Institute for Health Skills and Education

In Collaboration with

NHS
Education for Scotland

CLINICAL ASSESSMENT SKILLS FOR PHARMACISTS
(Core Programme)

TRAINING MANUAL - PARTICIPANT COPY
Introduction

This programme has been developed between the Clinical Skills Centre, University of Dundee and NHS Education for Scotland to support the development of Core Clinical Assessment Skills for Pharmacists.

Participants are expected to undertake Pre-course reading of the Professional Issues Multiprofessional Clinical Skills pack prior to attending a one day practical session in the Clinical Skills Centre. The Professional Issues Pack is a generic self directed study guide which introduces practitioners to the issues surrounding role diversity, patient and client safety, risk assessment and practice. The pack is core reading for anyone undertaking further skills packs in the Multiprofessional Series.

Practitioners will then attend a one day session focusing on practice of the core skills of:
- Primary and Secondary assessment
- General examination
- Eyes and ears examination
- Breath sounds and peak expiratory flow rate measurement
- Temperature, pulse and blood pressure recording

The day will also include a five station OSCE to assess practitioner and provide feedback on performance at the end of the day.

In line with the process of developing clinical skills in practice the practitioner will be required to complete a Practice Logbook demonstrating ongoing practice of the skills taught on the study day. On completion this will be submitted to: Anne Watson at NES.

All of the information, including the Practice Logbook is contained within this pack which, once issued is the responsibility of the Practitioner until passed onto NES.

We hope that you find the programme interesting, valuable and stimulating and look forward to working with you.

The Programme Development Team

Dr Jean Ker Director Clinical Skills Centre University of Dundee
Ms Fiona Stewart Pharmacist Coordinator NHS Education for Scotland
Mr George Hogg Lecturer Clinical Skills Centre University of Dundee
**Training Day Programme**

08.45am  Registration

9.00am  Welcome, Introduction to the Day

9.30am  General Examination – Hands, Face, Mouth & Eyes

Assessing & Recording Temperature, Pulse, Respiratory Rate & Blood Pressure

11.00am  Coffee break

11.15am  Examination of Ear, Nose & Throat

1.00pm  Lunch

1.30pm  Examination of Chest & Peak Expiratory Flow Rate

2.30pm  Coffee break

2.45pm  Assessment

3.30pm  Feedback

4.00pm  Close
ABC Approach to Acute Illness and Injury

In case of trauma, and acute illness, health care providers use the ABC of life (airway, breathing and circulation) as their primary survey in identifying and assessing the condition of the patient.

Airway is considered as the most important factor to be assessed then the breathing and circulation. From this technique the appropriate intervention will be identified immediately and prioritization of action can be done according to the most important aspect to be assessed.

Whenever you are asked to see someone you should carry out your own ABC assessment so that any life-threatening conditions are identified treated (if within your limits of competence/role) and help sought if required. By using the ABC system you will be assured that an acute episode will be managed safely and effectively.

The Primary Survey

This is carried out whenever you see someone in an acutely ill or injured patient.

A: Airway - Position the airway and clear it of any obvious obstructions (for adults) in an acutely ill or injured person who is not unconscious by speaking to them and asking how they feel you can gauge the effectiveness of the airway by their response. Also if they can speak to you sensibly one can assume that their brain is being oxygenated adequately so breathing is alright.

B: Breathing - Look for signs of the person breathing, this may be if there chest is rising up and down, put your ear to there nose and feel for any air coming out. If there are no signs of breathing you will need to give mouth to mouth. In the awake patient you should carry out an assessment of their respiratory rate, chest sounds and PEFR at this point.

C: Circulation - Look and feel for signs of circulation, check for the pulse of the person either on their neck or the wrists. If you cant feel a pulse than you will have to start chest compressions. If the patient is awake carry out an assessment of TPR and BP.

Always record your findings, what interventions you carried out and refer onto emergency medical care if the injury/illness requires this.
General Examination – Hands, face, mouth and eyes

Learning Outcomes:

1. Discuss the process of carrying out a general physical examination
2. Demonstrate the process of carrying out a general physical examination
3. Discuss the benefits of carrying out a general physical examination and the main findings.

Whenever clients are to be examined or a history taken it is imperative that their privacy is maintained which might be difficult in a community setting.

The general physical examination should be carried out in a warm, well-lit environment where subtle abnormalities of skin colour can be detected e.g. mild jaundice is easier to see in natural light than artificial.

Ideally patients should be lying on an examination couch although a comfortable chair will suffice.

Activity: Think about some recent examples of when it would have been appropriate for you to have carried out a general examination of clients coming to you for advice or guidance and what modifications you might need to make in your present workplace.

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Whenever you carry out a physical examination you should follow the sequence of:

- Inspection   (Look)
- Palpation    (Feel)
- Percussion   (Tap)
- Auscultation (Listen)

The first step is to stand back and look at the patient looking for any obvious abnormalities. Is the client well or unwell; in pain or comfortable? Do they need immediate resuscitation? What are their vital signs – carry out and record TPR and BP. Does the client look well nourished, wasted or obese?

Examine the client's hands

You should greet the client in a friendly and professional manner by introducing yourself and shaking hands. This can give you a number of vital clues as to the client’s current state of health. For example it gives you an idea of the clients strength of grip – remember not to grasp too tightly as the client may have painful hands or joints due to arthritis. Table 1 below lists some of the findings that examination of the hands might reveal. You should also note the shape of the hands, size, skin condition, scars, pigmentation, colour and any wasting.

Next look at the patients nails noting the colour particularly looking for:

- Pallor
- Cyanosis

Face
Look for any central cyanosis or signs of anaemia.

Mouth
Look for signs of anaemia in the mucus membranes or tongue, general dental health or infection e.g. thrush.

Eyes
Look at the eyes for signs of jaundice, pale, or redness.

The general examination is an ideal opportunity to detect serious illness e.g. a dry mouth and tongue can indicate dehydration or infection.
Assessing and recording, Temperature, Pulse, Respiratory Rate and Blood Pressure

Learning Outcomes

On completion of the pack and the accompanying clinical skills session(s) the student will be able to:

1. Demonstrate knowledge of the underlying anatomy and physiology of vital signs assessment

2. List the recognised normal parameters for vital signs in adults and children.

3. Identify common factors influencing the accuracy of vital signs assessment.

4. Demonstrate safe and accurate assessment of body temperature using an electronic (Tympanic) thermometer.

5. Demonstrate safe and accurate assessment of pulse and respiration.

6. Accurately record the findings of vital signs assessment in the patient’s notes/ EWS charts.

7. Identify the physiological, emotional and physical factors which can effect vital signs.

Assessing vital signs

The accurate assessment, monitoring and recording of vital signs – temperature, pulse and respiration, not only gives an insight into the function of the specific organs, but also demonstrates body systems function as a whole. Vital signs assessment is used for a variety of reasons such as:

- The establishment of baseline measurements on admission to hospital.
- Observation of trends over a period of time.
- The identification of specific physiological problems or pathology.
- Monitoring the effectiveness of treatment/interventions/medication.
- Assessment of specific complaints from patients.

It is important to note that when conducting an assessment of vital signs that a single abnormal result (unless extremely abnormal) is usually less valuable than a series of abnormal measurements. It is more useful to observe for a trend and deviations from the patients ‘normal’ measurements, the recognized normal range or previous measurements (McCann et al, 2004).
Section 1 – Measuring body temperature

Body temperature is the balance between heat production and heat loss. Optimal function is optimal within a narrow temperature range usually between 36°C and 38°C. In a normal adult the temperature range is dependent on a number of factors such as:

- Age.
- Physical activity.
- Hydration status.
- State of health, including the presence of infection
- Time of day (Circadian influences).
- Menstrual cycle.

(Elkin et al...)

Body temperature varies over each 24 hour period, being lowest at night and highest in early evening. As a solid object, the body follows the same laws of physics as any other as far as it gains heat in warm surroundings and loses heat in colder surroundings. However, unlike inanimate objects the body has the ability to regulate heat loss and heat gain via convection, conduction and radiation. Physiologically temperature is controlled through peripheral (shell) receptors in the skin and central (core) receptors in the hypothalamus. Receptors are also located in the spinal cord, lungs and gut.

Activity: Examine the mechanisms of body temperature regulation focusing on physiological heat-promoting mechanisms (e.g. vasoconstriction of blood vessels) and heat-loss mechanisms (e.g. sweating). Make short notes on each mechanism.
Assessing body temperature in clinical practice:

Body temperature is routinely measured in the outer ear as it gives a result which is close to the body's core temperature range: 36.3° C – 37.3°C. This core temperature however, is not a constant value and can range from 36°C to 38°C in normal adults. Eating and drinking will also effect the readings from an oral temperature recording so ensure at least 10 minutes has elapsed between eating/drinking and temperature recording.

Equipment used in clinical practice:

There are three types of thermometer in use in clinical practice:

1. Electronic
2. Tympanic
3. Tempa-DOT™ disposable

1. Electronic thermometers:
The electronic thermometer consists of a rechargeable battery-powered display unit to which two probes are attached. The blue coloured probe is used to record oral and axillary readings and the red coloured probe is used for rectal readings. Specially designed plastic disposable probe covers are applied before taking the reading which takes about a minute after placement. This is a digital reading which appears in a screen on the control unit. The probe covers are ejected and disposed of in the normal clinical waste.

2. Tympanic thermometers:
This is now the most common type of thermometer in clinical use and works by measuring core temperature at the tympanic membrane which shares its blood supply with the hypothalamus. The probe has an otoscope-like speculum to which a disposable cover is applied. This is gently inserted into the outer ear and a button pressed to start the recording. Within 2-3 seconds a digital display shows the temperature and an audible alarm indicates that temperature has been recorded. Probe covers are ejected into clinical waste.

The Genius™ is the most common tympanic thermometer in use within hospitals in NHS Tayside and can be used in both adults and children. In addition the Genius™ can be used to record surface temperature.
3. Tempa-DOT™ disposable thermometer:
This consists of a thin strip of plastic impregnated with chemical dots at one end. These dots change colour from orange to blue to indicate the temperature reading. When used to record and oral temperature the dots can be placed either way up, but when used in the axilla, the dots must face the chest wall (Nicoll, 2004). The TemapDOT™ should be disposed of in the clinical waste once it has been used once only.
Activity: Think about some of the situations that you might encounter in your own practice and suggest the most appropriate site and type of thermometer to be used, e.g. tempa-dot in patient with possible ear infection.
Procedure for recording body temperature using a Tympanic (Genius™) thermometer:

As the Genius™ is the most common clinical thermometer in use within NHS Tayside the following procedure describes the process for using this particular piece of equipment. In clinical practice however you should familiarize yourself with the equipment in use within each particular ward or department.

Equipment required:
Tympanic membrane (Genius™) thermometer and disposable probe covers
Patient’s notes or TPR Chart.

<table>
<thead>
<tr>
<th>Steps</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction and patient identity check.</td>
<td>It is important that you have the patients full details if you are to pass on important information.</td>
</tr>
<tr>
<td>Explain procedure to patient and gain consent.</td>
<td>The patient must be comfortable and aware of what you are about to do.</td>
</tr>
<tr>
<td>Document which ear you use to record the temperature.</td>
<td>This will ensure that the same one is used in subsequent readings.</td>
</tr>
<tr>
<td>Remove the thermometer from the base unit and ensure that the lens is clean and not cracked.</td>
<td>A dirty or cracked effect the proper working of the thermometer.</td>
</tr>
<tr>
<td>Place a disposable cover probe onto the probe tip, ensuring manufacturers instructions are followed.</td>
<td></td>
</tr>
<tr>
<td>Check that the thermometer is set to ‘TYMPANIC’ and then gently insert the probe into the outer ear canal and ensure a snug fit.</td>
<td>DO NOT force the probe any further than the outer ear canal.</td>
</tr>
<tr>
<td>Press and release the ‘SCAN’ button.</td>
<td></td>
</tr>
<tr>
<td>Remove probe from ear as soon as the thermometer reads ‘DONE’, usually indicated by and audible bleep</td>
<td></td>
</tr>
<tr>
<td>Read and note the temperature display.</td>
<td></td>
</tr>
<tr>
<td>Press the ‘RELEASE/EJECT’ button and discard the probe cover.</td>
<td></td>
</tr>
<tr>
<td>Replace the thermometer in the base unit.</td>
<td></td>
</tr>
</tbody>
</table>

(Dougherty and Lister, 2004).
Section 2 – Measuring the Pulse

A pulse can be described as ‘the rhythmic expansion of an artery felt with the finger’ (Dorland’s Pocket Medical Dictionary) and is felt where an artery runs close to the skin surface commonly near a bone.

When examining a patient’s pulse it is normal practice to note the rate, rhythm, volume and character. The pulses used most frequently are:

1. The radial pulse which is felt in the wrist lateral of the tendon of the flexor carpi radialis muscle.
2. The brachial artery is felt in the brachial fossa medial to the biceps tendon.
3. The carotid pulse is felt in the neck between the larynx and the sternocleidomastoid muscle. (Munro & Campbell, 2004).

In adults the normal resting pulse rate is 60-80 beats per minute (b.p.m) and 80-200 b.p.m in a child and is often referred to as sinus rhythm as it originates in the sino-atrial node. Although sinus rhythm is described as regular the heart speeds up during inspiration and slows towards the beginning of expiration. This is most obvious in children, adolescents and athletes (Munro & Campbell, 2004).

Volume and character:
The volume, sometimes referred to as the strength of the pulse is described as the ‘movement imparted to the finger applied gently to the pulse’ (Munro & Campbell, 2004). And the character is the waveform felt through the fingers. Both volume and character are best noted in the larger arteries such as the carotid.

Pulse rate:
A pulse rate of <60 b.p.m is referred to as bradycardia and one >100 b.p.m as a tachycardia. The pulse rate is most commonly recorded by palpat ing the radial pulse. Some textbooks will recommend that the rate is counted for 15 seconds and then multiplied by four to give the rate per minute. This is acceptable if the pulse rate is obviously regular and has good volume and character, however 15 seconds is not a long time to assess the pulse fully and so until you become more practiced and proficient it is recommended that you count the pulse for at least 30 seconds and double, or ideally measure the pulse for 1 minute.
Activity: Read Chapter 3 (pg 84-86) of Macleod’s Clinical Examination and make notes on the causes of bradycardia and tachycardia.
Pulse rhythm:
A normal pulse should have a regular beat with the same time lapse between each beat. Irregularities can occur as isolated incidents or can be long standing and indicate cardiac problems. There are numerous arrhythmias which can be responsible for alterations to the pulse rhythm and these are described in any of the core texts to which you should refer for further information (see reading list/references).

Measuring the pulse:
The pulse is normally measured by palpating the radial, brachial and carotid pulses in this order (Munro & Campbell, 2004). The radial pulse will give a good indication of the rate and rhythm, the brachial pulse character and the carotid pulse volume.

The pulse can also be recorded using an electronic sphygmomanometer (Dynamap) but this can only give a reading of the rate and not the volume, rhythm and character so should be avoided for routine examinations.

Procedure for recording the radial pulse:

<table>
<thead>
<tr>
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<tr>
<td>Explain procedure to patient and gain consent.</td>
<td>The patient must be comfortable and aware of what you are about to do.</td>
</tr>
<tr>
<td>Place your index and middle fingers along the radial artery at the patient's wrist and press gently.</td>
<td></td>
</tr>
<tr>
<td>Count the pulse for 15 – 60 seconds.</td>
<td>See previous notes.</td>
</tr>
<tr>
<td>Record pulse rate and note any abnormalities found.</td>
<td></td>
</tr>
</tbody>
</table>

Section 3: Assessing Respiratory Function

When assessing respiratory function there are four stages to be followed, they are:

1. inspection (Look)
2. palpation (Feel)
3. percussion (Tap)
4. auscultation (Listen)

The skills of palpation, percussion and auscultation will all be included as you progress through the future stages of your course. This section of the workbook will focus on the first stage of a respiratory examination – inspection.

The inspection of a patient’s respiratory function involves determining the rate, rhythm and quality of their respirations. An adult’s normal respiratory rate is usually about 12 to 20 breaths
per minute with an even, coordinated and regular pattern. There may also be the occasional sigh and the ratio of inspiration to expiration is about 1:2 (McCann et al, 2004). In an adult a respiratory rate of more than 20 breaths per minute is referred to as Tachypnoea, less than 10 breaths per minute as Bradypnoea.

Adult males, children and infants tend to use abdominal or diaphragmatic breathing whilst most adult females tend to use intercostal or chest breathing. Being able to identify normal and abnormal respiratory patterns will come with experience and clinical practice however the focus of this section is on recording the patient's respiratory rate.

Recording a patient's respirations:
When an individual is aware that the respiratory rate is being observed it is very difficult not to later the breathing pattern, therefore it is good clinical practice to follow the pulse rate with assessment of respiration.

Equipment:
Watch with second hand, patient’s notes/TPR chart.

Procedure:

<table>
<thead>
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</tr>
<tr>
<td>Explain procedure to patient and gain consent.</td>
<td>The patient must be comfortable and aware of what you are about to do.</td>
</tr>
<tr>
<td>Without changing position of hand after recording the pulse, observe one complete breath cycle i.e. inspiration and expiration.</td>
<td>It is very difficult not to change one’s respiratory rate if aware someone is counting it. If the patient thinks you are still recording the pulse they are less likely to change the respiratory rate.</td>
</tr>
<tr>
<td>After this one cycle, start to count the cycles, if regular count for 30 seconds and multiply by two. If irregular after 30 seconds count for a full minute.</td>
<td>See previous notes.</td>
</tr>
<tr>
<td>Record respiratory rate and note any abnormalities found.</td>
<td></td>
</tr>
</tbody>
</table>

**Blood Pressure**

Introduction
Adequate blood pressure is essential to maintain the blood supply and function of vital organs. High blood pressure is usually asymptomatic but leads to long-term complications, low blood pressure can cause dizziness, air hunger or collapse.

What is normal blood pressure?
'Normal' or 'acceptable' blood pressure varies with age, state of health and clinical situation. At birth, a typical blood pressure is 80/50 mmHg. It rises steadily throughout childhood, so that in a young adult it might be 120/80 mmHg.

As we get older, blood pressure continues to rise and a rule of thumb is that normal systolic pressure is age in years + 100. Blood pressure is lower in late pregnancy and during sleep.

From this, you can see that a systolic pressure of 160mmHg for an elderly man or 90 mmHg for a pregnant woman may be quite normal. To judge whether any particular reading is too high or too low, we must compare the reading with the 'normal' for that patient.

Manual non-invasive blood pressure measurement Checklist

The following is the procedure for recording blood pressure using a mercury or aneroid Sphygmomanometer (Sphyg).

<table>
<thead>
<tr>
<th>Wash Hands/Use Gel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction and identification check</td>
</tr>
<tr>
<td>• Check patients name band if worn.</td>
</tr>
<tr>
<td>Explanation to patient:</td>
</tr>
<tr>
<td>• Particularly that there may be discomfort when inflating the cuff</td>
</tr>
<tr>
<td>• Also that the measurement may be taken more than once.</td>
</tr>
<tr>
<td>Consent to proceed with examination</td>
</tr>
<tr>
<td>Patient should be sitting on a chair or on a bed and have been rested for at least one minute.</td>
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<tr>
<td>The arm should be horizontal and supported at the level of mid-sternum.</td>
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<tr>
<td>Position of cuff.</td>
</tr>
<tr>
<td>• Upper arm</td>
</tr>
<tr>
<td>• Bladder over brachial artery.</td>
</tr>
<tr>
<td>Estimate systolic pressure by palpating artery and inflating cuff.</td>
</tr>
<tr>
<td>Place Stethoscope over brachial artery using diaphragm.</td>
</tr>
<tr>
<td>Inflate cuff to 30mmHg above estimated systolic pressure.</td>
</tr>
<tr>
<td>Reduce pressure at 2-3mmHg/sec.</td>
</tr>
<tr>
<td>Auscultate systolic (clear tapping sound starts) and diastolic sounds (sounds disappear).</td>
</tr>
<tr>
<td>Record blood pressure in patient’s notes or on hospital TPR Chart as directed.</td>
</tr>
</tbody>
</table>

The sounds heard while measuring blood pressure in this way are called the Korotkoff sounds, and undergo 5 phases:

1. initial 'tapping' sound (cuff pressure = systolic pressure)
2. sounds increase in intensity
3. sounds at maximum intensity
4. sounds become muffled
5. sounds disappear

Most inaccuracies result from the use of the wrong size of cuff. A narrow cuff wrapped round a fat arm will give an abnormally high reading, and vice versa. The World Health Organisation recommends a 14cm cuff for use in adults. Smaller cuffs for infants and children are available. In occasional patients, the reading obtained from one arm can be different from that obtained from the other arm.

World Federation of Societies of Anaesthesiologists
WWW implementation by the NDA Web Team, Oxford

Activity: List five (5) indications and rationale for recording the blood pressure.

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2. ............................................................................................................................
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4. ............................................................................................................................
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Activity: What considerations should be given to the sphygmomanometer, the cuff, and control valve before starting to record blood pressure?

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Activity: How do you establish the point at which to stop inflating the cuff when assessing the systolic blood pressure?
Examination of the Chest and Peak Expiratory Flow Rate

Learning Outcomes

1. Discuss the process of carrying out an assessment of the respiratory system and breath sounds.

2. Demonstrate the process of assessment of breath sounds.

3. Discuss the importance of the assessment of breath sounds and implications of the more common abnormalities e.g. wheeze in asthma.

4. Discuss the correct use and implications of Peak Expiratory Flow in respiratory assessment.

Examination of Respiratory System
Before carrying out an assessment of the clients breath sounds you should ensure that they are sitting comfortably in a chair as upright as possible. Ensuring privacy, ask the patient to remove any clothing to allow you access to the chest.

Stethoscopes

Ear pieces should be inserted into the ears pointing forwards in order to hear.

The chest piece consists of a flat (diaphragm) end and a rounded (bell) end. The diaphragm is best used to listen to breath sounds and the bell heart sounds.

Although there are cheaper alternatives most doctors use and recommend the Littmann II Stethoscope shown here (Cost about £60) and usually a lifetime guarantee – unless someone steals it!.

