

# **Management and Prescribing STUDENT SHEET**

You are an FY1 doctor working in the emergency department. Patient Richard Hammond D.O.B 19/12/1969 has presented with shortness of breath.

The examiner will tell you relevant parts of the history to assist your decision making.

This station will last 10 minutes. During the first 5 minutes you will need to:

- State a differential diagnosis
- Request the appropriate investigations that you think this patient needs
- Interpret the test results
- Re-evaluate your differential diagnosis and formulate a management plan

The second 5 minutes will comprise of you writing an appropriate prescription for this patient.

# Management and Prescribing EXAMINER SHEET

## DIAGNOSIS: SEVERE ACUTE ASTHMA EXACERBATION

Please share the following information with the student:

*“Richard Hammond is a 53-year-old man presenting to the emergency department with breathlessness. He is struggling to talk so you cannot elicit a full history. However, he is alert and orientated to date, time, and place. He also has uneasiness in his chest. On observation you can see that he has quite laboured breathing. Examination reveals a bilaterally wheezy chest respiratory rate of 32, and a heart rate of 138 bpm. This patient is not febrile.*

1. