Medic Church
MBBS I
Mock OSCA

Dear friends in MBBS I:

This mock OSCA is not perfect, but we really hope that this can help you in some way. We know that some of you are Christians, while some are not. But we serve you alike all because of the eternal love of Jesus. Please know that no matter how frustrated or worried you are, when you call upon his Holy Name, his love will guide you through. May the heavenly peace be with those who pursue sincerely for the Salvation of Jesus Christ, our Lord.

"For God so loved the world that
he gave his one and only Son, that whoever believes in him
shall not perish but have eternal life."
John 3:16

Best wishes for your exam! May God bless you!

Medic Church

*All the suggested answers provided are not excellent, please kindly refer to your textbooks in any doubt. We welcome any suggests and comments to cmdf@hongkong.com.

Stations:

1. Respiratory examination
2. Measuring blood pressure (and common pitfall) + Palpating peripheral pulse
3. Performing an ECG
4. Abdominal Examination
5. IV drip Setting
6. Performing a throat swab

Attached scenarios for revision:

1. Demonstrating the use of a pulse oximeter
2. Demonstrating the use of a peak flow meter
3. Review the use of Spirometer and interpret the results of Lung Function Test
4. CVS Examination
5. Knee Jerk
6. Patient counseling: a patient with asthma
7. Patient counseling: a hypertensive patient
8. Patient counseling: a diabetic patient
9. Performing CPR
10. Hand washing

Respiratory examination

- Inform the patient and get a consent (0.5) ☐
- Position the patient at 45 degree and expose (1) ☐
- Brief mentioning of peripheral and general exam (e.g., finger clubbing, cyanosis, pallor…) (1)☐
- Just examine for the precordium:
- Inspection: (stand at the end of bed) (0.5) ☐
    i. Any respiratory distress. E.g. use of accessory muscles (0.5) ☐
    ii. Count the respiratory rate. (Normal adult 12-18breath/min) (0.5) ☐
    iii. Any chest wall deformity (0.5) ☐
    iv. Any mass/scar (0.5) ☐
    v. Chest wall movement, you could ask the patient to take a deep breath for more easy observation. (0.5) ☐

- Palpation: use both hands to check for symmetry of chest wall movement for 3 zones including upper, middle and lower zones. (0.5) ☐
    1. Cardiac apex: any displacement or not palpable? Emphysema (0.5) ☐
    2. Tracheal deviation (0.5) ☐

- Percussion: Percuss in front for both sides in 3 zones, and remember also the lung apex areas (supraclavicular area) and also the lateral sides. Because the R. middle lobe is best percussed at the lateral chest wall. (1) ☐

- Auscultation:
    1. Auscultate for the same regions in percussion. (0.5) ☐
    2. Compare for both side (0.5) ☐
    3. Note the breath sounds, any additional breath sounds, (0.5) ☐
    4. Ask the patient to say 1,2,3, and listen again for those regions for any changes in vocal resonance. (0.5) ☐

- Examine the back and ask the patient to embrace his/her arms in order to spread away the scapula for better examination of the lung. (0.5) ☐
- Repeat the above examination.
- Dress up the patient after finished. (0.5) ☐

Complete Respiratory Examination:

- Position the patient 45 degree and expose
- Start from the hand sign first for the general examination
- Hand: look for
    1. Clubbing: in malignancy, bronchiectasis, fibrosing alveolitis etc.

        (Gradings of clubbing:

        I: fluctuation of nail bed

        II: loss of angle between nail bed and nail

        III: increase in longitudinal curvature of nail

        IV: drumstick formation)
    2. Nicotine staining of nail: for risk factor of lung diseases
    3. Small muscle wasting for T1 lesion Pancoast tumour.
    4. Flapping tremor in CO2 retention e.g. in chronic bronchitis
    5. Pulse rate: tachycardiac and pulses paradoxus: sign of severe asthma

- Face: for signs of Horner syndrome:
    1. Unilateral constricted pupil
    2. Partial ptosis
    3. Loss of sweating
    4. Enophthalmos for tongue: central cyanosis

- Neck:
    1. 1.Trachea: palpate for position of trachea? Deviation
    2. Palpate for cervical lymph nodes and supraclavicular LN.
    3. Also the supraclavicular fossa? Pancoast tumor

- Then examine the precordium as above-mentioned steps.

Measuring Blood Pressure

- Check there are the sphygomanometer and the stethoscope.
- Inform the patient (1) ☐
- Expose the arm adequately (1) ☐
- Ask the patient to relax (1) ☐
- Put the cuff onto the arm (1) ☐
- Palpate for the radial pulse (1) ☐
- Inflate the cuff (1/2) ☐
- Observe the level of blood pressure when there is no further radial pulsation felt. (1) ☐
- Deflate the cuff (1/2) ☐
- Put the stethoscope underneath the cuff on the area of brachial pulse (1) ☐
- Inflate the cuff again ☐
- Auscultate again and note the systolic and diastolic blood pressure (1) ☐
- Round them up to 0/5 end digit. (Optional)

Deflate the cuff and replace them properly (1) ☐

Pulse

- What are the characteristics of a site that favour you for palpating a pulse?

  Ans.: 1. Superficial, 2. With a hard underlying surface eg. Bone (2) ☐

- Radial pulse: (1) ☐
- Brachial pulse (1) ☐
- Carotid pulse (1) ☐
- Dorsalis pedis (1) ☐
- Posterior tibeal (1) ☐
- Popliteal (1) ☐
- Femoral (1) ☐
- Other palpable peripheral pulses: superficial temporal artery, ulnar artery etc.

Q: Bonus Question: Can you verbally locate the anatomical positions of the peripheral pulses?

Answers:

Radial Pulse: @ distal forearm near the base of the thumb

Brachial Pulse: @ the elbow (i.e. cubital fossa) immediately medial to the biceps tendon

Carotid Pulse: @ the lateral side of the laryngeal prominence (thyroid cartilage).

Femoral Pulse: @ mid-way between the pubic symphysis and the anterior superior iliac spine

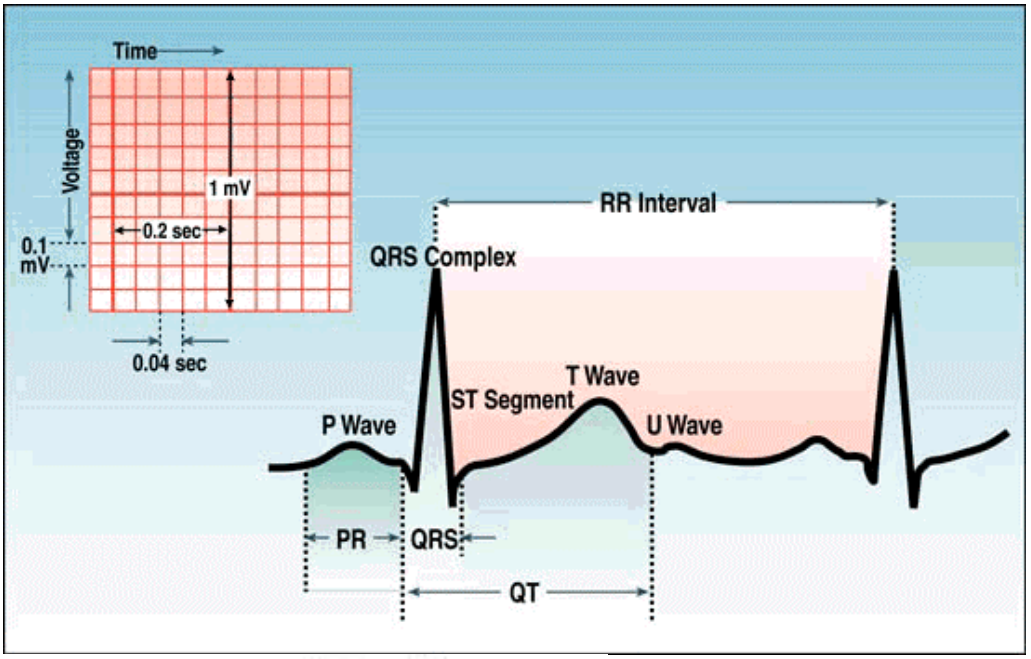
Popliteal Pulse: @ the popliteal fossa at the flexor compartment of the knees

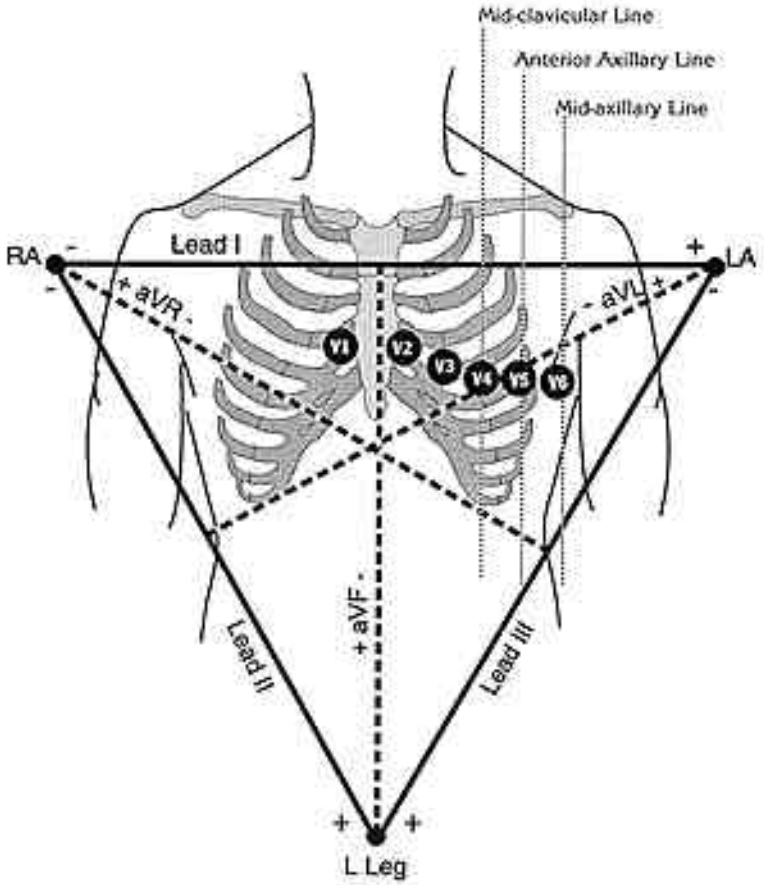
Posterior Tibial: @ posterior to the medial malleolus

Dorsalis Pedis: @ the dorsum (dorsal surface) of the foot lateral to the extensor hallucis longus (tendon to the big toe)

Demonstrate the use of an ECG

- Inform the patient and get a consent (1) ☐
- Lie the patient flat. Expose the precordium and the limbs properly (1) ☐
- Press the on button (1) ☐
- Press the filter button if any (optional)
- Put some jelly on the site of connection with the leads (1) ☐
- Connect the 12 leads to the patient, (optional) (1) ☐ (in 99-exam, only Lead I, II, III were required)
- Ask the patient not to move *(because muscle contraction/hand tremor may distort the ECG or even mimic atrial fibrillation, eg. in Parkinsonism patients with fine hand tremor) (1)* ☐
- Press the start button and wait for the processing and printing (1) ☐
- Disconnect the leads afterwards and place them properly back to the original place
- Clean up the jelly for the patient (1) ☐
- Dress up the patient afterwards (1/2) ☐
- What is the heart rate of the patient?
- Can you name the normal parts in a normal ECG complex?
  Ans: 1. (P, Q, R, S, T wave) (1.5) (P: 1/2) ☐
  2. (QRS complex: 1/2) (T: 1/2) ☐
  3. Calculate the Pulse rate of the patient using the ECG results ☐


