Palpate over the greater trochanter for tenderness
    - Thomas' test – is there a fixed flexion deformity of the hip?

Figure 13. Thomas' test for fixed flexion deformity of the hip. Keep one hand under the patient's back to ensure that there is no lumbar lordosis. Fully flex one hip. If the opposite leg lifts off the couch there is a fixed flexion deformity. (As the pelvis tilts a normal hip would extend allowing the leg to remain on the couch.)



Move

- Assess movements of the hip joint with the knee flexed to 90º
    - Flexion (passive and active)
    - Extension (passive and active)
    - Internal rotation
    - External rotation
- Assess movements of the hip joint with the knee fully extended
    - Abduction and adduction

Additional examination

- If you have reason to believe there is nerve damage, perform sciatic nerve stretch test
- If you have reason to believe vascular damage, assess neurovascular status.

Examination of the hip: checklist

- Introduce yourself/gain consent to examine

With the patient standing:

- Assess the patient's gait
- Look for gluteal muscle bulk
- Perform the Trendelenberg test

With the patient lying on couch:

- Look for flexion deformity and leg length disparity
- Check for scars
- Feel the greater trochanter for tenderness
- Perform Thomas' test
- Assess full hip flexion, internal & external rotation, abduction, and adduction

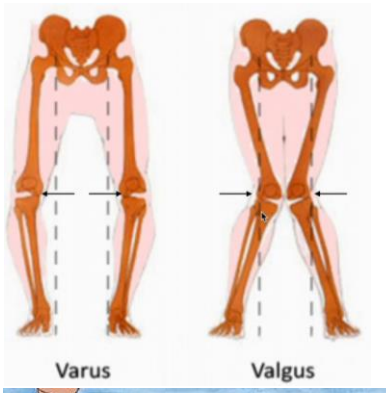
Hip Examination Additional Notes:

- Palpate over the greater trochanter (many patients complaining of “hip pain” have trochanteric bursitis).
- Palpate over the ischial tuberosities (again in more athletic patients “hip pain” may be due to a bursitis here or hamstring origin, enthesitis).
- Pain during any of the movements indicates hip pathology

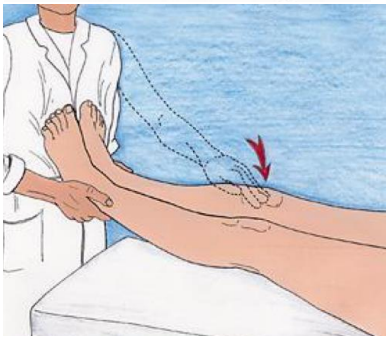
Clinical Notes

Examination of the knee

Look



- Before the patient is on the couch assess:
    - Gait (antalgic, high stepping, decreased stride length)
    - Muscle wasting (Quadriceps)
    - Scars
    - Inspect the knee from the front, sides and the back
        - Bursitis, Baker's cyst
        - Look for valgus deformity – where the leg below the knee is deviated laterally
        - Look for varus deformity – where the leg below the knee is deviated medially



- With the patient lying flat and face up, with the patient's legs straight:
    - Check for a fixed flexion deformity of the knee (i.e. can the knee fully extend)
    - Look for redness suggesting inflammation or infection. Look for obvious swelling.
    - Check for a rash suggesting psoriasis

Feel

- With the patient lying flat and face up feel for:
    - Local temperature starting with the mid-thigh and comparing it to the temperature over the knee. Compare one knee to the other.
    - Palpate for tenderness along the borders of the patella (using thumb, one side at a time)
    - Check for effusion using either:
        - patellar tap
        - cross fluctuation

Figure 15. Cross fluctuation ('The Bulge Sign'). Stroke the medial side of the knee upwards towards the suprapatellar pouch. This empties the medial compartment of fluid. Then stroke the lateral side downwards (distally). The medial side may refill and produce a bulge of fluid, indicating the presence of an effusion.

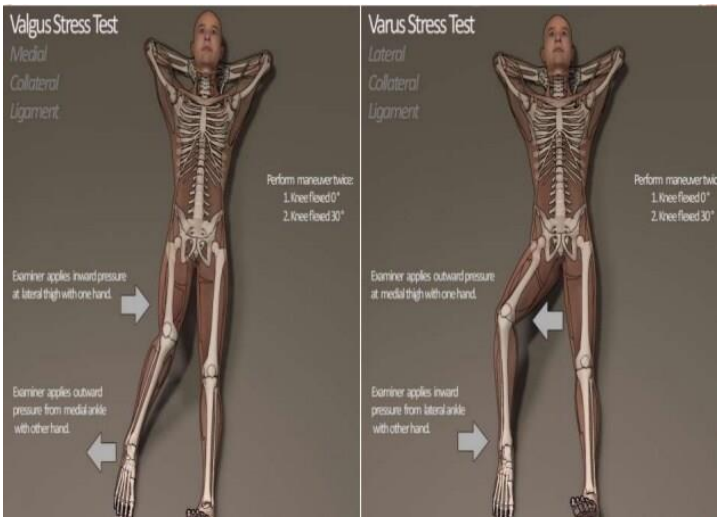
The Patellar tap

With the left hand to squeeze any fluid from the pouch into the joint. With the other hand the patella is then tapped sharply backwards onto the femoral condyles. In a positive test the patella can be felt striking the femur and bouncing off again.

- With the knee flexed to 90º:
    - palpate for tenderness and swelling along the joint line from the femoral condyles to the inferior pole of the patella, then down the inferior patella tendon to the tibial tuberosity.
    - Feel behind the knee in the popliteal fossa (Baker's cyst, popliteal aneurysm)

Move

- Assess movements of knee joint (assess pain, crepitus):
    - Flexion (passive and active)
    - Extension (passive and active)
- Perform patellar tracking whilst flexing and extending the knee (assess for patellar dislocation
- Perform Valgus and Varus Stress Test to check for either deformities
- Hip Movements
    - Internal and external rotation
- Neurovascular exam – if indicated



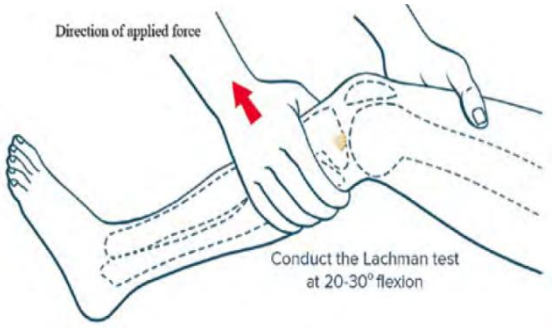
Special tests:

- Rotations of the hip with the knee flexed to identify whether this is referred hip pain or true kne pain.

Test the ligaments stabilising the knee

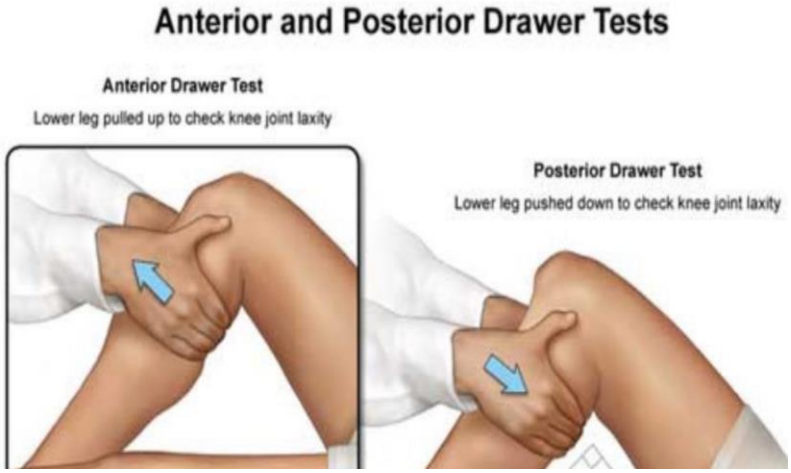
- **ACL**
    - ***Anterior drawer test***
        - Patient lying flat, knee flexed to 90º
        - Place thumbs on tibial tuberosity with your fingers around the back of the knee joint. Pull the tibia anteriorly and feel for any forward dislocation of the tibia.
        - With healthy cruciate ligaments, there should be little or no movement noted

- ***Lachman's test*** (either Lachman or anterior drawer test may suffice)
  - Patient lying flat, knee flexed to 30º.
  - Hold the lower leg with one hand – placing the thumb on the tibial tuberosity and fingers over the calf. Place the other hand on the thigh just above the patella. Pull the tibia forwards on the femur whilst the other hand stabilises the femur.
  - Significant anterior movement of the tibia on the femur suggests ACL laxity or rupture.



- **PCL**
  - ***Posterior drawer test***
    - Patient lying flat, knee flexed to 90º
    - Place thumbs on tibial tuberosity with your fingers around the back of the knee joint. Push the tibia posteriorly and feel for any dislocation of the tibia.
    - With healthy cruciate ligaments, there should be little or no movement noted

Tests for ACL and PCL are not necessary in an arthritic knee



- **MCL**
  - ***Valgus stress test***
    - **With Patient's flexed to about 20 deg** – place right hand on medial aspect of the ankle and left hand on lateral aspect of the knee. Push steadily inward with your left hand whilst pushing outwards with the right hand.

- **LCL**
  - ***Varus Stress test***
    - **With Patient's knee flexed to about 20 degrees** – place left hand on lateral aspect of the ankle and right hand on medial aspect of the knee. Push steadily outward with your right hand whilst pushing outwards with the left hand.

In a normal person, the LCL is a bit lax and the knee will open up on stressing the LCL. The MCL is taut and would not normally give on stressing the MCL

Always conclude the exam by feeling the pedal pulses and brief neurological exam if time permits.

Examination of the knee: checklist
• Introduce yourself/gain consent to examine ***With the patient standing:*** • Assess the patient's gait, muscle wasting, scars • Look for varus/valgus deformity and popliteal swellings ***With the patient lying on couch****:* • Look from the side for fixed flexion deformity • Assess skin temperature • Perform a patellar tap and cross fluctuation (bulge sign) • With the knee flexed palpate the joint line and the borders of the patella • Feel the popliteal fossa • Assess fulll flexion and extension (actively and passively) • Assess stability of knee ligaments (ACL/PCL/MCL/LCL) • Rotation of the hip with the knee flexed

Clinical Notes

- NOTE: Popliteal swellings, varus and valgus deformities may be more apparent with the patient weight-bearing.

