

“The Medical Student’s Playground” via Guided Discovery-Based Learning



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Skills

Teamwork

Integration

Empathy

Exposure

Observation



Key themes of discovery

CSI - Clinical Scientific Integration Module

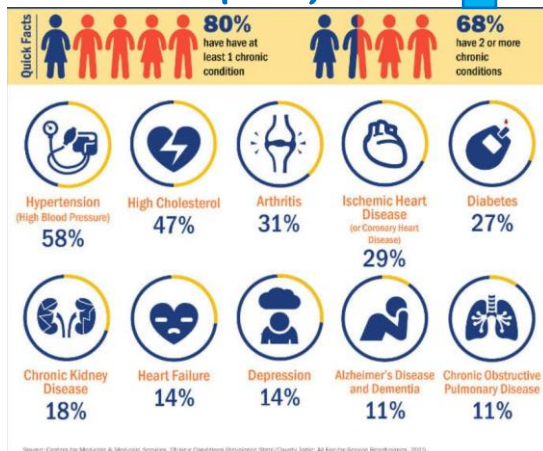
Yr1: Disease Pathophys.

Link

Yr2: Linking symptoms

Link

Yr3: Diagnosis

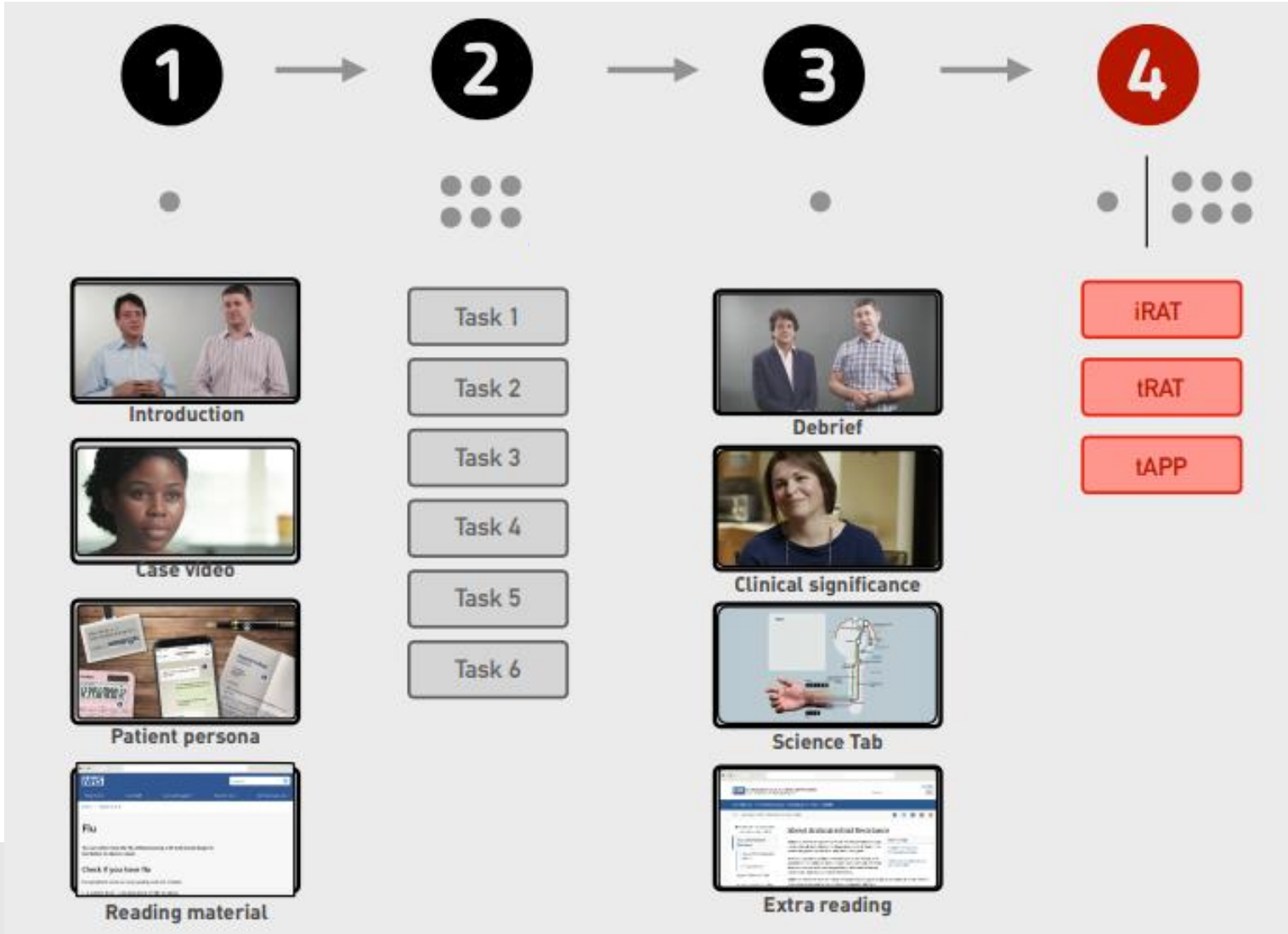


Learning



Core structure

CSI - Clinical Scientific Integration Module






Case content


CSI - Clinical Scientific Integration Module




1




Pre-session
Self-directed




Introduction



Case video




Patient persona



Reading material

2



f2f-session
Charing Cross

Task 1

Task 2


Task 3

Task 4


Task 5

Task 6

3




Post-session
Self-directed



Debrief



Clinical significance



Science Tab



Extra reading



Case content

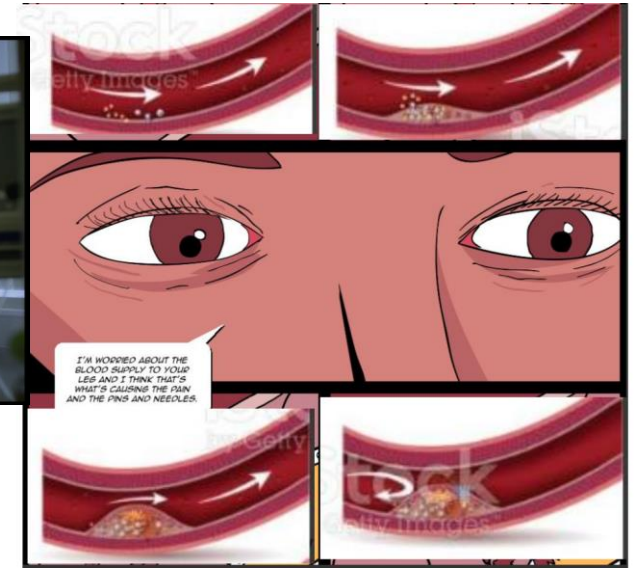
CSI - Clinical Scientific Integration Module

Discovery

Empathy

Exposure

Observation



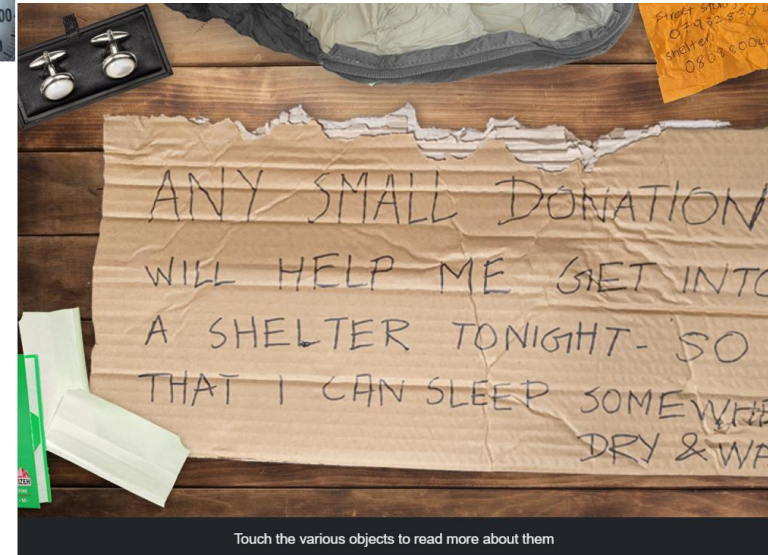


Case content

CSI - Clinical Scientific Integration Module

Discovery

Empathy





Case content

CSI - Clinical Scientific Integration Module

Discovery

Exposure



1

Pre-session
Self-directed

Introduction

Case video

Patient persona

Reading material

NHS

Search My account

Health A-Z Live Well Mental health Care and support Pregnancy NHS services

Advice about NHS strikes
[Find out what to do during the NHS industrial action from NHS England](#)

Home > Health A to Z

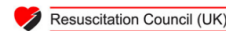
Overview

Chronic obstructive pulmonary disease (COPD)

- Overview
- [Symptoms](#)
- [Causes](#)
- [Diagnosis](#)
- [Treatment](#)
- [Living with](#)

The ABCDE approach

This document is based on the Resuscitation Council (UK) Resuscitation guidelines available at www.resus.org.uk/resuscitation-guidelines/abcde-approach/



The approach to all deteriorating or critically ill patients is the same. This approach aims to keep the patient alive and achieve some clinical improvement. This will buy time for further treatment and making a diagnosis.

1. Use the Airway, Breathing, Circulation, Disability, Exposure (ABCDE) approach to assess and treat the patient.
2. Do a complete initial assessment and re-assess regularly.
3. Treat life-threatening problems before moving to the next part of assessment.
4. Assess the effects of treatment, remembering it can take a few minutes for treatments to work
5. Recognise when you will need extra help. Call for appropriate help early.
6. Use all members of the team. This enables interventions (e.g. assessment, attaching monitors, intravenous access), to be undertaken simultaneously.
7. Communicate effectively - use the Situation, Background, Assessment, Recommendation (SBAR) or Reason, Story, Vital signs, Plan (RSVP) approach.

BMJ Learning

Interpret an Arterial Blood gas report in 4 steps

Animated explainer video:
How to interpret an Arterial Bloodgas report in 4 steps

Watch later Share

BLOOD GAS REPORT			
09:32 AM 18/03/2020			
Port	HN000001		
Applications	Smith		
Patient ID	John		
Patient Last Name	Male		
Patient First Name	Arterial		
Sex	21.0%		
Sample Type	37.0°C		
FI _O ₂	Dr Jones		
Temperature	Emergency Department		
Operator	(7.35 - 7.45)		
Location	(4.5 - 6.0)		
Blood Gas Values			
pH	7.23	kPa	(11.0 - 13.0)
pO ₂	7.3	kPa	(130 - 180)
pCO ₂	7.5	kPa	(95.0 - 100.0)
Oximetry Values			
SpO ₂	112	%	(90.0 - 100.0)
ctO ₂	85.0	%	(80.0 - 95.0)
iO ₂	1.2	%	(0.0 - 1.5)
FCO ₂	4.3	%	(0.0 - 1.5)
FHb	0.2	%	(3.5 - 5.0)
FHct	3.9	mmol/l	(135 - 145)
Electrolyte Values			
K ⁺	134	mmol/l	(1.15 - 1.30)
Ca ²⁺	1.23	mmol/l	(1.1 - 1.27)
Cl ⁻	98	mmol/l	

VIDEOS Full screen (f)



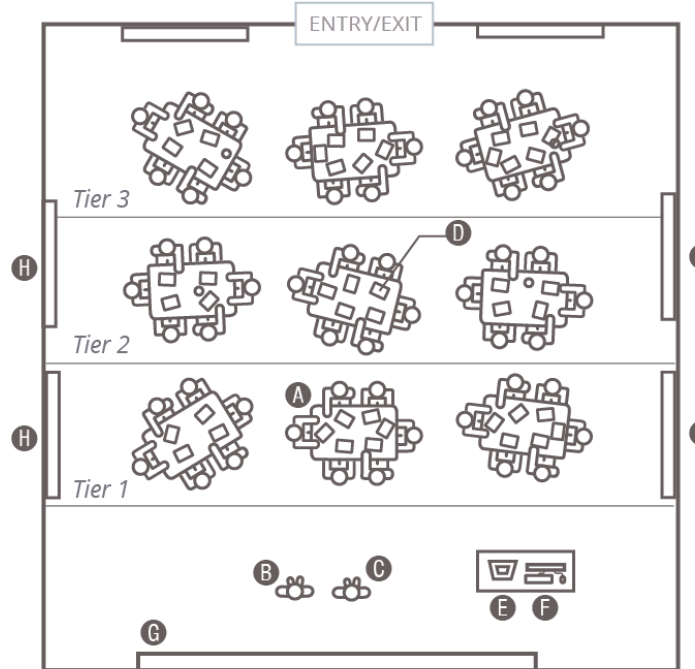
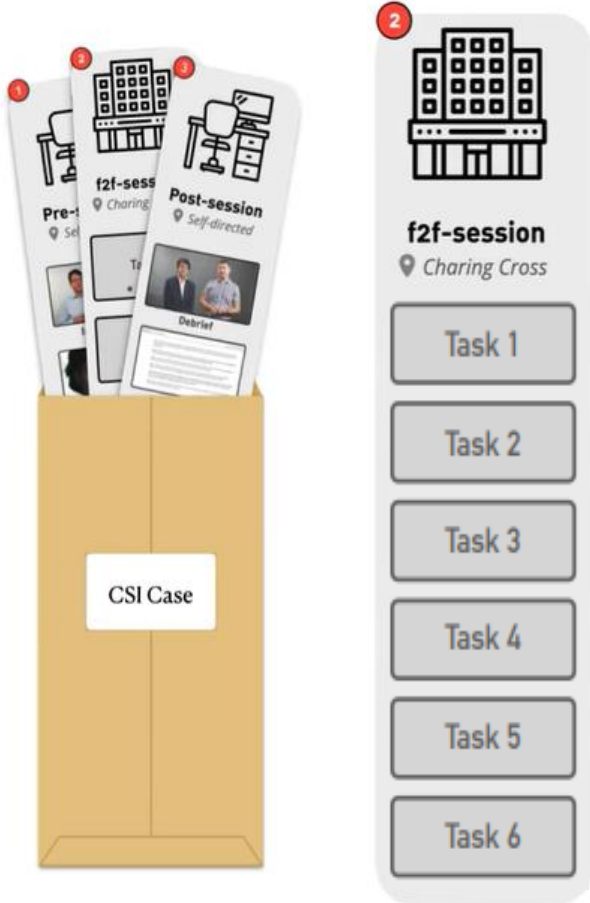
Case structure

CSI - Clinical Scientific Integration Module

Discovery

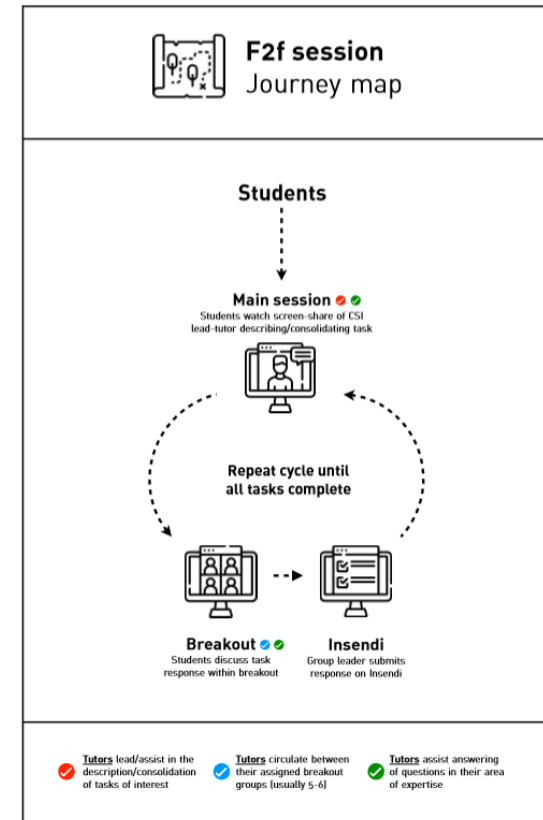
Teamwork

Integration



A - Student group, B - Clinician Tutor, C - Scientist Tutor, D - iPad or Laptop, E - Display controller, F - Lectern Computer, G - Main display screen, H - Wall-mounted displays.

F2F
or
Online





Case content

CSI - Clinical Scientific Integration Module

Discovery

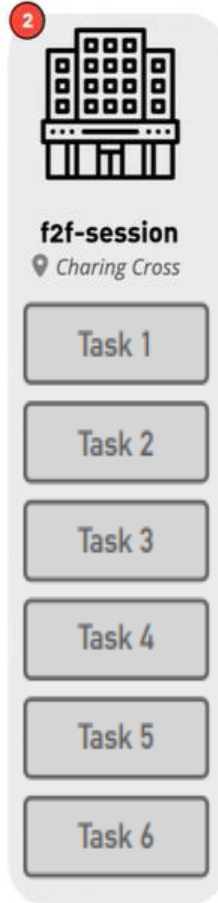
Teamwork

Integration

Empathy

Exposure

Observation



Let's see a few sample tasks now 3 years of MBBS

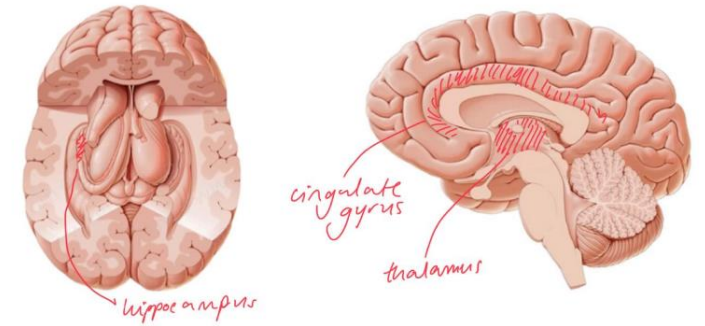
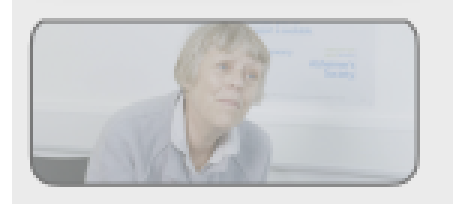


Case content

CSI - Clinical Scientific Integration Module

Discovery

Integration



Three major functions affected by involvement of these areas are **attention**, **short term memory** and **orientation**. In groups, complete the table below:

Brain region	Function implicated in dementia	Which question(s) of the 6-CIT test this function?
Posterior cingulate cortex	Orientation	date / year / time
Hippocampus	Short-term memory	address
Anterior thalamus	Attention	months & numbers

TASK 4

Now that we have understood the underlying mechanism of Alzheimer's, let's think about why plaques and tangles cause memory problems specifically.

The limbic system is typically one of the first areas of the brain to be affected in Alzheimer's. The posterior cingulate cortex, hippocampus and the anterior thalamus are some regions associated with the limbic system that are implicated in Alzheimer's disease.

Question:

- In your groups, download template 1, and colour the location of the following regions: Cingulate gyrus, hippocampus and thalamus.
- We are now going to link what we have learnt back to Mr Wilkins' 6-CIT test. The questions in the 6-CIT evaluate different areas of the limbic system and thus different cognitive functions that are affected in dementia. In your groups, download template 2, and label the missing information.