Time
Voltage
1 mV
0.2 sec
0.1 mV
0.04 sec
RR Interval
QRS Complex
T Wave
ST Segment
P Wave
U Wave
PR
QRS
QT


Mid-clavicular Line
Anterior Axillary Line
Mid-axillary Line
RA
LA
Lead I
+ aVR -
- aVL +
V1
V2
V3
V4
V5
V6
Lead II
+ aVF -
Lead III
L Leg

Abdominal Examination

Principles:

Inspection
Palpation
Percussion
Auscultation

Procedure:

- Get a consent
- Position and expose adequately. Lie flat, hands aside, undress from nipples to genitalia /mid thigh (but usually not)

Inspection:

1. Stand at the end of bed and ask the patient to take a deep breath

2. Look for shape of abdomen:

    - Scaphoid (In neonates with congenital diaphragmatic hernia, all their abdominal viscera were pushed up into the thoracic cage instead of restrained in the abdominal cavity.)
    - Distended in 5'Fs: fat, flatus, feces (indentable), fetus, fluid (bulging flanks)
    - Finally abnormal swelling, eg. intestinal obstruction (I.O.), tumor, AAA

3. Any obvious mass

4. Umbilicus for Flattened/everted/slit-like if severe ascites (horizontal slit in ascites, but vertical in pregnancy)

5. Movement observed on the abdomen:

    - Visible peristalsis in intestinal obstruction. This is observed at a tangent.
    - AAA (pulsatile and expansile!!)

6. Dilated veins:

    - check for the direction of flow (below umbilicus)
    - portal hypertension if veins drain away from the umbilicus (caput medusa)
    - IVC obstruction if drain towards umbilicus

7. Striae: subcutaneous lines caused by acute abdominal distension with subcutaneous bleeding.

    - Ascites
    - Cushing's Syndrome with weakened connective tissue formation around the blood vessels, so truncal obesity with abdominal distension result in tissue formation around the blood vessels, so truncal obesity with abdominal distension result in striae
    - purple in color as there is subcutaneous bleeding

- Pregnancy: blood is absorbed afterwards and so white striae finally result
- Any scar / surgical scar
- Any hernia?
  - Stand the patient up in abdominal examination in case of 1. Dilated vein and 2. Hernia
  - You may ask the patient to cough in order to make the hernia more prominent
  - Don't miss hernia: remember to look at the hernial orifice as well as the genitalia before finishing P/E.

Palpation:

- Knee/squat /sit beside
  - This increases the sensitivity of palpation
- Ask for any presence of pain before touching the abdomen
- Start superficial palpation away from any painful site first.
  - to relax the patient, detect any gross abnormalities, and any mild tenderness
  - to detect any tenderness, guarding, and rigidity
  - use the palmar surface of your fingers for palpation
  - Involve the 9 quadrants
- Then deep palpation
  - Any mass (which can be liver, spleen, kidney, aorta, stomach bowel, pancreas, etc), delineate the features of mass

Palpate for liver with relation to the respiration, then the spleen and kidney. You could palpate and percuss for each organ in order.

Liver

- Start from RLQ (ASIA), hand in waiting position during inspiration and move only during expiration.
  - Lower border, just below the costal margin.
  - Surface, smooth/nodular, consistency, firm /hard.
  - Edge
  - Involve Right /Left lobe
- Percuss to the lower border of the liver from the right iliac fossa
  - Measure the liver border below the costal margin

- Find out the upper border of the liver by percussion from the 2nd intercostals space
- Normal 5th ICS
- be aware of hyperinflated chest condition, eg. emphysema

- Any bruit in the liver (you could listen at the end of P/E)

  Could be due to -

  1. Vascular tumor, common: HCC/hemangioma.
  2. Compression of aorta eg. By large liver tumor
  3. Alcoholic hepatitis

Spleen

- Start from RLQ (ASIA) along Gardner's line: a line drawing from Left axilla to the Right ASIA
- Usually the spleen enlarges along this line, but can just grow downward
  - Notch palpated?
- If you can't palpate the spleen with the patient lying supine, roll the patient onto the right side towards you and repeat the palpation.
- Percuss along the Gardner's line for any dullness
- In the presence of ascites, try dipping of the spleen (ballottement)

Kidney

- Use bimanual palpation to trap the rounded lower poles of kidneys on inspiration first.
- By asking the patient to take a deep breath, hold and wait for the kidney to descend on deep inspiration.
- Ballot the kidney
  - Size in normal adult: about 11-13cm
- Resonant on percussion

Percussion

- Usually percussion for the liver/spleen is done after palpation for the respective organs
- Now, we percuss for ascites
  - Shifting dullness
  - Fluid thrill
- Rules in percussion

- Signs of ascites can only be detected when at least 1L of fluid is present.
- Finger to be percussed on should be parallel to the fluid level of dullness.
- Percussing finger should be perpendicular to the level of dullness
- Percuss from resonance to dullness

Auscultation:

- Liver bruits
- Bowel sounds - with diaphragm of the stethoscope just below the umbilicus

  Some was taught that the place of choice should be the right lower quadrant- where the ileocecal valve is. This is the place where most bowel sounds are produced, as the valve vibrates.
- Renal bruits - site: on either side of (1-2cm lateral to) the midline above the umbilicus

Note:

- Complete examination of the abdomen also includes
  1. Examination of hernia
  2. Examination of the genitalia
  3. Digital per rectal examination

IV DRIP

- Inform patient about the procedure, and get a consent.
- Apply a tourniquet on the forearm/upper arm, not too near/too far from the puncture site
- Select a proper vein (usually at site of branch because less likely to slip away, at dorsum of hand) for drip site, palpate the vein
- Use alcohol swab to clean the overlying skin
- Use your left hand to hold the patient's hand and tighten the surrounding skin so that the vessel will not slip away
- Puncture the vein at 30^{o} to the skin with the sharp edge of the needle.
- Observe for any blood coming out from the angiocath indicating that the angiocath is correctly in situ.
- Release the tourniquet
- Withdraw the needle slightly, and advance the whole angiocath into the vein
- Withdraw out the needle and press the proximal end to prevent bleeding
- Connect to a drip set
- *Connect the H.B. (heparin block) or drip set to the angiocath*
- Ensure there are no air bubbles trapped inside the drip set
- *Properly attach the tegaderm to fix the angiocath*

Q. Why should you prefer setting up a drip in vein to an artery? (Optional)

- *Risk of air embolism*
- *Risk of systemic infection*

Throat Swap

The student is asked to perform a throat swab on a patient who has severe sore throat a week. Ulcerative lesions are seen on the wall of the pharynx. The specimen will be taken for examination under microscope and culture.

1. Introduce yourself to the patient and obtain an informed consent from your patient for performing a throat swab
2. Prepare the patient: good illumination is desired; ask the patient to open his/her mouth
3. Use a tongue depressor and a mini touch so that the area to be swabbed can be visualized clearly
4. The swab is gently stroked over the tonsillar fossa and tonsil and then quickly across the pharynx near the uvula
5. Areas of inflammation, ulceration, exudation, or membrane formation should be sampled by swabbing
6. Put the swab back into the medium; put down the patient's particular on the label of the specimen and the request form clearly
7. Send the specimen to the laboratory as soon as possible

Note:

1. Pay attention to the type of transport medium you are using. Specimen container with a RED cap is for Gram smear while a BLUE one is for culture. **(Probably this is no longer true now - please help to check this out)**
2. Review the anatomy of the throat:

   The palate forms the roof of the mouth and the floor of the nasal cavities. The soft palate is the posterior fibromuscular part of the palate that is attached to the posterior edge of the hard palate. It extends posteroinferiorly as a curved free margin from which hangs the **uvula**. Laterally the soft palate is continuous with the wall of the pharynx and is joined to the tongue and pharynx by the **palatoglossal and palatopharyngeal arches** respectively. The **palatine tonsils** are two masses of lymphoid tissue, one on each side of the oropharynx. Each is in a **tonsillar fossa**, bounded by the palatoglossal and palatopharyngeal arches and the tongue. (Refer to an anatomy atlas for appropriate illustrations)
3. It is desired to perform the throat swab as quickly as possible since it is unpleasant to have something streak across the pharynx.

Gag reflex: this involves constriction and elevation of the pharynx and palate (X efferent limb) in response to tactile stimulation of the upper pharynx and tonsils (IX afferent limb). (X cranial nerve = vagus, IX cranial nerve = glossopharyngeal nerve)

Pulse oximeter

The student is asked to demonstrate the use of a pulse oximeter.

Press the "On" button

Connect the probe to the patient's finger tip, or ear lobe *(ensure good contact and warm hands without vasoconstriction)*

Read the oxygen saturation and the pulse rate on the monitor

Note:

1. Normal SaO2 is about 98-100%, danger if <90% (*which is corresponding to about 8kPa PO2 in arterial blood. Type I respiratory failure is defined as hypoxia with PO2 at 8 kPa.)*
2. Normal range of pulse rate in adult is 60-100/min, if <60 sinus brachycardiac, >100 sinus tachycardiac
3. It is normal in some athletes with heart rate around 50/min
4. In the following situations you may need to use the pulse oximeter:
    (1) Respiratory disease like COPD, asthma
    (2) Cardiac failure patients
    (3) Postoperation patients
5. Oximetry is unreliable in the following situations:
    (1) Presence of abnormal hemoglobin (dyshemoglobinemia) e.g. carboxyhemoglobin
    (2) Presence of dye in the blood, *which has similar color as Hb.*
    (3) Increased bilirubin *(bilirubin has similar absorption wavelength (color) as Hb)*
    (4) Shock *(vasoconstriction, that the pulse oximeter cannot correctly detect SaO2 without normal blood flow)*
    (5) Increased venous pulsation
    (6) External light sources

Peak flow meter

The student is asked to demonstrate the use of a peak flow meter to an asthma patient.