Equipment Needed

- A Stethoscope
- A Peak Flow Meter
General Considerations

- The patient must be properly undressed and gowned for this examination.
- Ideally the patient should be sitting on the end of an exam table.
- The examination room must be quiet to perform adequate percussion and auscultation.
- Observe the patient for general signs of respiratory disease (finger clubbing, cyanosis, air hunger, posture).
- Try to visualize the underlying anatomy as you examine the patient.

Inspection

1. Observe the rate, rhythm, depth, and effort of breathing. Note whether the expiratory phase is prolonged.
2. Listen for obvious abnormal sounds with breathing such as wheezes.
3. Observe for retractions and use of accessory muscles (sternomastoids, abdominals).
4. Observe the chest for asymmetry, deformity, or increased anterior-posterior (AP) diameter.
5. Confirm that the trachea is near the midline?

Palpation

1. Identify any areas of tenderness or deformity by palpating the ribs and sternum.
   Assess expansion and symmetry of the chest by placing your hands on the patient's back, thumbs together at the midline, and ask them to breathe deeply.

Percussion

Proper Technique

1. Hyperextend the middle finger of one hand and place the distal interphalangeal joint firmly against the patient's chest.
2. With the end (not the pad) of the opposite middle finger, use a quick flick of the wrist to strike first finger.
3. Categorize what you hear as normal, dull, or hyperresonant.
4. Practice your technique until you can consistently produce a "normal" percussion note on your (presumably normal) partner before you work with patients.

Posterior Chest

1. Percuss from side to side and top to bottom using the pattern shown in the illustration. Omit the areas covered by the scapulae.
2. Compare one side to the other looking for asymmetry.
3. Note the location and quality of the percussion sounds you hear.
4. Find the level of the diaphragmatic dullness on both sides.

Anterior Chest

1. Percuss from side to side and top to bottom using the pattern shown in the illustration.
2. Compare one side to the other looking for asymmetry.
3. Note the location and quality of the percussion sounds you hear.

<table>
<thead>
<tr>
<th>Percussion Notes and Their Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat or Dull</td>
</tr>
<tr>
<td>Normal</td>
</tr>
<tr>
<td>Hyperresonant</td>
</tr>
</tbody>
</table>

Auscultation

Use the diaphragm of the stethoscope to auscultate breath sounds.

Posterior Chest

1. Auscultate from side to side and top to bottom using the pattern shown in the illustration. Omit the areas covered by the scapulae.
2. Compare one side to the other looking for asymmetry.
3. Note the location and quality of the sounds you hear.

Anterior Chest

1. Auscultate from side to side and top to bottom using the pattern shown in the illustration.
2. Compare one side to the other looking for asymmetry.
3. Note the location and quality of the sounds you hear.
Interpretation

Breath sounds are produced by turbulent air flow. They are categorized by the size of the airways that transmit them to the chest wall (and your stethoscope). The general rule is, the larger the airway, the louder and higher pitched the sound. Vesicular breath sounds are low pitched and normally heard over most lung fields. Tracheal breath sounds are heard over the trachea. Bronchovesicular and bronchial sounds are heard in between. Inspiration is normally longer than expiration (I > E).

Breath sounds are decreased when normal lung is displaced by air (emphysema or pneumothorax) or fluid (pleural effusion). Breath sounds shift from vesicular to bronchial when there is fluid in the lung itself (pneumonia). Extra sounds that originate in the lungs and airways are referred to as "adventitious" and are always abnormal (but not always significant). (See Table)

<table>
<thead>
<tr>
<th>Adventitious (Extra) Lung Sounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crackles</td>
</tr>
<tr>
<td>Wheezes</td>
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<tr>
<td>Rhonchi</td>
</tr>
</tbody>
</table>

Peak Flow Monitoring

The peak flow meter measures the patient's maximum ability to exhale, or peak expiratory flow rate (PEFR or PEF). Peak flow readings are higher when patients are well, and lower when the airways are constricted. From changes in recorded values, patients and doctors may determine lung functionality, severity of asthma symptoms, and treatment options.

The measurement of peak expiratory flow was pioneered by Dr. Basil Martin Wright, who produced the first meter specifically designed to measure this index of lung function. Since the original design of instrument was introduced in the late 1950s, and the subsequent development of a more portable, lower cost version (the 'Mini-Wright' peak flow meter), other designs and copies have become available across the world.

Measurement of PEFR requires training to correctly use a meter and the normal expected value depends on a patient's sex, age and height. It is classically reduced in obstructive lung disorders such as asthma.

Peak flow meters are inexpensive, hand-held devices used to monitor pulmonary function in patients with asthma. The peak flow roughly correlates with the FEV1.