Breakout group - 10 mins



2

f2f-session
Charing Cross

Task 1

Task 2

Task 3

Task 4

Task 5

Task 6

CSI Case



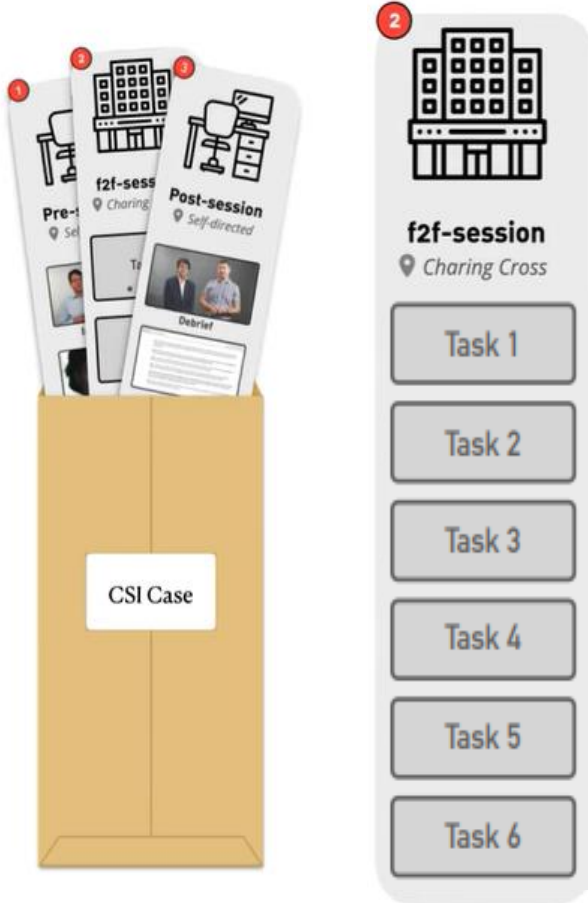
Case content

CSI - Clinical Scientific Integration Module

Discovery

Empathy

Exposure



TASK 3

Let's think about the previous task with Mrs Wilkins in mind. We know Mrs Wilkins is at an increased risk of developing dementia due to her mild cognitive impairment. From the previous task we learnt that Alzheimer's disease is the most common cause of dementia. The vast majority of people with Alzheimer's dementia are aged 65 or older.

Question:

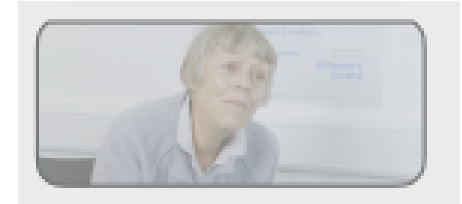
A doctor should be able to explain a disease to a patient or their relative in ways they understand. In case Mrs Wilkins were to develop Alzheimers', and her grand-daughter asked you about the following terms that she's read up on the internet. In your groups, discuss how would you explain the terms to Mrs Wilkins' grand-daughter in an easy to understand way. Feel free to use analogies.

Terms: amyloid plaques, neurofibrillary tangles, synaptic deterioration and neuronal death and cerebra-cortical atrophy.

There is no submission box. A few random groups will be asked to share their thoughts upon return to the main session.

You will find the pathophysiology of Alzheimer's disease in Insendi to help you with this task.

Breakout group - 10 mins



TASK 6

Empathy is one of the most important qualities that healthcare professionals are required to exhibit. You will have read about the article on Ideas, Concerns and Expectations (ICE). You also know a little about Murewa thought the case video and her patient persona. In this task, we are going to apply the concepts in ICE to Murewa.

Question:

Watch the video on the next page. Imagine Murewa was featured in the video, and you were the video's script-writer. Discuss within your group and generate at least one line for Murewa based on her

1. Ideas (1 line per group)
2. Concerns (1 line per group)
3. Expectations (1 line per group)

Type your submissions into the box provided in Insendi

[VIDEO on next page]

Breakout group - 10 mins





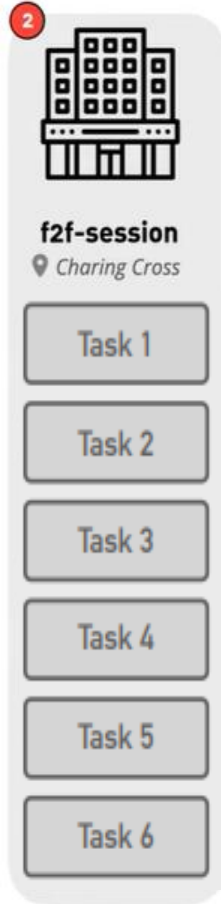
Case content

CSI - Clinical Scientific Integration Module

Discovery

Exposure

Observation



TASK 2

Mr Craven seems to have an acute exacerbation of COPD, and a CXR may allow us to find contributing factors to his symptoms.