Examination of the spine

Look

- Observe the patient standing. Look initially from behind the patient for any obvious muscle wasting, asymmetry, or scoliosis of the spine.
- Look from the side for normal cervical lordosis, thoracic kyphosis, and lumbar lordosis.

Feel

- Feel down the spinal processes and over the sacroiliac joints for alignment and tenderness.
- Palpate the paraspinal muscles for tenderness.

Move

- Assess lumbar flexion and extension by placing two or three fingers over the lumbar spine. Ask the patient to bend to touch their toes. Your fingers should move apart during flexion and back together during extension (see Figure 8).
- Ask the patient to run each hand in turn down the outside of the adjacent leg to assess lateral flexion of the spine.
- Next, assess the cervical spine movements. Ask the patient to: tilt their head to each side, bringing the ear towards the adjacent shoulder (lateral flexion); turn their head to look over each shoulder (rotation); bring their chin towards their chest (flexion); and tilt their head backwards (extension).
- With the patient sitting on the edge of the couch to fix their pelvis and their arms crossed in front of them, assess thoracic rotation (with your hands on the patient's shoulders to guide the movement) (see Figure 19).
- With the patient lying as flat as possible, perform straight leg raising (see Figure 20). Dorsiflexion of the foot with the leg raised may exacerbate the pain from a nerve root entrapment or irritation such as that caused by a prolapsed intervertebral disc.
- Assess limb reflexes (upper and lower) and dorsiflexion of the big toe.

A brief neurovascular examination should be carried out including assessment of upper and lower limb reflexes, dorsiflexion of the big toe, and assessment of peripheral pulses. If there has been any indication from the history of a relevant abnormality, a full neurological and vascular assessment – including sensation, tone and power – should also be made.

Examination of the Spine: checklist
• Introduce yourself/gain consent to examine ***With the patient standing:*** • Inspect from the side and from behind • Palpate the spinal processes and paraspinal muscles • Assess movement: lumbar flexion and extension and lateral flexion; cervical flexion, extension, rotation and lateral flexion ***With the patient sitting on couch:*** • Assess thoracic rotation ***With the patient lying on couch:*** • Perform straight leg raising and dorsiflexion of the big toe Assess limb reflexes

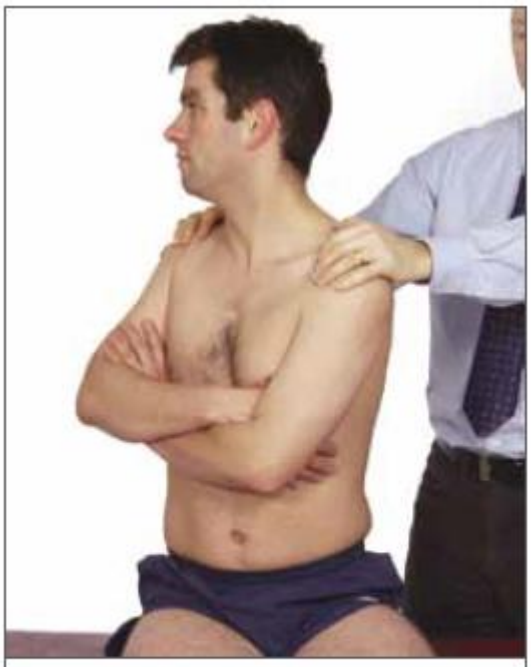


Figure 19. With the patient seated on the couch to fix the pelvis, assess thoracic rotation.

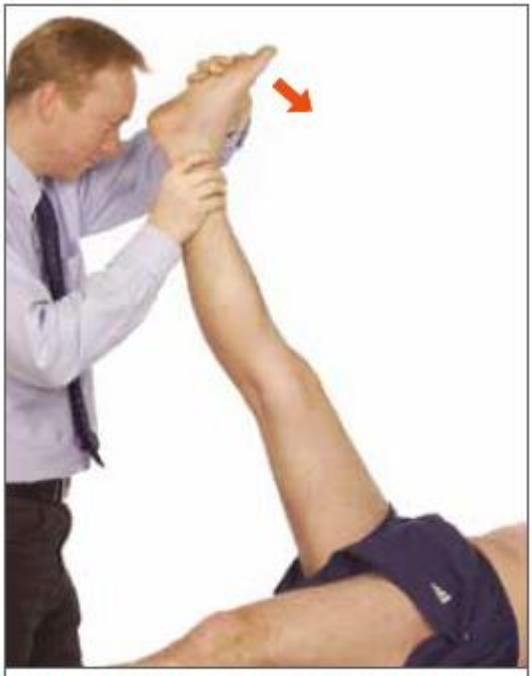


Figure 20. Dorsiflexion of the foot with the leg straight and raised may exacerbate pain from a nerve root entrapment or prolapsed disc.

Additional Notes:

A special test is the modified Schober's test to assess how much flexion is occurring in the lumbar spine as apposed to movement from the hip joints.

- Identify the two dimples that occur at the top of the sacroiliac joints.
- With the patient standing, use a tape measure to mark a spot 10cm above and 5cm below an imaginary line between the two dimples.
- Ask the patient to bend as far forwards as they can.
- Measure the distance between the two marks. It should be more than 20cm.

Psychiatric History Sequence including Learning Disability

Please check if there are any specific communication requirements/preferences prior to being seen.

Does the patient need an interpreter? *(ideally established in advance of the meeting)*

Name of anybody else present and their relationship to the patient

What was the reason for referral to a mental health assessment?

Is the patient already under the care of a mental health service?

Presenting Complaint

- *Explore the patient's major problem in their opinion*
- *Explore patient's view of problem*

History of present illness

- *Onset and course of presenting problems, and any precipitating and/or exacerbating factors*
- *Description of the time relations between symptoms and physical disorders and psychological or social problems*
- *Recent appetite and sleep changes*
- *Current treatment, and any treatment since the onset of this episode and its effectiveness*

Past Psychiatric history

- *Similar or different episodes of mental health problems in the past and their duration*
- *Has the patient been previously told a diagnosis*
- *Pharmacological and psychological treatments and effectiveness of these*
- *Hospital admissions*
- *Any residual deficits*
- *History of deliberate self-harm.*

Past Medical history

- *Current diagnoses*
- *Accident, operations and any time spent in hospital*

Drug history and allergies

Family History

- *Parents: age now or at death (cause of death), health, occupation, early relationship*
- *Siblings: names, ages, relationships with patient*
- *Children: names, ages, relationships with patient*
- *Family history of mental illness*
- *Include family history of common medical conditions such as diabetes or cardiovascular disease Any learning disabilities or Autism Spectrum Disorder, any known genetic syndromes in family, consanguinity.*

Personal and Social History

Birth/Childhood:

- *Delivery*
- *Early development and milestones. Any problems or delays?*

- *People they lived with growing up*
- *General description of family environment*
- Friendships, bullying and academic performance.
- *Any emotional and behavioural problems*
- *Physical and sexual abuse*
- *Premorbid personality ("What were you like as a child?")*

Education
- *Academic performance and achievements*
- *Any Educational psychology reports*

Occupations (chronologically, and including reasons for leaving jobs)

Relationships: how many and how long did they last?
Marital status, friendships

Accommodation
Type of accommodation
Composition of household

Finances and debt

Activities of daily living

Religious and spiritual beliefs

Carers (family members/friends or professional carers)
Current level of support if needed, accommodation support

Drug and alcohol history
- *By substance: age of first use, amounts consumed (and/or amount of money spent per day or week), problems associated with use. Lifetime periods of heavy use.*
- *Patterns of use: location, alone or with others*
- *Dependence history if appropriate: attempts to quit, time of day of use, context of use, symptoms of dependence syndrome*

Forensic History
Arrests
Convictions and imprisonment or probation

Notes

For all mental illness consider ICD/DSM Hierarchy (Foulds):

"Organic"
Schizophrenia and related disorders
Bipolar spectrum disorders
Depressive disorders
Anxiety and Somatoform disorders
Personality disorders

Mental State Examination Sequence

Objective: Ascertain the patient's current mental state.

Appearance and Behaviour
Appearance, clothes and self-care
Facial expression, posture
Movements (including chorea, stiffness)
Eye contact
Rapport with the interviewer
Collaborative or not

Speech
Reaction time and spontaneous speech (check for high latency of response)
Rate and amount
Volume: normal, quiet or loud?
Tone: reactive or monotonous?

Affect
Lability
Incontinence
Blunting, flattening
Congruity with mood

Mood

Subjective
Ask the patient to rate the mood rated out of 10 (0=lowest, very depressed mood, 10=and high, elated mood) and any variation of this in the last two weeks
Anhedonia ("inability to experience pleasure")
Feelings of reduced energy

Objective mood (opinion from your observation)
Congruent with patient self-assessment or not
Depressed
Elated
Anxious
Angry and irritable
Rapid changes in mood?

Thought
Form of thought (how thoughts are organized and expressed), which can be abnormal in

(a) the *amount* or *volume* of thoughts expressed
Pressure of thought
Poverty of thought
Thought blocking
Perseveration (persistent and inappropriate repetition)

(b) *The way in which thoughts are connected* to one another
Circumstantiality
Tangentiality

Derailment
Flight of ideas
Incoherent speech

Content of thought (what the person is thinking about)
Delusions
Delusional mood
Delusional memory
Overvalued ideas
Thoughts of self-harm, self-esteem, hopelessness, worthlessness and guilt
Obsessional and compulsive symptoms
Thought insertion, broadcast, withdrawal and passivity experiences

Perception
Illusions: a misperception of an external stimulus
Hallucinations: a perception experienced in the absence of an external stimulus in any modality
Depersonalisation
Derealisation

Cognition
Tests of cognition*

Insight
Does the patient believe they are ill?
Does he or she see him/herself as needing treatment?
Is he or she willing to accept the treatment being recommended by professionals?

Risk

Thoughts about the future, including hopelessness, thoughts of death or dying, and ideas (and any plans) about self-harm

Dementia Screening Examination Sequence

There are several tests that can be used. The Mini-Mental State Examination is a 30 item test (Folstein). This carries a copyright but is widely used after purchase. The one shown below is free to use and kindly supplied *gratis*.

GP COG

General Practitioner Assessment of Cognition

This test was designed as a GP screening tool for dementia.
Two components:

1. **Cognitive assessment conducted with the patient**
2. **Informant questionnaire** (only considered necessary if the results of the cognitive section are equivocal, ie score 5-8 inclusive).

Unless specified, each question should only be asked once

GPCOG Patient Interview	Max Score	Patient Score
Name and address for subsequent recall *"I am going to give you a name and address. After I have said it, I want you to repeat it. Remember this name and address because I am going to ask you to tell it to me again in a few minutes: John Brown, 42 West Street, Kensington"* *(Allow a maximum of 4 attempts but do not score yet)*		
Time Orientation What is the date? (accept exact only)	**1**	
Clock Drawing (visuospatial functioning) *use a paper with a printed circle.* Please mark in all the numbers to indicate the hours of a clock (correct spacing required). *For a correct response (above), the numbers 12, 3, 6, and 9 should be in the correct quadrants of the circle and the other numbers should be approximately correctly placed.*	**1**	
Please mark in hands to show 10 minutes past eleven o'clock (11:10). *For a correct response (above), the hands should be pointing to the 11 and the 2,but do not penalise if the respondent fails to distinguish the long and short hands.*	**1**	
Information Can you tell me something that happened in the news recently? (recently = in the last week) *Respondents are not required to provide extensive details, as long as they demonstrate awareness of a recent news story.* *If a general answer is given, such as "war", "a lot of rain", ask for details. If unable to give details, the answer should be scored as incorrect.*	**1**	
Recall What was the name and address I asked you to remember? *Score for each of the 5 components - John, Brown, 42, West Street, Kensington.*	**5**	
Patient Score		
Maximum Score	**9**	

Dementia Screening Examination Sequence

GP COG: General Practitioner Assessment of Cognition

GPCOG Informant Interview
Ask the informant: "Compared to a few years ago"

Score 1 for each NO answer

GPCOG Informant Interview	Maximum Score	Patient Score
Does the patient have more trouble remembering things that have happened recently?	**1**	
Does he or she have more trouble recalling conversations a few days later?	**1**	
When speaking, does the patient have more difficulty in finding the right word or tend to use the wrong words more often?	**1**	
Is the patient less able to manage money and financial affairs (eg, paying bills, budgeting)?	**1**	
Is the patient less able to manage his or her medication independently?	**1**	
Does the patient need more assistance with transport (either private or public)?	**1**	
Patient Score		
Maximum Score	**6**	

Interpretation of Results

- **>8** on the GPCOG Patient Section were assumed to be **Cognitively Intact**
- **<5** on the GPCOG patient section were assumed to be cognitively impaired
- **5 to 8 inclusive:** Equivocal therefore Informant Questionnaire essential.
- **3 or less out of 6:** for patients requiring an informant questionnaire, indicates cognitive impairment

Obstetrics and Gynaecology History and Examination

Background

The aim of obstetric management is to maintain or improve the health of the mother and to produce as normal a pregnancy and as safe a delivery as possible. Gynaecological history can be viewed as a surgical history with details specific to obstetrics. The obstetrics history taking and examination should focus on:

- Highlighting any previous medical, surgical or obstetric complications
- Identification of actual and potential risks to the pregnancy and delivery
- Formulation of the management pathway for the current pregnancy- explore ICE
- *Identify any need for an interpreter.*
- Use of a template will help you take the history in a logical manner and minimise the risk of omissions.

Table 1: Management objectives by trimester

First trimester 1-13 weeks	• Record details of the pregnancy including the EDD (expected date of delivery) • Identify any existing medical problems • Assess risks to pregnancy and explore lifestyle • Undertake relevant screening tests • Assess need for additional services
Second trimester 14-26 weeks	• Monitor maternal health • Monitor growth of baby • Assess for any new problems • Discuss labour and delivery plans
Third trimester 27 weeks to term	• Monitor overall health and progress • Monitor growth of baby • Plan childbirth

The care of the Mother

The Care of the developing Fetus

The baby human

Images in Obstetrics and Gynaecology Clinical Practice

Obstetrics and Gynaecology: History Taking

Personal History and PC

- ***Personal details:*** Age, Marital status: single, partnership, married or divorced
- ***Gravid:*** the number of all pregnancies including the current one.
- ***Parity:*** the number of births beyond 24 weeks.
- ***Last menstrual period*** (LMP) first day of LMP
- ***EDD:*** Naegele's Rule: [LMP + 1 year +7 days] minus 3 months. Dating scans more accurate.
- ***Previous menstrual cycle history***: regular or irregular.
- ***Relevant Reproductive System History:*** Recent use of contraception (esp OCP), History of subfertility, Sexually transmitted diseases, Previous cervical smears, Female circumcision, Urinary and/or faecal incontinence. Full history of gynaecological PC
- ***Red flags, Systems review***

PMH

Current obstetric health

- Hospital admissions during current pregnancy.
- Foetal movements after 20 weeks.
- Date and detail of booking scan and anomaly scan.
- Results of other scans and laboratory tests.
- Subsequent antenatal check ups

Past obstetric history: *Outcome of previous pregnancies:*

- Antepartum, intrapartum or postpartum complications.
- Gestational age at delivery.
- Labour: spontaneous, induced or planned caesarean section.
- Mode of delivery: normal, assisted, breech or caesarean section (elective or emergency)
- Birth weight and health of baby since delivery.
- Previous miscarriages, ectopic pregnancies or terminations.
- Causes of early and late pregnancy losses, if known

Current and past medical history

- ***General:*** Anaemia, UTI, TB exposure, back problem, asthma, PE/DVT, epilepsy.
- ***CVD:*** Heart disease, Hypertension
- ***Diabetes and Endocrine:*** Type 1 or type 2 diabetes mellitus, thyroid disorders.
- Any other medical condition.

Surgical history

- ***Previous Obstetrics or Gynaecology surgery:*** Caesarean section, myomectomy, cervical cone biopsy, LLETZ (Large Loop Excision of Transformation Zone), cervical circlage. Bowel surgery or laparotomy
- Anaesthetic complications

Mental health history

- Present or past mental health problems.
- Depression, Personality disorder, Suicidal tendency.
- Details of treatment, if any

Drug History and Allergies

- Intake of any **teratogenic drugs**, e.g. warfarin, ACE-inhibitors, statins, ARBs.
- Any other drugs, e.g. beta blockers which may impair foetal growth.
- OTC, recreational drugs (smoking, alcohol)
- Previous referral to a substance misuse or smoking cessation advisor
-

Allergies:

- Drugs (? Penicillin), Food, Latex, Any others

Social History

- Smoking Hx, Alcohol intake
- Housing and/or employment issues.
- Support from partner, friends and family.
- Religion.
- Social issues.
- Domestic violence.

Family history

- Diabetes mellitus.
- Thromboembolism.
- Hypertension.
- Pre-eclampsia / HELLP.
- Congenital hip disorders.
- Neural tube defects.
- Down's syndrome.
- Cystic fibrosis.
- Thalassemia.
- Congenital abnormalities.
- Metabolic disorders.
- Mental health problems.
- Any other familial disorders.
- Twins.
- Consanguinity.
- Smoking

Ideas, Concerns, Expectations: ??

- Ideas
- Concerns
- Expectations
- Is there anything else that you want to tell me?
- Do you have any questions ?

Clinical Notes

Obstetrics and Gynaecology: Physical Examination

General examination

- General appearance
- Weight, height and body mass index, Temperature
- Cardiovascular examination : pulse, blood pressure in the semi-recumbent position or at 45°, heart and lungs
- Breast and Thyroid, especially for nodules
- Reflexes if pre-eclampsia
- Fundoscopy if history of headaches, pre-eclampsia or diabetes

Abdominal Examination

Inspection

- Scars
- Over-distension: multiple pregnancy, polyhydramnios, fibroids or ovarian cysts
- Visible foetal movements
- Rash
- Scratch marks
- Striae gravidarum
- Linea nigra
- Oedema (peau d'orange)

Palpation

- ***Tenderness or mass :*** localised or generalised tenderness in the 2nd or 3rd third trimester may indicate placental abruption
- ***Uterine size:*** The uterus should be palpable at the symphysis at 12/13 weeks and at the umbilicus at 20-22 weeks. Up to 22 weeks, uterine size is assessed as one week = one fingerbreadth. From 24 weeks, symphysiofundal height (SFH) is measured with a tape in centimetres from the pubic symphysis to the highest point on the fundus: it should be recorded every 2-3 weeks.
  - ***Increased SFH :*** multiple pregnancy, fibroid, ovarian cyst, macrosomia, polyhydramnios
  - ***Reduced SFH :*** foetal growth restriction, small for gestational age, oligohydramnios
- ***Foetal lie:*** is defined as the relationship of the longitudinal axis of the foetus to the longitudinal axis of the uterus. It can be: longitudinal, transverse or oblique

- ***Foetal Presentation:*** is defined as the leading part of the foetus which lies over the pelvic brim. It can be: cephalic, breech, hand, footling, cord, compound, e.g. hand presenting with head
- *Foetal Position: is defined as the relationship of the foetal back to the maternal back*

The four grips of Leopold's manoeuvre are palpation of:

1. The uterine fundus
2. The uterine sides
3. The foetal presenting part between two hands
4. The presenting part between index finger and thumb to assess for foetal descent and engagement (2/5th or less palpable)

Percussion

This is not generally used in obstetric examination, but a fluid thrill may be demonstrated in polyhydramnios.