1. Ask the patient to take a deep breath.
2. Then ask them to exhale as fast as they can through the peak flow meter.
3. Repeat the measurement 3 times and report the average.
The best of three readings is used as the recorded value of the Peak Expiratory Flow Rate. It may be plotted out on graph paper charts together with a record of symptoms or using peak flow charting software. This allows patients to self-monitor and pass information back to their doctor or nurse.

Activity: On the photos below indicate the placement of the stethoscope to listen to each of the areas of the lung that are required during an assessment of the client’s breath sounds.
Examination of Eyes and Ears

1. The Eyes

General eye examination
The main role of primary healthcare professionals in dealing with eye conditions is to differentiate between minor conditions which are self-limiting and those which are serious and sight-threatening.

Procedure checklist general eye examination:

<table>
<thead>
<tr>
<th>Task</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain to the patient what you are going to do and ask permission to proceed.</td>
<td></td>
</tr>
<tr>
<td>Make sure you examine in good light.</td>
<td></td>
</tr>
<tr>
<td>Wash your hands.</td>
<td>It is an important aspect of good clinical practice to ensure that your hands are clean.</td>
</tr>
<tr>
<td>Ask patient to sit down and look straight ahead.</td>
<td></td>
</tr>
<tr>
<td>Gently pull down the lower lid and ask the patient to look upwards and to both left and right.</td>
<td>This allows you to examine the conjunctiva.</td>
</tr>
<tr>
<td>Check visual acuity and record</td>
<td>See checklist below.</td>
</tr>
<tr>
<td>Assess pupils accommodation and reaction to light.</td>
<td></td>
</tr>
<tr>
<td>Record your findings.</td>
<td></td>
</tr>
<tr>
<td>Wash your hands</td>
<td></td>
</tr>
</tbody>
</table>


Visual acuity

This is a measure of central vision and must always be tested carefully as any loss can be serious. Record visual acuity carefully, especially in someone presenting with an eye injury. When checking visual acuity you should also check the pupil of the eye reaction to light.

Equipment:
Snellen Chart
Torch/Ophthalmoscope
**Procedure:**

<table>
<thead>
<tr>
<th>Task</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain to the patient what you are going to do and ask permission</td>
<td>Patients with eye conditions are often concerned. Explanations will help</td>
</tr>
<tr>
<td>to proceed.</td>
<td>to alleviate anxiety.</td>
</tr>
<tr>
<td>Examine the right eye first.</td>
<td>This makes sure that when you record your findings you always know that</td>
</tr>
<tr>
<td></td>
<td>the right eye is the first recordings.</td>
</tr>
<tr>
<td>Sit the patient 6 metres from the Snellen Chart</td>
<td>To get 6 metres in a smaller room place the chart just above the patient,</td>
</tr>
<tr>
<td></td>
<td>pointing towards a mirror 3 metres away.</td>
</tr>
<tr>
<td>Obscure the left eye with an eye paddle or card.</td>
<td>This is much better than asking the patient to use their hand as there is</td>
</tr>
<tr>
<td></td>
<td>always the tendency to 'peep'.</td>
</tr>
<tr>
<td>Make sure the patient is wearing glasses if normally worn.</td>
<td></td>
</tr>
<tr>
<td>Ask the patient to read out to you the last line on the chart that</td>
<td>The chart is designed so that the top line can be read by someone with</td>
</tr>
<tr>
<td>they can see comfortably.</td>
<td>normal vision at 60 metres, the next at 36 metres, the next at 24m,</td>
</tr>
<tr>
<td></td>
<td>18m, 12m, 9m and the last at 6m.</td>
</tr>
<tr>
<td>Record the acuity as per guidelines</td>
<td>Record as 6/60, 6/36, 6/18 etc.</td>
</tr>
<tr>
<td></td>
<td>Normal vision is 6/6.</td>
</tr>
</tbody>
</table>

Once you have recorded visual acuity check the papillary response to light. This is always done after checking visual acuity as shining a light in the eyes before can cause disturbance in the papillary response.

With the patient sitting, look first at both pupils, assessing whether they are the same size, make a note of this. Then slowly bring the torch in from the side of the head, shining the light onto the right eye whilst observing for the pupil to constrict. Do the same to the left eye and the note the size of the pupils and speed at which they constricts and whether each eye does so at the same rate.

Make a note of your findings.
An example of a Snellen Chart

Red Eye

Redness of the eye and inflammation of the conjunctiva is a common presentation. The most likely cause of red eye in primary care is conjunctivitis. Irrespective of cause conjunctivitis presents as:

- Redness
- Discharge
- Discomfort

In one or both eyes. These patients must be referred for medical opinion.