A CXR is a crucial investigation to order when you see a patient who presents with any cause of shortness of breath.

In this task, let's see if there is anything conspicuous in Mr Craven's CXR.

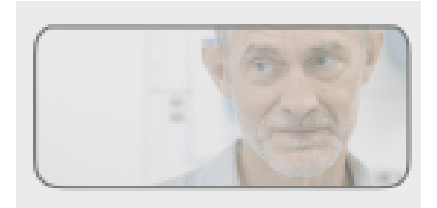
Question:

The CXR on the left is Mr Craven's X-ray from a few year's ago. The x-ray on the right is the one from today. Compare and contrast the x-rays. What are the differences and what is the diagnosis.

In your groups, download the PPT template, and annotate the differences, and mention the diagnosis in your annotation. Once you have completed the task, export the slide as an image (.jpeg or .png) and upload the image using the upload button below.

[SEE TEMPLATE ON NEXT PAGE]

Breakout group - 5 mins



Mr Craven 'before'



Mr Craven 'now'





Case content

CSI - Clinical Scientific Integration Module

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Empathy

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Observation



3

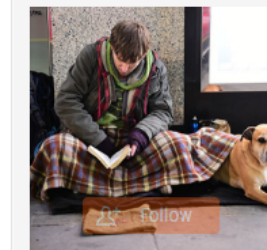
Post-session
Self-directed

Debrief

Clinical significance

Science Tab

Extra reading



▶ **BMJ talk medicine**
We must not get to the stage of thinking that [homelessness] is normal

SOUNDCLOUD

Share

17:14

▶ 12.2K

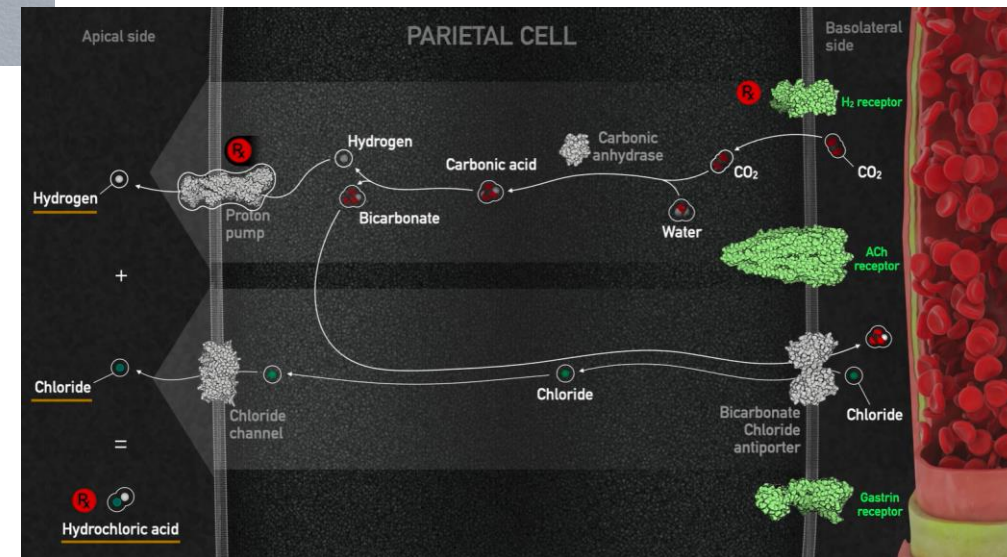
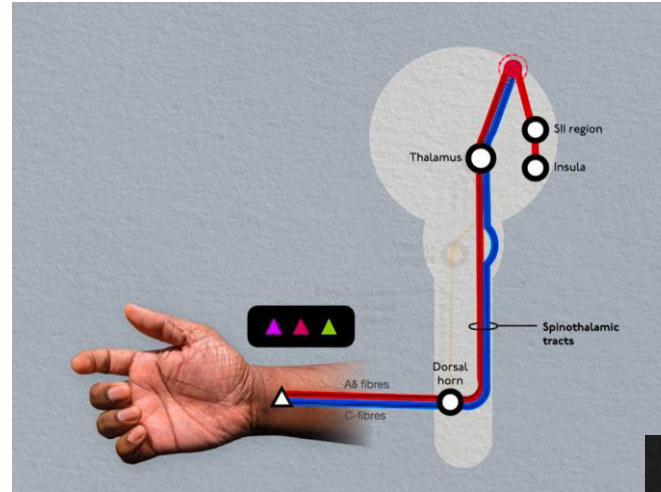


Case content

CSI - Clinical Scientific Integration Module

Discovery

Integration





Assessment for learning

CSI - Clinical Scientific Integration Module

Discovery

Teamwork

Integration

Empathy

Exposure

Observation

1



2



3



4



iRAT

Year 1

60%

Year 2

50%

Year 3

0%

tRAT

20%

25%

50%

tAPP

20%

25%

50%



Assessment for learning

CSI - Clinical Scientific Integration Module

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Case 6 - tAPP

Please make sure you read the following instructions carefully

In groups, consider the three following patients: Mrs Garcia, Mr Cheng and Mrs Jenkins. Read their case studies [here](#).

We would also like you to review the following resources:

- [Falls risk factors fact sheet](#)
- [Medications linked to falls fact sheet](#)
- [Algorithm for falls risk screening](#)
- [Falls risk checklist](#)

For all three patients we would like you to:

- Refer to the falls risk checklist and answer the corresponding Yes/No questions within LAMS (3 marks)
- Identify what you consider to be their single biggest risk factor for falling (2 marks). Explain why you chose this (3) and what recommendations you would suggest to address the risk factor you've chosen in order to reduce their falls risk (6 marks). Marks will be available for depth of explanation and insight. You have 250 words.

The total tAPP will therefore be marked out of 42, with 14 marks available for each patient.

This tAPP may contain some unfamiliar terms. We are also asking you to think creatively in answering your questions. As such, this tAPP is open book.



Case Study A: Mrs Garcia

Mrs Garcia is a 76 year old woman who lives independently in her own home...



Case Study B: Mr Cheng

Mr. Cheng is an 84-year-old Asian male who lives in an apartment that adjoins his son's house...



Case Study C: Mrs Jenkins

Mrs. Jenkins is a lively 87-year-old caucasian woman who lives in an assisted living facility...



Assessment for learning

CSI - Clinical Scientific Integration Module

Discovery

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Evaluation

CSI - Clinical Scientific Integration Module

Discovery

Teamwork

“[Because] our team is a group of quite varied people, I have come to understand how to communicate and work with different people. Each person in our group has their strengths, which have come out through CSI, and acknowledging these has helped us work together better to get a task done.”

Integration

“The cases encouraged me to look at the different things we were learning in each module as connected parts of the same story rather than separate bits of information... Integration makes you learn so much and you don't even realise it”



Evaluation

CSI - Clinical Scientific Integration Module

Discovery

Empathy

*“It has **made me think of patients [as] more than just a set of notes that you can follow;** by understanding the patient's journey you are better able to care for them”*

Exposure

*“[It] was stimulating and **mimicked how we will need to think as practicing doctors.** I like that we get to test our knowledge in ways that we will actually use in the future - it has encouraged me to read around the material to understand the ways that concepts are applied and prioritised in a clinical setting”*

Observation

*“The videos for pre session **help to see how the patient is at the consultation and we can see how it affects them”***



Guided Discovery Based Learning

CSI - Clinical Scientific Integration Module



*“CSI is both fun and engaging. It is quite simply **a medical student's playground** to explore the wealth of information available to us, to make connections between basic science and clinical medicine, and to grow”*



Chris John



Omar Usmani



Deepak Barnabas



Ali Khalid



Agata Sadza