Auscultation

Use a handheld Doppler over the anterior foetal shoulder or back to auscultate the heart for one minute: normal is 110-150 beats per minute.
You can also use a Pinard's stethoscope to listen to the foetal heart

Vaginal examination: speculum and digital

This is not a part of routine obstetric examination and is indicated only when there is:

- Suspected bleeding
- Ruptured membranes
- Offensive vaginal discharge
- Suspected labour or active labour

Table 1: Physical examination by Trimester

Examination	1st Trimester	2nd Trimester	3rd Trimester	Labour
BMI	√	√	√	
General examination including BP & urinalysis	√	√	√	√
Abdominal	• Tenderness or mass	• Tenderness • SFH • Foetal Presentation • Foetal heart sounds	• Tenderness • SFH • Foetal lie • Foetal Presentation • Foetal Position • Foetal heart sounds	• Tenderness • SFH • Foetal lie • Foetal Presentation • Foetal heart sounds • Monitor for contractions
CVS/Resp	√	√	√	√
Breast/thyroid	√			
Vaginal	Indicated only if bleeding, vaginal discharge, ruptured membranes, suspected labour / active labour			
Reflexes			If pre-eclampsia	
Fundoscopy	If pre-eclampsia, headache or diabetes			

Plan of care

- Identify risks to the pregnancy with a detailed history and examination
- Diagnose and treat any medical disorders
- Offer a multidisciplinary team approach
- Individualise the management plan in accordance with need and the severity of any disorder
- Monitor health of the mother and baby
  - Monitor growth of the baby
  - Plan safe delivery
  - Give adequate information to the woman to enable her to make informed choices.

Safety Tips

- Always take the history in a logical sequence and take care to avoid inadvertent omissions of detail
- Refer to the medical team and offer a multidisciplinary approach in case of possible medical, surgical or anaesthetic problems
- Establish good communication with the woman and satisfy her needs
- List all her problems and make a care plan for each one before she leaves
- Vary the history taking template according to the clinical problem
- Always obtain consent before carrying out examination and use a chaperone.
- Each examination should be tailored to the woman's circumstances.
- Carry out speculum if suspected ruptured membranes, bleeding or threatened preterm labour.
- Never carry out a digital vaginal examination if placenta praevia is suspected or known.
- Avoid digital vaginal examination with ruptured membranes unless the woman is in labour.
- Always seek advice and senior support when necessary.

Paediatric History and Examination

Paediatrics can often seem intimidating to medical students. Much of the information required and principles of problem solving and management are very similar to adult specialties. However there are significant differences in some aspects of paediatric history and examination skills.

In this chapter we have summarized the main differences and highlighted some helpful hints and tips which will hopefully benefit your clinical experience.
The most important thing to remember is that your approach will have to vary considerably depending on the developmental stage of the child. **Be flexible**. While the information that you are trying to establish is much the same as when clerking an adult, you may have to vary your style to accommodate the child's ability and cooperativeness, particularly in examination.

Presenting Complaint

Who will your history be from?

- If the child is able and willing to contribute to the history, include them as much as possible
- When clerking an adolescent, they may or may not want their parent / guardian present. It is polite to ask!
- If the history is from an adult, clarify their relationship to the child and whether they have parental responsibility

Start with open questions, allowing the patient to use their own words

Proceed to closed questions to elucidate the detail, until you are fully satisfied that you have an understanding of the symptoms

- **Timing** – onset and duration
- **Severity** - numerical scales are useful for children aged > 8years, for younger children facial expression scales are available
- **Exacerbating** and relieving factors
- **Associated** symptoms – eg weight loss
- **Presence of red flags**
- **Impact** on function / school attendance

Consider general health - diet, fluid intake, sleep pattern, micturition and bowel habit

Exposure to infectious diseases / foreign travel

Past Medical History

Birth history

- Gestational age at delivery
- Mode of delivery and complications
- Antenatal problems / abnormal screening results
- Admission to neonatal unit

Immunisations

Medical conditions

- Severity and impact on function

Hospital or PICU admissions

Previous surgeries

Growth

- Ask to see the Personal Child Health Record ("red book") – are they growing along centile lines? Consider weight, height and head circumference
- If there are concerns re: stature calculate mid-parental height (in cm)

$$= \frac{(\text{dad's height} + \text{mum's height})}{2} \quad \begin{matrix} + 7 \text{ (boys)} \\ - 7 \text{ (girls)} \end{matrix}$$

Development

Four domains – gross motor, fine motor, speech and language, social

Are they meeting milestones appropriately in each?

Involvement of specialists eg. community paediatrician / SALT / Statement of Special Cognition and learning, Educational Needs

Drug History

Current medications

Include medical devices used, eg spacers / inhalers. May be appropriate to check technique

Allergies (include food allergies)

Severity e.g. rash / swelling / anaphylaxis

Family History	Social History
Parents Medical problems Any resolved childhood problems? Are they consanguineous? **Siblings** Number, ages, genders Do they have any medical problems **Family tree** One generation is usually sufficient, unless there is a known inherited disorder **Broader Family** Inherited or childhood conditions	**Who is the main carer?** **Nursery / school** **Living arrangements** including relatives, partners **Parents** separated or together? who has parental responsibility? **Social Services Involvement** current or previous

Child Protection Red Flags

Delay in presentation

Inconsistent injury for history

Varying history

with time or depending on who is being spoken to

Fractures

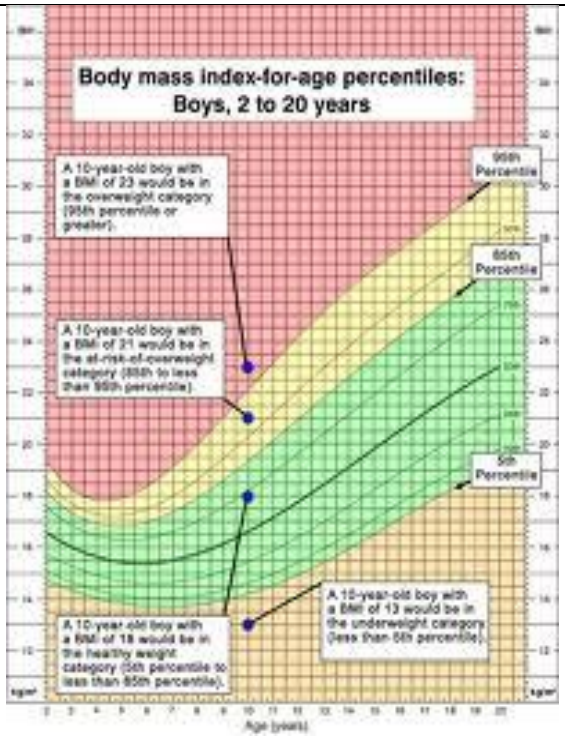
multiple, different ages

in non-ambulant infants

Frequent attendances to ED

particularly if at different hospitals

Clinical Notes



Life-threatening Meningococcal Septicaemia

Non-blanching rash using the Glass Test

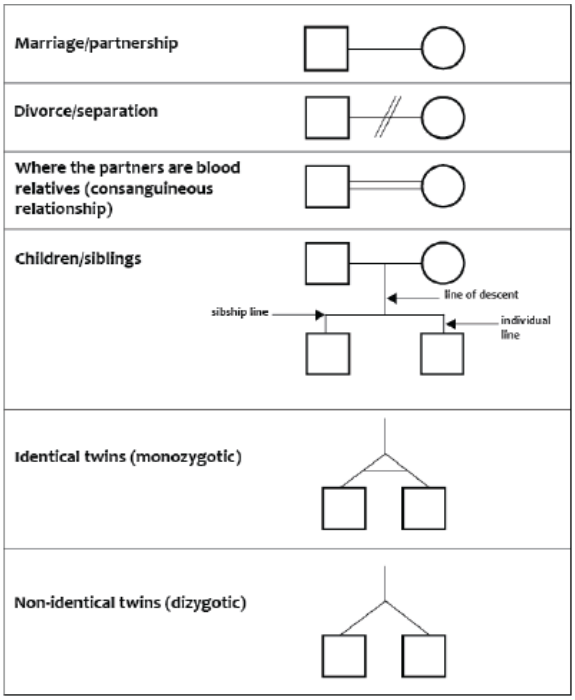
(use of clear plastic tube is fine!)

NB Can be difficult to spot in dark skin

Growth charts: are available in categories of age and sex. There are also specific growth charts for premature infants, children with Down's Syndrome, and some ethnic minorities.

Red flag examinations signs: include purpuric rash. Others include silent chest, inactive child, confusion, pallor, mottled skin.

Family tree key: (Health Education England) Family trees are part of a paediatric clerking. If there is any suspicion of inherited disease this should include at least three generations.



	Male	Female	Sex Unknown
Individual			
Affected individual (symbol coloured in)			
Multiple individuals	5	5	5
Deceased			
Pregnancy (the unborn baby of a pregnant mother)	P	P	P
Miscarriage	male	female	
Person providing pedigree information			

Set of agreed symbols to use when drawing a pedigree. In order to show how individuals are related to each other, lines are drawn between symbols. The correct placement of these lines is a key skill to ensure the pedigree gives an accurate picture of family relationships.