Eye injuries, trauma, foreign bodies and things you are unsure about

MUST always be referred on for medical opinions as a matter of urgency with the patient seen by an ophthalmologist as soon as possible.
2. The Ears (Compliments of Queen's University Belfast)

Introduction, Identification of Patient & Consent

Before performing an examination of the ears, listen to the patient, elicit symptoms and take a careful history. Be aware that the patient may have hearing impairment. Therefore explain each step of your examination & ensure that you speak slowly, at the same level & in full vision of the patient.

Inspection of External Ear
Perform a general inspection of the patient’s external ear and face. Do you notice a hearing aid or the presence of a cochlear implant?

Hearing Aid  Cochlear Implant

Examine the pinna. No you noticed any structural abnormalities of the pinna?
Do you notice any skin lesion of the pinna or external auditory meatus? Also, look behind the pinna for the presence any surgical scars (e.g. a postauricular scar may indicate mastoid surgery)

Palpation of The External Ear
Gently pull on the pinna to test for pain (If painful this may suggest external ear disease). Palpate for any lymph nodes (e.g. The parotid or postauricular nodes ~ this may also be suggestive of external ear disease)

Prepare Auriscope
Make sure your auriscope is working prior to using and that the batteries aren’t run down. A dim light will make your examination difficult and incomplete. Use the biggest auriscope speculum that you can fit in to the ear canal. Small earpieces may be easy to use but will reduce the amount that you will see on inspection
Safety point! Always hold the auriscope in the hand of the same side as the ear you are about to examine. You can hold the auriscope in either a ‘pencil type’ grip or ‘hammer type’ grip. The ‘pencil type grip’ allows the side of your hand to rest on the patient’s face reducing the risk of trauma if the patient suddenly moves (especially in children!)

Slowly insert the auriscope, looking at the skin of the canal whilst entering. Does the skin look normal or inflamed? Do you notice any debris/wax in the canal?

Inspection Of The Ear Drum
The Normal Tympanic Membrane Should Appear Pearly Grey And Concave. Identify The Various Areas Of The Tympanic Membrane.

Look for wax or other obstructions (e.g. foreign bodies – tips of cotton buds!)
(there is a saying …“never place anything smaller than your elbow in your ear!...” )

Are there any signs of inflammation? Is the membrane red, injected, bulging?
Are there any signs of perforation?
Slowly retract the auriscope from the ear. Change the speculum on the auriscope and examine the other ear. Finally document what was seen in both ears, the condition of the tympanic membrane and the external auditory meatus.

NOTES - Eyes and Ears

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Assessment of Skill Acquisition

Practitioners should be assessed until competence is achieved in all domains or if competence is achieved on first attempt they must undergo a minimum of 3 observations. Competence is achieved when all criteria are met in all domains. Assessors should indicate if competence has been achieved in each domain by circling ‘YES’ or ‘NOT YET.’ Feedback should be entered in each remarks box, identifying criteria to be achieved or demonstrated.

1. Professionalism Criteria
   - applies ethical principles to inform decision making
   - involves patient in decision making process
   - practices in accordance with professional code
   - demonstrates autonomy and initiative
   - maintains accurate record keeping

2. Patient Assessment Criteria
   - assesses patient suitability for the procedure
   - selects equipment (providing rationale for choice)
   - discusses the potential psychological impact with the patient
   - critically analyses potential risks

3. Knowledge and Application Criteria
   - demonstrates knowledge of relevant A&P
   - provides appropriate patient information
   - discusses indication and contraindications with patient
   - seeks information from appropriate sources when necessary

4. Communication Criteria
   - skill explained to patient/significant others to obtain informed consent
   - practitioner demonstrates accurate and legible documentation of skills

Competence Achieved YES/NOT YET
5. Organisational Criteria
- correct equipment is prepared and checked
- skill is carried out in a timely, logical sequence
- responds appropriately to any complications

6. Technical Ability Criteria
- skill is performed accurately and efficiently
- recognises limitations of technical ability and seeks assistance as required
- takes appropriate action to reduce risk of complications i.e.
  - aseptic technique as required

7. Overall Competence Criteria
- achievement of all of the above qualities
- practitioner’s ability to practice skill in accordance with standardised procedure
- demonstrates aptitude to reflect on learning and identifies areas for further learning.

Assessor’s Feedback (indicating areas for improvement as necessary)
Agreed Action Plan (Between assessor and practitioner)

Time to achieve action plan

I week [ ] 2 weeks [ ] other please specify ________

Practitioner Signature:______________________

Assessor Signature:________________________

On Completion please send to:

Anne Watson
NHS Education for Scotland
3rd floor, 2 Central Quay
89 Hydepark Street
Glasgow G3 8BW
Tel: 0141 223 1548
References:


