

Respiratory Case Scenarios

Clinical topics to cover in history taking:

- COPD / Asthma
- Pneumonia
- TB
- Lung Cancer
- Occupational Lung Disease e.g. silicosis,
- Pneumothorax
- Pulmonary Embolus

Consultation Skills to review:

- Introduction
- Opening question and active listening skills
- Open to closed questions e.g. degree of breathlessness, productive vs non-productive cough, alarm symptoms e.g haemoptysis
- Summarisation
- Signposting
- Differentiating between asthma and COPD
- Social history – occupational history – aware of specific industries and affect on lungs e.g. working with sand / cement, asbestos, chemical industry
- Revise Smoking Pack years
- Consider higher level consultation skills such as explanations to patients e.g. what is COPD? What words would you use to describe it? Introducing breaking bad news e.g. telling a patient they have lung cancer.
- Consider smoking cessation advice and motivating patients to change lifestyle choices

Week 1 - Scenario 1 Student Doctor

You are a 4th year medical student at Prince Hamza hospital and you are asked to see a 68 year old male patient named Yusuf who has just arrived in the emergency room. Introduce yourself, check the patient's ID and greet him. Yusuf is breathless and has a cough. At the end summarize back to the patient the history in their own words.

Week 1 - Scenario 1 Male Patient

Name: Yusuf

Age: 68 years old

Address: Hashmi Shamali, Amman

Occupation: Retired builder (construction worker worked with sand and cement)

Marital status: Married with 6 children

PC: Long standing breathlessness but last few days became very breathless
Normally coughs everyday but worse in last week

HPC: Breathlessness normally can only manage 50 metres on the flat
Sleeps with 2 pillows
Now struggling to speak and stopping mid sentence

Cough – productive – green sputum and specks of blood after coughing a lot
Pain at sides of chest
Wheezy too
No fever

PMH: Hypertension 2011

DH: Ventolin inhaler 100mcg 2 puffs when required
Tiotropium Inhaler 18mcg one puff once daily
Aspirin 75mg
Atenolol 50mg
Allergies: None

Travel: None

Smoking: Smoker 30 cigarettes a day for past 50 years
Previous job working with cement and sand in Cement factory in south Jordan
Then worked as a construction worker in buildings locally

Scenario 1 Discussion Points – A Case of COPD / Silicosis

- What went well? What did everyone else think went well? Anything you felt you could have done differently?
- Is there any more information you would like to know (or does anyone else want to know)?
 - o Ask specifically baseline of breathlessness e.g. How far can you walk on flat ground before you have to stop before you get breathless?
 - o Need to ask whether cough – productive or not? Colour of sputum? Quantify haemoptysis?
 - o Occupational questions – what exactly did patient do? What type of chemicals were they in contact with? What exposure did they have and for how long?
- Ask the student to calculate the pack years (No. of cigarettes / 20 X number of years = 75 pack years in this case) What specific questions should be asked regarding smoking? (Number of cigarettes, duration of smoking, filtered cigarettes or not) **NEED 20 years of pack years or more prior to onset of COPD**
- What respiratory diagnoses are you thinking of here?
 - o Acute story – chest infection (exacerbation of COPD), Silicosis, COPD (long term smoker)
 - o Haemoptysis likely due to coughing bouts and rupture of blood vessel but consider TB, lung cancer, PE as other differentials and screen for these (how quick was the breathlessness? – sudden with pleuritic chest pain consider PE). If cough going on more than 3 weeks than in heavy smoker over 50 years then in UK this is criteria for CXR to exclude lung cancer. If close contacts with TB or recent travel consider TB with other symptoms e.g night sweats, weight loss....
- How do you differentiate a patient with asthma from COPD?
 - o Smoking history over 20 years (COPD)
 - o Other atopic illnesses e.g. hay fever, eczema (asthma more likely)
 - o Diurnal variation in cough and wheeze (asthma more likely)
 - o Age of onset of symptoms (younger patient more likely asthma, usually over age of 40yrs in COPD)
 - o Triggers for symptoms e.g. pollens, chemicals, exercise... (asthma)
 - o Chronic daily cough with sputum with COPD (asthma often improved between bouts of illness)
 - o Symptoms of COPD gradually get worse (asthma often improve between bouts)
 - o Can get cyanosis in COPD (blue fingers and mouth)
- What do you think of atenolol for hypertension related to lung disease?
 - o Atenolol is a beta-blocker and could exacerbate wheeze particularly in asthmatics

Week 1 - Scenario 2 Student Doctor

You are a 4th year medical student at Mafrag hospital and you are asked to see a 54 year old male patient named Ahmed who has just arrived in the outpatient clinic. Introduce yourself, check the patient's ID and greet him. Ahmed has had a chronic cough over the last 3 months. At the end summarize back to the patient the history in their own words.