Basic Observations

Age (years)	Heart Rate Awake	Heart rate Asleep	Respiratory Rate	Systolic BP	Diastolic BP
Neonate (<28 d)	100-165	90-160	30-55	67-84	35-53
Infant (1 mo-1 y)	100-150	90-160	30-55	80-100	55-65
Toddler (1-2 y)	70-110	80-120	20-30	90-105	55-70
Preschool (3-5 y)	65-110	65-100	20-25	95-107	60-71
School-age (6-11 y)	60-95	58-90	14-22	95-110 Age 6-9	60-73
				100-119 Age 10-11	65-76
Adolescent (12-15 y)	55-85	50-90	12-18	110-124	70-79

Kliegman, R.M., et al. Nelson Textbook of Pediatrics, 20th Edition. Philadelphia, PA: Elsevier, 2015.
Weaver, Donald J. "Hypertension in Children and Adolescents." Pediatrics in Review 38.8 2017

Hints and Tips

It may be helpful to examine very young children on their parent's lap as far as possible. A cuddle with the head over the shoulder is particularly helpful for posterior chest examination.
If a newborn is crying, sucking on a clean finger or dummy may help you auscultate.
Parents can help hold young or uncooperative children still for ENT examination so you can safely use the instruments. Always bring a tongue depressor.
Distraction techniques may be useful for examination and procedures eg. watching on a smartphone

General Examination

Observe

playful / miserable / clingy / normal movements
appearance – well-nourished / well-kempt / obvious injuries
dysmorphic features

Plot

weight and height on appropriate centile chart

Rashes

blanching, non-blanching, distribution, macular/popular

Ears and Throat

often left to the end of an examination as it is not well tolerated

Respiratory Examination

Inspection

Effort of breathing
use of accessory muscles
subcostal / intercostal / sternal recession
tracheal tug
head bobbing
Additional sounds
grunting
stridor (inspiratory / biphasic)
Observations
Oxygen saturations
Heart rate
Cyanosis
Conscious level
Chest shape

Auscultation

Compare both sides, perform front and back
Breath sounds
Vesicular
Bronchial – harsh, expiratory and inspiratory phase are of equal length with pause between - indicates consolidation or fibrosis
Wheeze - musical sound, indicates narrowing of the bronchi
Crackles (crepitations) - secretions / reopening of small airways with each breath. Widespread fine crackles are common in viral LRTIs. Localised coarse crackles indicate pneumonia
Absent – "silent chest" - may occur in severe asthma
Vocal resonance if appropriate

Palpation

Lymphadenopathy
- Cervical, pre- and post- auricular, occipital, axilla

Chest expansion

Percussion

Dull
- collapse/consolidation

Stony dull
- pleural effusion

Hyper-resonant
- pneumothorax

Cardiovascular Examination

Inspection

Cyanosis
- potentially a sign of congenital heart disease

Respiratory distress
- heart failure

Surgical scars

Palpation

Pulse
- Rate, character and volume.
- Brachial in infants, radial in older children
- Femoral pulses – weak / absent in aortic coarctation and should be part of all paediatric cardiac examinations

Apex beat
- location (third IC space, MC line)
- heave

Thrill

Liver edge
- displaced downwards in heart failure

Auscultation

Murmurs are common
- indicate turbulent blood flow
- may not be pathological
- common in hyperdynamic states (eg fever)

Assessing murmurs
- grade (1-6)
- timing
  - most paediatric murmurs are systolic
- location
- radiation

Innocent murmurs
- soft, blowing quality
- grade 1 or 2
- no radiation
- positional

Lung bases
- bilateral basal crackles in heart failure

Gastrointestinal Examination

Inspection
- Jaundice, anaemia
- mouth ulcers
- failure to thrive
- scars, herniae

Palpation
- light then deep palpation
- tenderness
- rigidity
- rebound tenderness
- liver is larger in infants, may be palpable 1 cm below the right costal margin

Masses
- renal – ballotable
- tumours eg. nephroblastoma, neuroblastoma
- faecal masses are indentable

PR exam is rarely called for in children however inspection of the external anus may be useful, eg if querying anal fissure

Neurological Examination

This will have to be extensively adapted according to the developmental stage and cooperativeness of the child.

Inspection

In young children who will not cooperate with neurological assessment, observation is one of the mainstays of neurological assessment:

- conscious level (AVPU)
- movement - all limbs
- gait
- facial symmetry
- turning to sounds
- fixing and following on bright objects (use a toy)

Tone, Power, Reflexes

Assess upper and lower limbs, comparing both sides
Compare power to your own strength (but remember the smaller the child the weaker they should be!)
Reflexes include triceps, brachial, supinator, knee jerk ankle jerk and plantar response.
Adaptations for infants

head lag
lie prone – can they lift head / support thorax with arms

Coordination

Finger pointing, dysdiadokinesis

Sensation

Light touch, temperature, two-point discrimination, proprioception
Compare both sides

Cranial Nerves

Depending on developmental age you may be able to do a full assessment as in adults.
For younger children, observe

facial movements
speech articulation
response (eg turning) to loud noises
fixing and following on bright objects
copying funny faces (VII) if cooperative
picture Snellen charts for children who cannot recognise letters but who can name common objects

Useful Guidelines

Moderate asthma	Able to talk in sentences SpO_2 ≥92% PEF ≥50% best or predicted Heart rate ≤140/min in children aged 1–5 years ≤125/min in children >5 years Respiratory rate ≤40/min in children aged 1–5 years ≤30/min in children >5 years	
Acute severe asthma	Can't complete sentences in one breath or too breathless to talk or feed SpO_2 <92% PEF 33–50% best or predicted Heart rate >140/min in children aged 1–5 years >125/min in children >5 years Respiratory rate >40/min in children aged 1–5 years >30/min in children >5 years	
Life-threatening asthma	Any one of the following in a child with severe asthma:	
	Clinical signs	Measurements
	Silent chest	SpO_2 <92%
	Cyanosis	PEF <33% best or predicted
	Poor respiratory effort	
	Hypotension	
	Exhaustion	
	Confusion	

British Guideline on the management of Asthma, British Thoracic Society, 2016

Moderate dehydration	Severe Dehydration/ Shock
Altered responsiveness (e.g. irritable/ lethargic) Sunken eyes / fontanelle Dry mucous membranes Reduced skin turgor Tachycardia and tachypnoea Decreased urine output	A decreased level of consciousness Prolonged capillary refill time Cool peripheries Pale or mottled skin Tachycardia and tachypnoea Weak peripheral pulses Hypotension.

Diarrhoea and vomiting in children under 5. NICE Guideline CG84 April 2009

Patient Safety Tips

Use National and Local Guidelines: Familiarise yourself with national guidelines, such as NICE or British Thoracic Society Guidelines. These are a useful resource and aim to provide an evidence base to support current practise.

Take time over your communication: whether with parents, children or colleagues, written or verbal.

Check all dosages and routes of administration carefully: medications are usually prescribed by weight in paediatrics. Check your calculations.

Senior Clinician involvement: Have a low threshold for senior involvement. If you are unsure or are new to paediatrics you should always discuss your cases with a senior colleague.

Create safety nets: When discharging patients ensure they have a safety net i.e. a clear plan of what to do and who to contact if symptoms reoccur or child becomes more unwell.

Child Protection Red flags: have a low threshold for suspecting this in a child if the red flags detailed above apply. Seek senior help and advice at all times.

Paediatric History and Examination Checklist

Please take a history and examine this child.					
Initiating the consultation	Greets patient and parents, confirms patient's name and age. Introduces self, states role and purpose of interview, gains consent. Uses body language and manner appropriate for the age of the child. Uses appropriate open question to initiate interview.				
History	Allow the parents or child to explain their concerns in their own words. Asks appropriate follow up questions. Takes a birth history. Takes a developmental history. Immunisations. Explores treatment history and allergies. Explores social history, main carer, home occupants, school etc. Asks about smoking within the home and alcohol and recreational drug use if appropriate. Takes family history. Draws family tree. Listens attentively and minimises interruptions. Seeks clarification when necessary. Asks to see red book.				
Explanation and consent	Washes hands with alcohol gel or soap and water. Explains examination procedure to patient and obtains verbal consent.				
General inspection	Observes child at rest or at play prior to examination. Inspects patient's surroundings for 'clues'.				
General examination	Asks to plot weight and height with centile chart. Observes general appearance including rashes and any signs of neglect or non-accidental injury. Appropriate exposure.				
Respiratory	Comments on respiratory rate and work of breathing. Percussion. Ausculates in a symmetrical fashion including axillae. Asks to examine ears and throat.				
Cardiovascular	Comments on systemic signs and any scars. Examines pulse and requests blood pressure. Ausucultates heart sounds. Auscultates chest and palpates for liver edge.				
Gastrointestinal	Comments on systemic signs. Looks in mouth. Systematic examination of the abdomen. Asks to examine genitalia and anus.				
Neurological	Comments on development while the child is at play. Observes gait. Assesses tone, power and reflexes. Assesses coordination.				
Professionalism					
Assessment					

Ear General and Otoscopic Examination

Explanation and consent

- Washes hands with alcohol gel or soap and water.
- Expains procedure to patient and obtains verbal consent.

Correct position

- Seats patient comfortably on a chair.
- Asks which is the better hearing ear and starts with this side.
- Asks if there is any tenderness before touching patient.

General inspection

- Looks for hearing aids, facial palsy, checks for dysarthria, dysmorphic features.

Examination of Pinna and Mastoid :

- Uses pen torch or head light.
- Looks in front & behind pinna. Moves pinna to check for scars, Inspects mastoid process
- scars, skin lesions (? BCC, ? SCC, ? tophi), ear-lobe crease (Frank's sign), accessory auricles, sinuses, discharge, inflammation and swellings.
- Palpates for tenderness over mastoid, pinna and tragus.
- Examines for lymphadenopathy.

Direct Otoscopy/Auriscopy

- Holds otoscope in same hand as the ear, which is examined
- Hold auroscope between thumb & index finger with little finger braced against side of patient's face.
- Adults: Pinna is pulled superiorly, laterally and posteriorly with other hand
- Children: Pinna is pulled inferiorly and posteriorly with other hand
- Inspects ear canal and comments on appearance and need or otherwise for cleaning
- Indicate limitations of further assessment if meatus is not clear
- Systematically examines tympanum: (pars tensa and flaccida) and comments on findings.

Basic tips: use largest speculum that fits comfortably. Stabilise patient's face to minimize trauma.
Speculum: insert into meatus under direct vision to avoid missing lesions in wall of outer meatus. Do not position beyond hair-bearing meatus as contact with the very sensitive wall may produce a reflex movement that can damage meatal skin or tympanic membrane.
Ear canal: Examine full length, ear drum examine systematically. Failure to achieve: ?atresia or narrowing of the meatus or wax, foreign body, discharge, space occupying lesion of the meatal wall or an inflammatory polyp or other lesion.
Drum: Identify handle and lateral process of the malleus. Note: abnormalities of colour and translucency, thinning, bulging, discharge, granulations, crusting and perforations. During the Valsalva manoeuvre, a meatal hissing sound may confirm presence of drum perforation.
Colour and vascularity of meatal wall: Normal variation considerable, meatal instrumentation, syringing, child crying all can result in marked hyperaemia, misinterpreted as inflammation.
Light reflex: Depends drum reflectivity, contour/angulation of the drum to long axis of meatus & angle of light source. Reflex is usually conical and directed inferior from the umbo but may appear in other areas of the drum, or be absent. Its clinical usefulness is therefore minimal.

Clinical Hearing Tests

- Performs free field voice test.
- Performs **Rinne's test and Weber's test** and interprets correctly.

Additional examination

- Cranial nerve examination (particulary CN VII).
- Examines neck for lymphadenopathy ? Considers formal audiological testing

Clinical Notes

Hearing tests

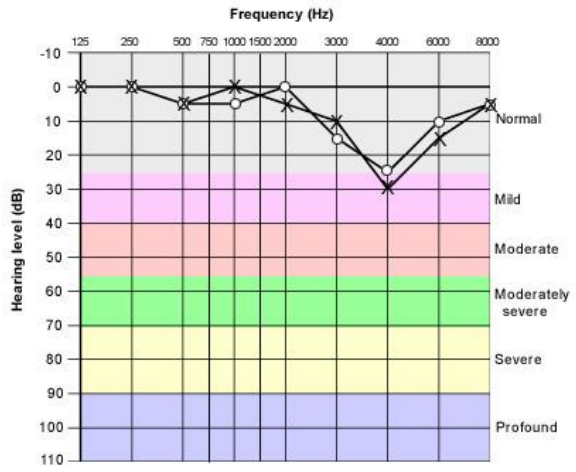
Voice Test of Hearing

This test is reliable only if the meati are clean. If well performed it gives a useful semi-quantitative assessment of the range of hearing loss present in each ear.

Free Field Voice Test for Assessment of Hearing		
• Instruct the patient on the procedure, testing each ear in turn. Steps 1to 4 if needed • Use tragal masking (rubbing the tragus firmly against the outer meatus) to eliminate the non-test ear from the assessment. • **Whisper** multi-syllable numbers (eg 21 to 99) in the test ear at arm`s length distance (approximately 1 metre). Ensure patient is unable to lip read the examiner.		
	Technique and Clinical Findings	**Interpretation**
1	**Whisper:** at arm's length. Patient repeats the numbers correctly. If OK →	Hearing is within the normal range the second ear is then tested.
2	**Whisper:** Mouth positioned close to the test ear. If OK →	Hearing loss is between 30 and 60dB and the second ear is tested.
3	**Normal spoken voice:** Mouth positioned close to the test ear. If OK →	Hearing loss is between 60 and 90dB and the second ear is tested.
4	**If still cannot repeat numbers correctly:**	Hearing loss is greater than 90dB. The second ear is then tested.

Pure Tone Audiogram

The gold standard test of hearing is provided by Pure Tone Audiometry. It can, however, be backed up by other clinical techniques using Tuning Forks and Voice Tests of Hearing which, although inherently less accurate, are still to a degree quantitative and can usefully be included in the standard clinical assessment of patients with otological problems.

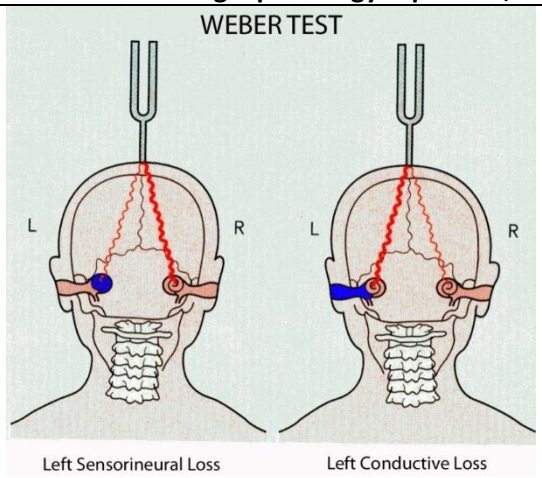


This is a graphical representation of the thresholds of hearing in decibels of hearing level below a standard of 0dB at frequencies between 125 and 8000Hz. In the diagram below the responses in the right ear are represented by the O---O graph and those in the left ear by X---X. The colour coding and the annotation on the right of the chart indicate the degrees of deafness represented by hearing thresholds at various levels below the 0dB line.

Pure Tone Audiogram

Tuning Fork Tests

These are performed using a tuning fork of 512 cycles/second and are really reliable only if the meati are clean and **a single pathology is present, i.e. a conductive or sensorineural deficit in one ear.**

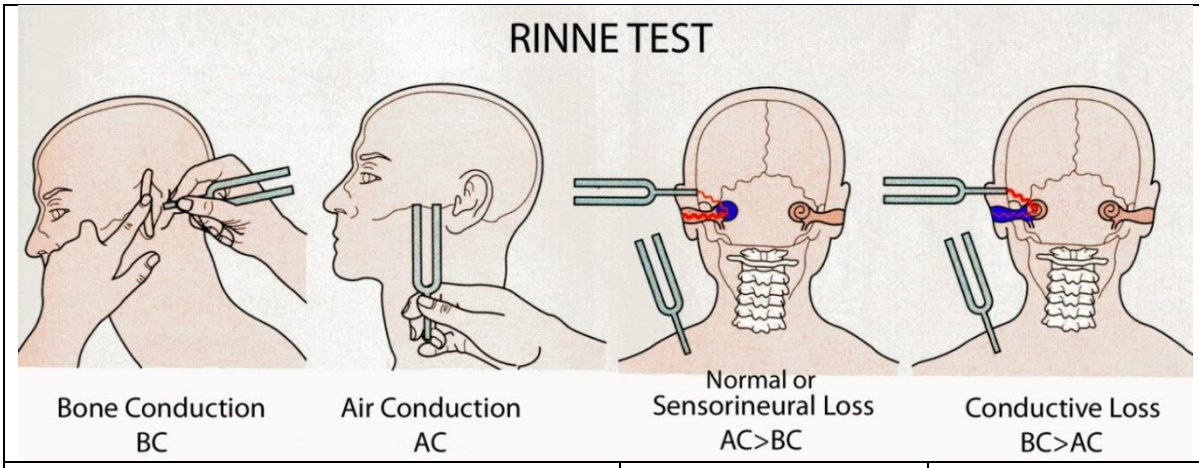


Weber's Test

- If both ears are normal or there is a symmetrical sensorineural loss the response is central.
- If there is a sensorineural loss in one ear or a markedly asymmetrical bilateral sensorineural loss the sound is referred to the better ear.
- If there is a conductive loss in one ear the sound is referred to the deaf ear. (less distraction from surroundings as sound not conducted in and heightened sensorineural input in conductive loss ear)

Weber's Test

The tuning fork is struck and placed firmly over the (non-hairy) bony, midline vertex or forehead. Patient is asked to say whether the sound is heard centrally in the head or better in one ear.



	Positive	Negative

Rinné Test:

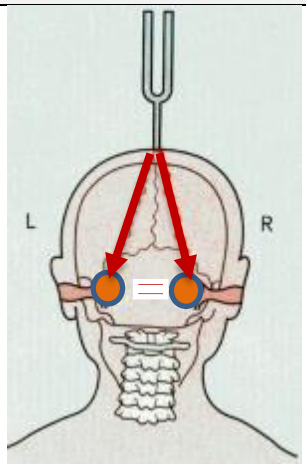
- **Positive test:** If air conduction is better than bone conduction (normal pattern). This is present in a normal ear or in one with a sensorineural deafness. In sensorineural deficit both AC and BC are affected but normal pattern persists.
- **Negative Test:** If bone conduction is better than air conduction. This is found in an ear with a conductive deafness.

Rinné Test

The tuning fork is struck and placed on the mastoid process. Say to the patient:
"Tell me when you can no longer hear the tuning fork"
When patient indicates this, place the tuning fork close to one ear with the axis of vibration of the prongs in line with the axis of the meatus (for optimal Air Conduction). Ask patient:
"Can you hear it now?"
The "normal" patient should hear it as Air Conduction is always better than the initial Bone Conduction.

Exemplar Findings with the Rinné and Weber Tests

Normal Findings:



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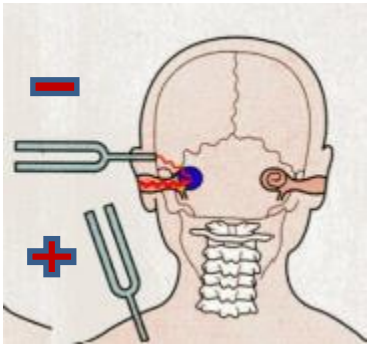


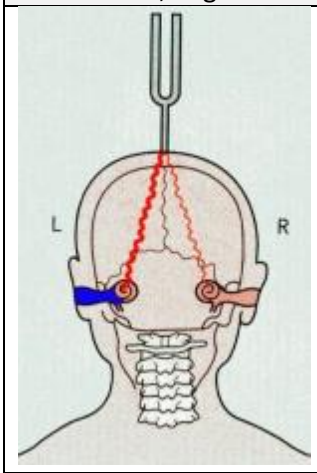
Normal Findings

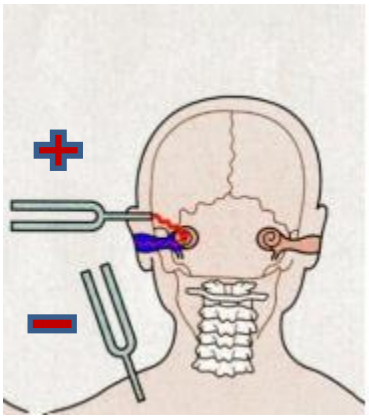
Weber's Test
Central or Equal in both Ears

(could also be equal Sensori-neural hearing loss both ears!)