Introduce yourself to the patient

Insert a clean mouthpiece into the peak flow meter

Stand up and hold the peak flow meter without restricting movement of the marker

Make sure the marker is at the bottom of the scale

(i) Take a deep breath

(ii) Put the peak flow meter in the mouth

(iii) Seal the lips around the mouthpiece tightly

(iv) Hold the meter horizontally (to avoid gravity)

(v) Keep the mouthpiece free of the tongue

(vi) Breathe out as hard and fast as possible

Record the result

Return the marker to zero

Repeat twice more and choose the highest of the three readings

Deform the mouthpiece and dispose of it appropriately

Check the chart for the normal reading and compare it with yours

Note:

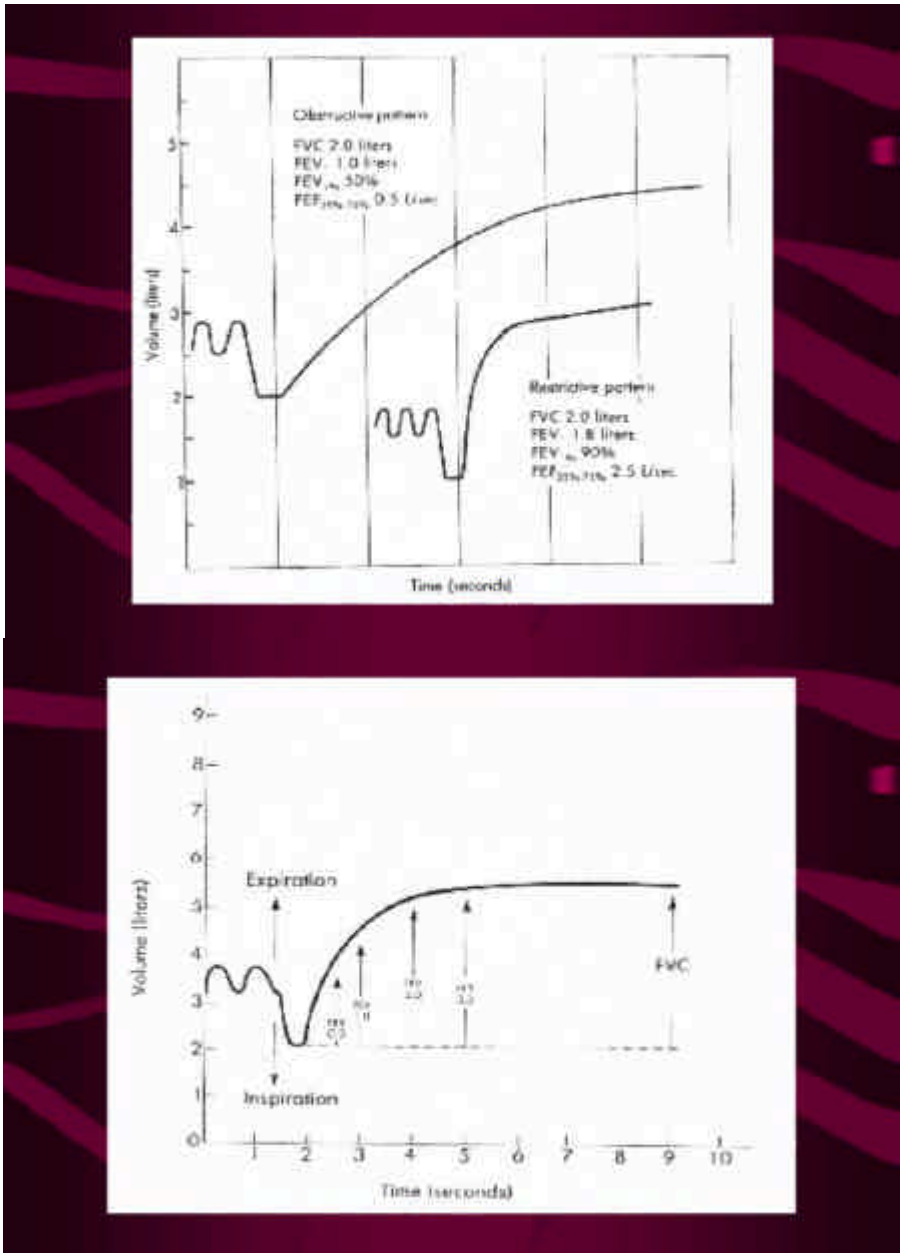
Peak flow meter measures peak expiratory flow (PEF).

Lung Function Test with a Spirometer

FVC - Forced Vital Capacity - after the patient has taken in the deepest possible breath, this is the volume of air which can be forcibly and maximally exhaled out of the lungs until no more can be expired. FVC is usually expressed in units called liters.

FEV1 - Forced Expiratory Volume in One Second - this is the volume of air which can be forcibly exhaled from the lungs in the first second of a forced expiratory manuever. It is expressed as liters.

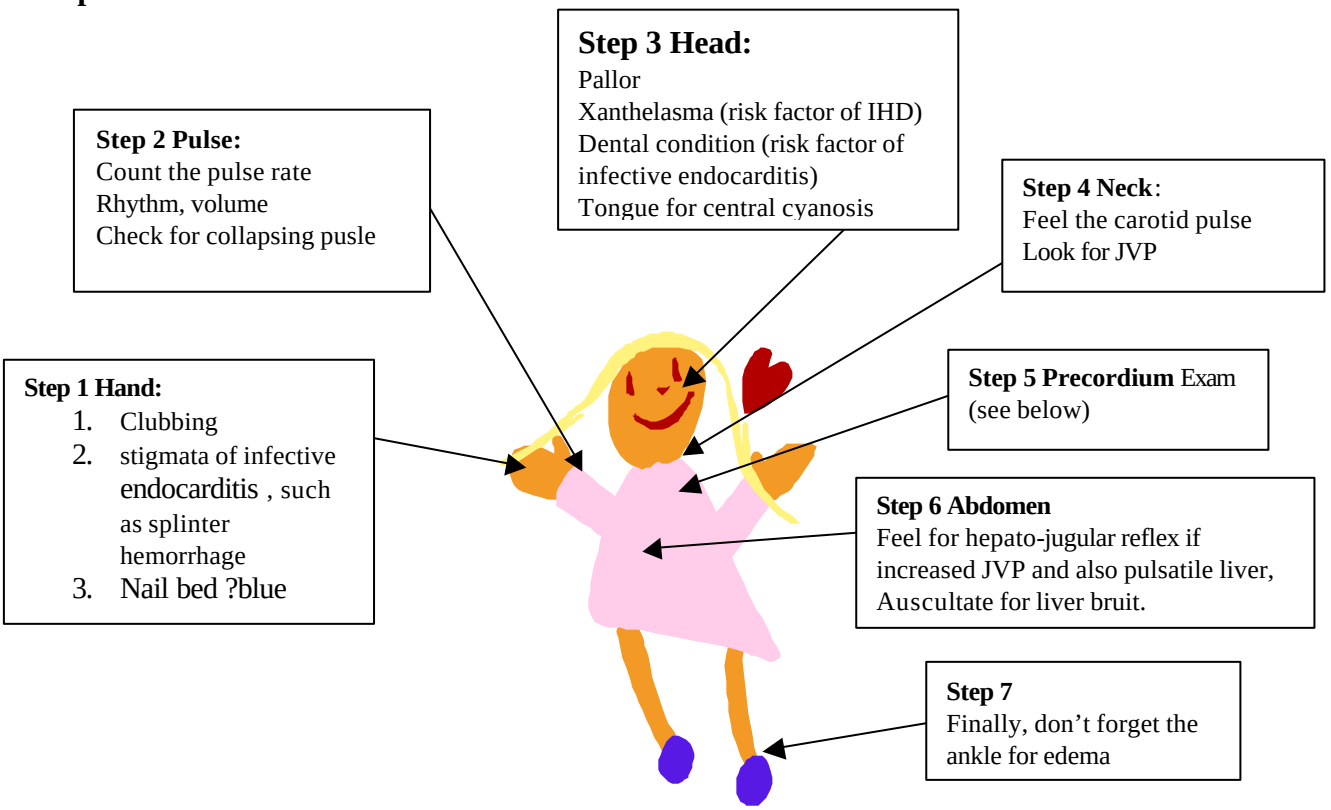
FEV1/FVC - FEV1 Percent (FEV1%) - This number is the ratio of FEV1 to FVC - it indicates what percentage of the total FVC was expelled from the lungs during the first second of forced exhalation - this number is called FEV1%, %FEV1 or FEV1/FVC ratio.



CVS Exam

**If you are asked to perform a complete CVS examination, we suggest better to start with the patient's hands --> face --> neck --> precordium and chest --> abdominal and finally don't forget the ankle.*

Complete CVS Examination:



Step 1 Hand:

1. Clubbing of fingernails (refer to respiratory system examination notes)

2. Sign of cyanosis (blue nail-bed)

3. Stigmata of Infective endocarditis (IE):
   - Splinter hemorrhage (most common cause is trauma indeed, not IE)
   - Janeway lesions, Osler's node

4. Xanthoma (intracutaneous yellow fatty deposits in hand joints, elbow, knees, Achilles tendon)

Step 2 Pulse

Peripheral Pulse: (refer to the above notes)

- additionally, pay attention to: I). Pulse Rate, ii). Pulse Rhythm, iii). Pulse Volume
- (Optional) Collapsing Pulse:- while feeling for the radial pulse with one hand, use the other hand to raise the patient's arm

Step 3 Head:

1. Eyes (if pale→pallor, if yellow discoloration→jaundice)
2. Xanthelasma (intracutaneous yellow fatty deposits around the eyes →suggests hyperlipidemia as a risk factor for coronary artery disease
3. Tongue (if blue→Central Cyanosis) Look at the peripheral side of tongue, not the tip.
4. Check the dental condition: Source of infection for infective endocarditis

Step 4 Neck:

Jugular Venous Pressure

Lie the patient down @ 45 degrees
inspect for any internal jugular pulsation (waveform)
Measure the vertical height from the Sternal angle to the top of Jugular Venous Pulsation
if jugular venous pulsation is not visible, apply firm pressure over the center of the abdomen for 5 - 10 seconds (hepato-jugular reflux = transient ↑ Venous Return)

Carotid pulse:

Any canon sign for aortic stenosis
You may listen for carotid bruit now or hold it together with the auscultation of heart sound later.

Step 5 Precordium

Inspection and Palpation of the Precordium

Lie the patient at 45 degrees
Look for scars and any abnormal pulsations (enlarged left ventricle → apex beat)
Lay the whole hand flat on the chest and localize the apex
Ask the patient to roll slight to the left and assess the apex beat
Count the ribs spaces from the sternal angle and report the location of the apex
Palpate the left border of the sternum (check for right heart enlargement)
Palpate all over the precordium (with the flat heel of hand) for thrill

Auscultation

(listen for heart sounds: 1st heart sound = closure of mitral and tricuspid valves at the beginning of systole; 2nd heart sound = closure of aortic and pulmonary valves at the end of systole, extra sounds, murmur, etc.)

Ask the patient to sit
Four areas to auscultate (with the diaphragm):

Apex
(in addition, roll the patient to the left and auscultate with the bell for murmur of mitral stenosis)
- Tricuspid Area
Aortic Area
Pulmonary Area

Step 6. Abdomen:

Look for hepatojular reflex. (You may do it before in step 4)
Feel for pulsatile liver and listen for liver bruits (if you suspected congestive heart failure or tricuspid regurgitation) (Usually, otherwise we will skip these steps.)

Step 7 Ankle:

look for **edema** by touch/feel and compare the size of both feet (pitting edema = the area compressed by the doctor rebounds slowly because of ↑ extravascular fluid → indicates CVS abnormalities)

Q: If you are asked for what else you would like to exam after a complete CVS P/E, answer: Fundal examination and measurement of BP by sphygomanometer.

Knee Jerk

1. Inform the patient and get a consent

2. . Position the patient (lying and relax), expose adequately above the knee enough to see the contraction of rectus quadriceps

3. Sometimes subtle reflex may not show you the extension of knee but the contraction of the muscles

4. Slide one of your arm under the knees if the patient is lying, so they are slightly bent and supported.

5. This slightly stretches the tendon to enhance the reflex, but not over bending (usually around 30 degrees) which will otherwise obliterate the reflex by over extension

6. Hold the tendon hammer at the end to ensure enough swinging action of the pendulum onto the tendon.

7. Palpate for the infrapatellar tendon.

8. Tap the hammer directly onto the tendon with good swinging movement.

9. Observe for both the extension of knee and also the contraction of the quadriceps

10. If no obvious reflex seen, ask the patient to do reinforcement manoeuvre

11. Interlock the fingers and then pull apart hard at the moment just before the hammer strikes the tendon

12. Or ask the patient to clench his/her teeth tightly just before the strike

13. These are called Jendrassik's manoeurvre

14. Remember that you must test for both knees and compare before you finish

Q. What type of reflex is this? Stretch reflex (1)

Q. How many synapses does it involve? One (0.5)

Q. What is the spinal level of this reflex? L3, L4

Q What can you do if there is no obvious reflex? Reinforcement manoeuvre.

Q What else do you want to do? (If you are asked after testing one knee, the answer is to test the other knee)

Interview a patient with hypertension

Case scenario: Mr. Chan, aged 75, has been diagnosed to have essential hypertension for a year. He is on an ACE inhibitor. He now comes to see you (the chief medical officer for him in QMH) for regular follow-up. You have to assess his management of the disease.

1. Introduce yourself and greet the patient

2. Ask about the present blood pressure and that over a recent period
   The patient believes that his blood pressure has returned to normal despite an average reading of 170/100!
   WHO Definition of hypertension: 160/95
   Individual variation: age, weight etc
3. Ask about drug compliance
   The patient has to take an ACE inhibitor twice daily, but he complains of absent-mindedness!
   Ways of increasing patient compliance: family assistance, switch to another drug taken once daily etc… good doctor-patient relationship!
   Reiterate that the drug is necessary for the control of his BP and reduce possible complications

4. Ask about lifestyle
   The patient loves salted fish and Chinese rice wine! He has tried to quit smoking but in vain as he has had this habit for over 50 years!
   Reduce salt intake
   Reduce alcohol intake
   Avoid smoking
   Regular exercise
   Encourage patient involvement in setting realistic and clear objectives; the change in lifestyle should be progressive… Make sure the patient understands by asking him to repeat

5. Ask for signs of complications
   Stroke
   Coronary heart disease
   Disease presentation in the elderly might be different from classical symptoms; the elderly might also not be able to describe symptoms accurately... e.g. abdominal pain or weakness in CHD

6. Ask if there's anything else he would want to discuss
   The patient's son is turning 50 this month and has frequent episodes of headache. The patient wishes to know if those could be due to hypertension!
   We have to first clarify the characteristics of headache. Tension headache? Really related to HT? We can explain that there is increased risk for HT in first-degree relatives, but we should also suggest the patient's brother to seek medical advice and BP measurement (if you think it may be serious after history.)

Genetic factors play an important role in essential hypertension

Interview with patient with IDDM

Pathogenesis of IDDM (Type I DM):
This form of diabetes results from a severe, absolute lack of insulin caused by a reduction of beta- cell mass. Usually develops in childhood, becoming manifest and severe at puberty.
Patient depends on insulin for survival. Without insulin they develop serious metabolic complications such as acute ketoacidosis and coma.
Three interlocking mechanisms are responsible for the islet cell destruction: genetic susceptibility, autoimmunity, and an environmental insult.

Management of DM:

1) Insulin injection:
- It is injected subcutaneously,
- The injection sites should be changed regularly to prevent areas of lipohypertrophy.
- The commonest is using a portable pen injector.
- There are 5 main types of insulin: ultra- short- acting, short- acting, intermediate-acting, long-acting and mixtures of insulin.
- The patient must inject insulin in the right time before the meal, depend on which type of insulin they are injecting.

2) Diet control:
- Can get opinions from a dietician.
- The main principal is to increase the frequency of meal and decrease the amount of food during each meal.
- Don't eat too much simple sugar food e.g. sweet food.
- One bowl of rice or equivalent in joules for each meal, 2 slide of meat each day (include fish, beef or pork), some vegetables and a small fruit per meal. Some milk and trace amount of oil is allowed.
- They must follow the diet control strictly to assist maintain the blood glucose within the normal range.

Also it should be note that the management of DM needs multi- professional health-care team, which beside doctor and nurse also include the following professionals:
- Podiatrist:
- The DM patient got to be taking care of their foot.
- Keep it clean.
- Ensure wearing comfortable and clean shoes.
- Prevent infection of the foot.
- Seek for treatment as early as possible whenever there is any abnormality.
- Ophthalmologist:
- Take regular check- up to prevent eye disease.

There are several tests available to test the blood glucose level:
For Home monitoring:
1) Urinalysis: use sensitive glucose dipstick to check for glucosuria. The patient should do it regularly and record down the results.
2) Finger- prick blood glucose measurement: does the test two hours after the meal. The patient should

do it regularly and record the result too.

DM can be complicated by:
Macrovascular: CHD; Microvascular: Retinopathy, nephropathy, neuropathy

- Cataract
- Retinopathy
- Heart disease
- Hypertension
- Renal disease
- Infection in foot, etc.

Thus it is very important for a good control of the blood glucose level.

Interview with patient with asthma + angry patient for your late coming

Case scenario: Ah Ming, 7 years old boy, newly diagnosed extrinsic asthma was brought to see you by his mother. They are worried about so called asthma and would like to know more about the disease and their management. Mrs. Kam is very angry for waiting you almost 2 hours.

- Address the patient and introduce yourself (0.5) ☐
- Give apology to the patient and explain why you are so late (0.5) ☐
- Back to the subject
- Explain to patient about asthma: disease etiology, risk factors, disease outcomes (1) ☐
- Assess the home environment (1) ☐
- Assess the exercise tolerance of patient (1) ☐
- Assess the severity of attacks of patient (1) ☐
- Explain the treatment and give modification to his home environment. (1) ☐

Cardiopulmonary Resuscitation

Case scenario: One day you are walking on a busy street. One gentleman suddenly collapses in front of you. Please demonstrate what you should do with running commentary.

- Rapidly assess any danger to the gentleman and yourself from danger like vehicles.

- Establish whether the gentleman is responsive by gently shaking his shoulders and asking loudly "Are you alright?" (Be careful not to aggravate any existing injury, particularly of the cervical spine)
- (There is no response)

- Shout for help or send a bystander to telephone for an ambulance

- Airway assessment
  1. Loosen tight clothing/ remove any obvious obstruction from the mouth (finger sweep)/ leave well fitting dentures in place
  2. Extend, but not hyperextend, the neck thus lifting the tongue off the posterior wall of the pharynx. (This is best achieved by placing your hand along the gentleman's upper forehand and exerting pressure to tilt the head {head tilt}, at the same time placing two fingertips under the point of the chin to lift it forwards {chin lift}. This will often allow the breathing to restart)
  3. Look, feel and listen for breathing for 5s: look for chest movement, listen close to the mouth for breath sounds, and feel for air with you cheek

- (There is no breathing)

- Start expired air ventilation
  1. Maintain the airway by tilting the head and lifting the chin
  2. Pinch closed the nose with the fingers of your hand on the forehead
  3. Take a deep breath, seal your lips firmly around those of the gentleman
  4. Breathe out until you see the gentleman's chest rise clearly, lasting about 2s (children: 1-1.5s)
  5. Lift you head away, watching the gentleman's chest fall, and take another breath of air
  6. Avoid rapid insuflation or blowing too much because it will cause air to enter stomach, causing not only vomiting but passive regurgitation into the lungs which often goes undetected (complication: aspiration pneumonia)
  7. Recheck for spontaneous breathing

- (There is no return of spontaneous breathing)

- Assess circulation: palpate carotid pulse for 5-10s

- (Pulse is absent)

- Start external cardiac massage:
  1. Ensure the gentleman was lying on hard surface
  2. Position of hand:
     4. Sweep middle finger up along costal margin and locate xiphoid-sternal junction

5. Place index finger cephalad to it
6. Place heel of hand cephalad to the index finger at midline of sternum
7. Use both hands for compression in adult (use one hand in children)
8. Only the heel of hand should be touching the gentleman's chest

3. Press down keeping your arms straight and elbows locked
4. In an adult compress about 4-5cm keeping the pressure firm, controlled and applied vertically
5. Try to spend about the same time in the compressed phase as in the released phase (to have time for blood to be ejected and heart filled)
6. Aim for a rate of 80 compression per minute (children-100)
7. Compress 15 times

- Give two blows of expired air ventilation again

- Continue compressions and ventilations in a ratio of 15 to 2

- After 1 min of CPR, check for any return of pulse/ breathing, if absent, continue CPR and check again every few min

The examiner may ask:

1. When to stop CPR?
    a. Patient has a pulse
    b. Another trained rescuer or ambulance arrive to take over
    c. You are too exhausted or it is unsafe for you to continue
    d. A written DO NOT RESUSCITATE order is presented and verified
    e. A medical doctor says to stop
2. If cervical injury is suspected:
    a. Maintain head in neutral position
    b. Stabilization of C-spine with neck collar, sandbags, and in-line immobilization
    c. Open up airway by chin lift and jaw thrust only

Handwashing helps prevent infection

- The hands are moistened and antiseptic skin cleanser is applied to cupped hands. (1) □

- The hands are then rubbed together five times as follow:
  1. Palm to palm
  2. Right palm over left dorsum and vice versa
  3. Palm to palm, fingers interlaced
  4. Backs of fingers to opposing palms, finger interlocked
  5. Rotational rubbing of right thumb clasped in left palm and vice versa
  6. Rotational rubbing backwards and forwards with clasped finger of right hand in left palm and vice versa

- The wrists are sometimes rubbed and the hands rinsed and dried.

The same technique is recommended for alcohol hand-rub, but no water is used and hands are rubbed until dry. (Because alcohol kills pathogens by dehydration)

Final words…

To All medics:

為義人死、是少有的、為仁人死、或者有敢作的。惟有基督在我們還作罪人的時候為我們死、神的愛就在此向我們顯明了。 **羅馬書** 5:7-8

For scarcely for a righteous man will one die: for peradventure for the good man some one would even dare to die. But God commendeth his own love toward us, in that, while we were yet sinners, Christ died for us. Romans 5:7-8

To All Christians:

耶穌又對眾人說、若有人要跟從我、就當捨己、天天背起他的十字架來、跟從我．[24]因為凡要救自己生命的、必喪掉生命．凡為我喪掉生命的、必救了生命。人若賺得全世界、卻喪了自己、賠上自己、有甚麼益處呢? **路加福音** 9:23-25

And Jesus said unto all, If any man would come after me, let him deny himself, and take up his cross daily, and follow me. For whosoever would save his life shall lose it; but whosoever shall lose his life for my sake, the same shall save it. For what is a man profited, if he gain the whole world, and lose or forfeit his own self? Luke 9:23-25

End

Praise to The Lord for He is so wonderful! **耶穌愛您**