Week 1 - Scenario 2 Male Patient

Name: Ahmed

Age: 54 years old

Address: Irbid

Occupation: Taxi driver

Marital status: Married with 3 daughters

PC: 'I've had a dry cough last in the 3 months but in last week I noticed some blood in my sputum which **alarmed me**'

If asked 'why alarmed?' Say 'because I thought it might mean I have cancer'

HPC: 3 months cough – unproductive until last week – sputum with streaks of blood
Last 2 weeks you noticed some lumps in the left side of your neck
Last month experiencing sweating at nights
Lost some weight too in the last 3 months about 5kg
Your daughter has had a similar cough in the last 4 months

PMH: Discectomy L4/5 level for sciatica
Gastritis

DH: Diclofenac 50mg three times daily for ongoing back pain
Omeprazole 20mg once daily

SH: Ex smoker gave up 5 years ago
Smoked for 30 years 30 cigarettes daily
Recent travel to China on business trip looking at cars

Scenario 2 Discussion Points – A Case of Tuberculosis

- What went well? What did everyone else think went well? Anything you felt you could have done differently?
 - o Did they pick up patient cue `alarmed'? Exploring patient's fears and worries – asking patient's perspective
- Is there any more information you would like to know (or does anyone else want to know)?
 - o Other specific questions regarding TB e.g. breathlessness, chest pain, close contact with anyone with TB, possible HIV infection and screening for this
 - o Previous BCG vaccination (remember only 70% effective)
 - o Which part of China did they travel to (inland China – former Tibet – high)?
- What causes of haemoptysis do you know?
 - o PE, Pneumonia, TB, Lung Cancer, ruptured blood vessel when coughing, sinusitis, bronchiectasis, ...
- What are some of the risk factors for getting TB?

Cases tend to cluster in urban areas where populations of at-risk groups are high. These include areas with many people born in countries with a high incidence of TB, areas with a high level of homelessness, poor housing or poverty, and areas with high rates of problem drug use

- How do you test for TB?
 - CXR under 35yrs
 - Beta interferon test
 - Mantoux testing – intradermal check 2-3 days later – 6mm are bigger reaction is positive
- What about her daughter's symptoms? Anything else should you do?
 - Daughter needs to be screened for active TB and all family contacts likely need to receive prophylactic TB therapy if patient has confirmed TB
 - Need to consider contact tracing all contacts

Week 1 - Scenario 3 Student Doctor

You are a 4th year medical student at UNWRA clinic and you are asked to see a 50 year old male patient named Amer who has just arrived in the clinic. Introduce yourself, check the patient's ID and greet him. Amer has a cough, hoarseness of voice and a new neck skin lesion. At the end summarize back to the patient the history in their own words.

Week 1 - Scenario 3 Male Patient

Name: Amer

Age: 50 years old

Address: Rusayfah

Occupation: Retired shopkeeper

Marital status: Married with 4 children

PC: `I'm concerned about a new lump in my skin that just appeared a week ago on the left side of neck as well as this cough I can't get rid of'

HPC: Skin lump just appeared quickly, red and slightly painful

Had worsening cough last 6 months – noticed some streaking of blood in sputum last week

Hoarseness of voice last month was told it was laryngitis but not got better

You had a CXR 6 months that showed irregular shadowing in the right side and the doctors put you on TB medication and treated your children. You were isolated from your family and you were upset in not being allowed to see your daughters. You are not convinced you had TB as no-one did a sputum, blood or skin test and you were told by a distant relative that's what they had done.