Rinné's Test- Positive
Air Conduction is better than Bone conduction

Conduction Deafness: otitis externa, otitis media, perforated eardrum, Rheumatoid Arthritis, otosclerosis, Paget's disease,



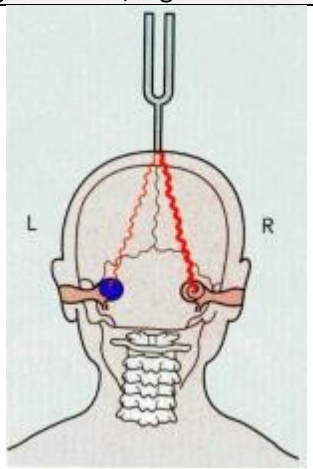


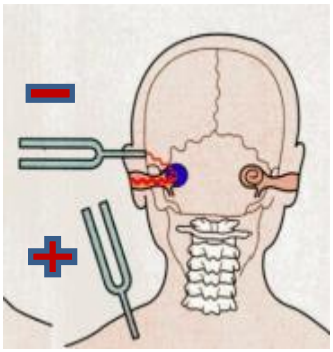
Left Conductive Loss

Weber's Test
Localises to L, the affected side

Rinné's Test- Negative
Abnormal- Rinne Negative
Bone conduction better than air conduction in this case
Air Conduction is normally better than Bone Conduction

Sensori-neural deafness: Aging-related (presbycusis), noise-induced, ototoxicity (eg drugs gentamicin, high dose furosemide etc)





Left Sensori-neural Loss

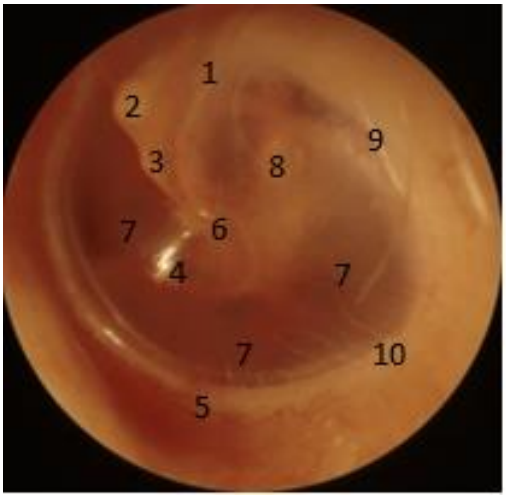
Weber's Test
Localises to R, the nerve does not work on the affected side (Left)

Rinné's Test-Positive
Rinne Test Normal- Rinne Positive.

Air Conduction is better than Bone Conduction. Even though there is sensorineural deafness (as long there is not complete deafness)

Ear Examination Images

Left Ear



Left tympanic membrane: auriscope view

1. Pars flaccida (attic)
2. Lateral process of malleus
3. Handle of malleus
4. Light reflex
5. Annulus
6. Umbo
7. Pars tensa
8. Incus (through TM)
9. Chorda tympani (through TM)
10. Tympanic ring

Normal outer meatus

Normal right ear; incus visible

Dry wax

Mucopurulent discharge & inflammatory polyp

Otitis externa

Thin mucoid discharge

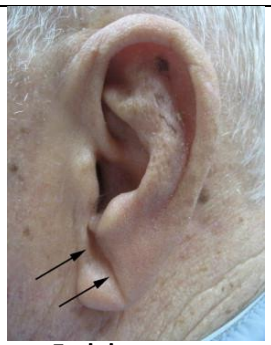
Otitis media with effusion

Otitis media with effusion

Attic cholesteatoma with polyp

Large perforation and dry cholesteatoma (L)

Tophi on pinna due to gout



Earlobe crease: CVD sign

Pinna squamous Ca

Cauliflower ear: Resolved haematoma

Logic table for Interpreting finding on Weber's and Rinne's Tests

Test	Clinical Findings:			
Weber: Normal central response	Both ears normal or →		Symmetrical sensorineural loss: R and L	
Sound referred to R	Sensorineural loss L or →		Conductive loss R	
Sound referred to L	Sensorineural loss R or →		Conductive loss L	
Rinne: Air Conduction better	Normal L ear or →		Sensorineural loss L	
	Normal R ear or →		Sensorineural loss R	
Bone Conduction better	Conduction loss L or →		Conduction loss R	

Interpretation				
Normal	**R Sensorineural**	**L Sensorineural**	**R Conductive**	**L Conductive**

- Conduct both tests and tick all that are possible.
- Only one possibility will emerge with the proviso that the tests only apply if a single pathology is present, ie. a conductive or sensorineural loss or deafness in one ear only.

An abbreviated form of the Rinné Test involves placing the tuning fork first near the meatus and then on the mastoid process and asking the patient in which position the sound is heard the louder. The interpretation is as above.

Patient Safety Considerations:

- Good hearing is profoundly important to quality of life (and general patient safety in the home) and therefore tests of hearing should be undertaken far more often than is the current norm in clinical practice. Even removal of wax will markedly improve hearing.
- Pure tone audiometry often needed for full assessment and hearing aids if indicated
- Full ENT examination if the complaint is of otalgia and otological examination is normal. Nasal and oral examination if a middle ear effusion is suspected.
- Change in voice should be investigated if persisting for longer than a few weeks: common causes include laryngeal malignancy, damage to recurrent laryngeal nerve or hypothyroidism.
- Full cranial nerve examination if a sensorineural deafness of uncertain cause is identified.

Clinical Notes

Dermatological History & Examination

History

Full standard history, specifically enquire about:

- Presenting complaint and duration.
- Ascertain the patient's main concern about the condition (e.g. appearance, fear of cancer, pain, itching etc). Itching is usually the most prominent feature of atopic eczema, scabies and dermatitis herpetiformis. Always remember that itching may also be caused by non-cutaneous disease (Hodgkin's disease, iron deficiency, thyroid dysfunction etc)
- If an eruption is extensive, ask how and where it began
- Change in colour of the lesion ? bleeding, ? darker, ? new variation in colour
- Previous skin disease, (broadly rashes and tumours) and other previous medical disorders.
- Family history of skin disease.
- Drug history and Allergies/Reactions and food intolerances
- Occupation and hobbies (e.g. gardening) may be relevant.

General inspection and examination

- Seat patient comfortably in a good light, preferably daylight.
- Clean your hands discreetly before and after the examination.
- Wear examination gloves, if suspicion of infection, infestation or examining genitalia.

Describing rashes: Examine as much of the skin surface as practical, examine the hair and nails.

Record:

- Distribution and pattern of the rash, well marginated? Diffuse? Discreet lesions?
- Colour and pigmentation, erythema blanches, purpura does not blanch. Brown pigment may be haemosiderin or melanin. Drugs may also stain the skin.
- Erythema may be faint, livid, pink, red, blue, purple, violaceous etc.
- Scaling. Large or small scales? Adherent? Continuous or at the periphery of lesions?
- Dryness, exudation, vesiculation (lesions <5mm), bullae (lesions >5mm).
- Is there erosion (partial loss of epidermis) or ulceration (full thickness loss)?
- Is the eruption flat and impalpable (macular) or palpable due to induration (hardening) or elevation (papules or plaques).

Describing lumps

Record:

- Location / distribution, size, shape, colour(s) and symmetry of lesion(s).
- Macules not palpable, Papules are raised < 5mm diameter, Nodules are > 5 mm diameter.
- Depth. Epidermal? Dermal? Within fat? Subcutaneous?
- Is the lesion tender?
- ? cellulitis ? local lymph-node involvement

Nail changes

- Onycholysis is separation of the nail plate from the nail bed. This is a characteristic feature of psoriasis.
- Pitting of the nails is seen in numerous dermatoses such as psoriasis, eczema, alopecia areata, lichen planus etc.
- Subungual haemorrhage may mimic melanoma (or vice versa). Splinter haemorrhages may occur in psoriasis, or result from sepsis (e.g. subacute bacterial endocarditis). Both are usually due to trauma, (which is more likely if splinters are acral).

Bulla	A fluid filled elevated lesion on the surface of the skin >5 mm diameter.
Comedo	A keratin plug in a hair follicle, the hallmark of acne vulgaris.
Crust	Dried exudates.
Cyst	A cavity lined by epithelium.
Erosion	Partial thickness epidermal loss.
Erythema	Red or blue discolouration due to dilated capillaries.
Exudate	Fluid on the skin surface 'exuding' from the tissue.
Hirsutes	Excess hair in a secondary sexual distribution.
Hypertrichosis	Excess hair.
Keloid	Scar tissue growing in tumour-like, beyond the site of the original causative injury.
Macule	A flat area of colour or textural change <2 cm diameter.
Nodule	A solid elevated lesion >5 mm diameter.
Papule	A solid elevated lesion up to 5 mm diameter.
Patch	A large macule >2 cm in diameter.
Petechia	A purpuric lesion up to 2 mm in diameter.
Plaque	A palpable, elevated, flat-topped, patch or large macule.
Poikioloderma	A skin appearance comprising hyperpigmentation, atrophy and telangiectasia.
Purpura	Red or purple discolouration due to extravasation of erythrocytes.
Pustule	A dense liquid accumulation of extravasated neutrophils.
Scale	A detachable fragment of thickened keratin.
Ulcer	A discontinuity of epidermis.
Vesicle	A fluid filled lesion on the skin surface up to 5 mm diameter.
Wheal	A transient, elevated area of dermal oedema, the hallmark of urticaria.

Basic Dermatology Terminology

Patient Guide: ABCD-Easy guide to checking your moles

There are three types of skin cancer, and all look different. The following ABCD-Easy rules show you a few changes that might indicate **'melanoma'**, which is the deadliest form of skin cancer.

As skin cancers vary, you should tell your doctor about any changes to your skin, even if they are not similar to those mentioned here. Remember - if in doubt, check it out! If your GP is concerned about your skin, make sure you see a Consultant Dermatologist, the most expert person to diagnose a skin cancer. Your GP can refer you via the NHS.

Asymmetry - the two halves of the area may differ in shape
Border - the edges of the area may be irregular or blurred, and sometimes show notches
Colour - this may be uneven. Different shades of black, brown and pink may be seen
Diameter - most melanomas are at least 6mm in diameter. Report any change in size, shape or diameter to your doctor
Expert - if in doubt, check it out! If your GP is concerned about your skin, make sure you see a Consultant Dermatologist (experts on skin cancer). Your GP can refer you via the NHS

Examination using Woods (ultra violet) lamp

Wood's light is an ultraviolet lamp used:

- To highlight contrast in subtle pigmentary changes
- To elicit green fluorescence in tinea capitis infection with microsporum canis
- To elicit coral pink fluorescence in erythrasma.