Past Medical History: Arthritis

Hypertension

Drug History: Ventolin inhaler 100mcg

Amlodipine 5mg once daily

Social History: Smoker of roll up cigarettes – about 30 a day

Had BCG vaccination when aged 11 years

Doesn't drink alcohol

Scenario 3 Discussion Points – A Case of Lung Cancer

- What went well? What did everyone else think went well? Anything you felt you could have done differently? How did they summarize
- Is there any more information you would like to know (or does anyone else want to know)?
- Why do you think this man developed hoarseness and skin lesions?
 - o Hoarseness (laryngeal tumour or laryngeal nerve palsy 2ry to nerve invasion – metastatic disease)
 - o Anyone presenting with hoarseness over 3 weeks should have a CXR
 - o 25% of lung cancers have cutaneous metastases
- How can lung cancer present? What symptoms and signs?
 - o Chronic cough (smoker with cough over 3 weeks should have CXR over age of 40 years)
 - o Infection that doesn't clear! (repeat CXR 4-6 weeks)
 - o Haemoptysis
 - o Chest pain
 - o Back / thoracic pain
 - o Breathlessness / wheeze – slow onset or rapid
 - o Cutaneous lesions
 - o Stridor (laryngotracheal compression / tumour in situ)
 - o Hoarseness (laryngeal tumour or laryngeal nerve palsy 2ry to nerve invasion – metastatic disease or Pancoast's tumour)
 - o Horner's sign – small fixed pupil, droopy eyelid, smaller inset eyeball on same side of lung lesion (in pulmonary apex – Pancoast's tumour)
 - o Brachial plexus palsy
- How would you break bad news to this man if the bronchoscopy results confirm a type of lung cancer?
 - Setting (quiet private room without interruption – relatives present who patients agrees to be there)
 - Perception (of patient's – how much do they suspect / know)
 - Invitation (patient gives you permission to share information - ask)
 - Knowledge – giving medical facts
 - Explore emotions and show empathy – touch or words
 - Strategy and summary – next steps and summarise information
- How do you deal with a colleague or hospital where you believe there has been medical negligence? i.e. missed diagnosis or not carried out appropriate investigations (substandard care).

This is looking at *attitudes* - 'demonstrate the ability to work effectively as a team member with other health care professionals in providing a high standard of patient care'

Week 1 - Scenario 4 Student Doctor

You are a 4th year medical student at your medical emergency department. You are asked to see a 23 year old male patient named Mahmood who has just arrived in. Introduce yourself, check the patient's ID and greet him. Mahmood is acutely breathless. At the end summarize back to the patient the history in their own words. Inform the patient of your action plan – what will you do next?

Week 1 - Scenario 3 Male Patient

Name: Mahmood

Age: 23 years old

Address: Marj al Hammam

Occupation: Student

Marital status: Single

PC: You awoke 2 days ago suddenly breathless with chest pain

HPC: 2 days ago woke up suddenly with breathlessness and sharp chest pain on the right side of your chest

It's getting worse and you feel more breathless today

You noticed today your skin in your upper chest is starting to crackle when you press on it

You had a similar episode 2 years ago that just got better by itself (you can't remember its name!)

Past Medical History: Nil

Drug History: Nil

Social History: Heavy smoker 40 cigarettes a day for the last 5 years, no alcohol intake

Scenario 4 Case Discussion – Pneumothorax

- What went well? What did everyone else think went well? Anything you felt you could have done differently?
- Is there any more information you would like to know (or does anyone else want to know)?
- What will you do next?
 - o Examine them – respiratory examination includes auscultation and checking for vocal fremitus
 - o On your examination findings you find that they are tachycardic and tachypnoeic. There are absent breath sounds on the right mid and upper lungs and the trachea is deviated to the left side and decreased tactile fremitus on right upper lung
 - o When you touch the skin in the upper chest there is some crunching of the skin with crackling
 - o Order a CXR – shows very black area in right upper and mid lung and collapsed lung
- What does this patient have? What is the crunching of the skin?
 - o Likely tension pneumothorax
 - o Subcutaneous emphysema – air escaping from mediastinum (pneumomediastinum)
- How would you manage this?
 - o Risk stratification – recurrence of previous pneumothorax – higher likelihood to intervene with surgery after 5 days if not resolved
 - o Watchful waiting, with or without supplemental oxygen
 - o Simple aspiration
 - o Tube drainage, with or without medical pleurodesis
- Do you know any risk factors for pneumothorax?

Your sex. men are far more likely to have a pneumothorax than are women.

Smoking. The risk increases with the length of time and the number of cigarettes smoked, even without emphysema.

Age. The type of pneumothorax caused by ruptured air blisters is most likely to occur in people between 20 and 40 years old, especially if the person is a very tall and underweight.

Genetics. Certain types of pneumothorax appear to run in families.

Lung disease. COPD

Mechanical ventilation. People who need mechanical ventilation to assist their breathing are at higher risk of pneumothorax.

Previous pneumothorax. Anyone who has had one pneumothorax is at increased risk of another, usually within one to two years of the first.