Elicitation of dermographism

Although the triple response (erythema, wheal, and flare), is normal, it is exaggerated in dermographism. This is the commonest variety of physical urticaria, (i.e. an urticarial eruption with a physical trigger) and often accompanies chronic idiopathic urticaria.

Stroke the skin on the back firmly (but not so hard as to cause any bleeding) with an orange stick or similar blunt pointed instrument. A positive test manifests as a palpable wheal developing at the site, usually within five minutes.

Dermatology Examination Images		
		
Malignant melanoma (superficial spreading type).	**Basal cell carcinoma, in a common location.**	**Squamous cell carcinoma**
		
Psoriasis. Scaly, well marginated erythematous plaques on the elbow.	**Eczema: hand and forearms affected**	**Lesions of Lichen planus on the buccal mucosa.**
		
Alopecia areata.	**Necrobiosis lipoidica diabeticorum. Waxy yellow, erythematous plaques on the legs which can ulcerate.**	**Venous leg ulceration.**
		
Chicken pox. Vesicles and pustules.	**Psoriatic onycholysis.**	**Bullous prmphigoid. Various ages on the elbow, on an erythematous background.**

Dermatology Examination Images in Black Skin

Please be aware that common skin conditions may be more difficult to detect in non-white skin. On the other hand, vitiligo may be easier to detect in non-white skin. Early cellulitis and the purpuric rash of meningococcal septicaemia are two specific conditions to look out for as they can be life-threatening emergencies especially the latter.

Atopic dermatitis: flushed, itchy, dry rash, with thickened patches over several sites. Especially flexor surfaces

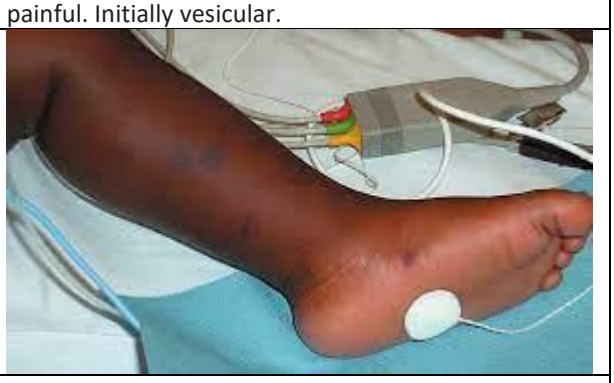
Psoriasis: red, papular rash with white or silvery raised scales on extensor surfaces and other areas. Back shown here

Vitiligo: distinctly contrasted white patches of skin due to a loss of melanocytes due to autoimmune destruction

Shingles: T4 dermatome is shown here. A shingles rash appears as linear red blisters that are often painful. Initially vesicular.

Meningococcal Purpuric Rash (Upper image): This does not blanche and is a life-threatening Medical Emergency.

Red rash (lower image): Does blanch and less of an emergency? local inflammation due to insect bites and similar condition.



Meningococcal Rash in Dark Skin:
Please note that this rash may be difficult to detect. Hence the E (Exposure) of the A to E assessment must be thorough with the clinician actively excluding rashes such as this one.

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Clinical Notes for Learning
i-Compat Worksheet (Composite Patient)

for recording clinical notes on multiple cases or a single case

Date & LEP

Presenting Complaint: key features of Hx, ask specifically about Covid19 symptoms

- .....
- .....
- .....

Frame 1: *Systems Review/ Red Flags,* ***F2****: PMH, DH, Allergies,* ***F3****: SH, FH,* ***F4****: ICE ??*

Main diagnosis & DDx

- .....
- .....
- .....

Past Medical History, Drugs, Allergies:

Current & past illnesses, operations

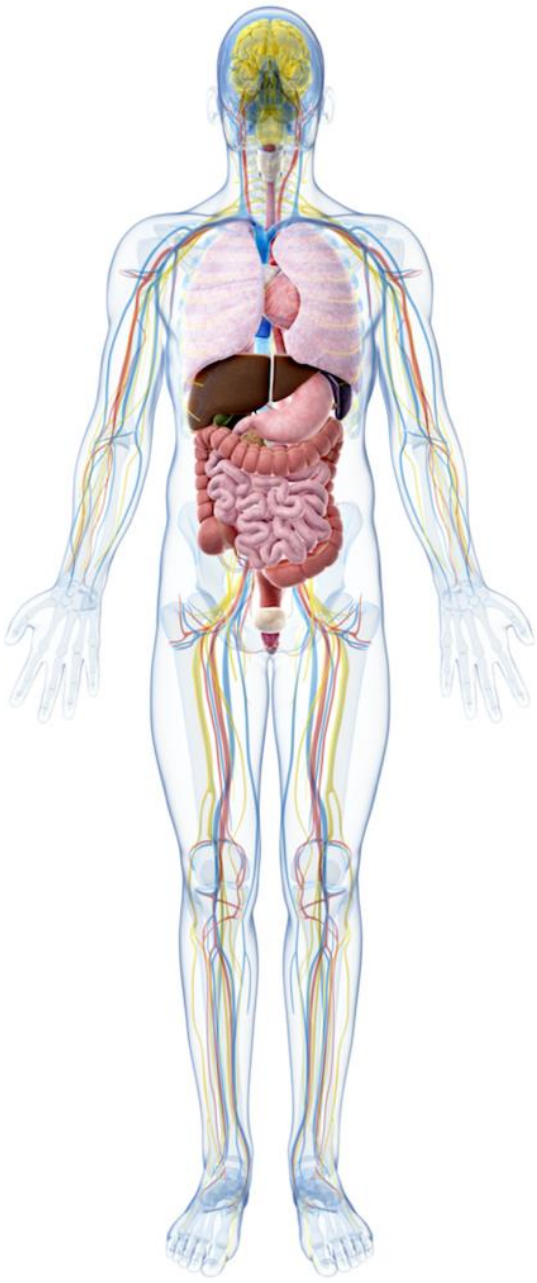
Drug	Indication	Mode of Action	Side-effects
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Allergies and Intolerances:

Social and Family History: ***Making Every Contact Count***	**Initial observations**
Smoking: *x daily, Pack Years*	***BP:*** ***Pulse:*** ***Temp.***
Alcohol: *Units/week*	***O_2 Sats:*** ***Resp. Rate***
Accommodation/ Mobility	***MEWS:*** ***Pain score***
Effect of life/ADL	***GCS: ……/15*** ***Cap. glucose***
Family History	***Other:***

ICE: Ideas, Concerns, Expectations **??:** Extra information, Questions from patient or carers

Clinical Examination
Inspection, specific signs ±



General/Endo.	Cardiovascular	Respiratory
Hands, Face, eyes, mouth, neck, lymph nodes, feet, oedema	Inspection, palpation, auscultation, lung bases, peripheral pulses	Inspection, palpation, expansion, trachea, percussion, auscultation, stridor
Abdomen / Pelvis	**Nervous System**	**MSK / Skin / Breast**
Inspection, palpation, hepatosplenomegaly, percussion, auscultation, groin, PR, PV, genitalia	Tone, power, co-ordination, sensation, reflexes, cranial Nerves	Inspection, fractures, skin, cellulitis, ulcers (leg, sacral), DVT, breasts
A&E Red Flags		
Glasgow Coma Scale, Distress, Red rash- non-blanching, Signs of meningeal irritation, BP both arms if chest pain, absent bowel sounds, silent chest, FAST symptoms and signs, fractures, dislocations, burns, pacemaker/ICD		

Working diagnosis / Problems	Management Plan

Investigations: *Bedside, Bloods, Imaging, Special tests*

Investigation	*Indication*	*Result*	*Interpretation*
1			
2			
3			
4			
5			
6			
7			
8			

Clinical skills acquisition	Professional behaviours and attitudes

Patient Safety Issues learnt:

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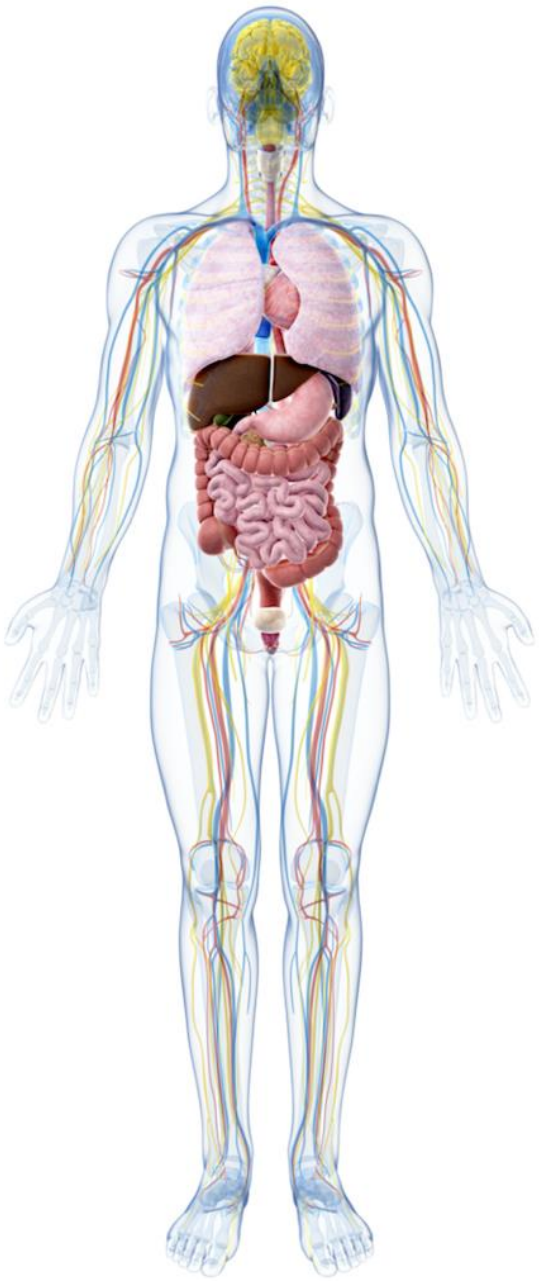

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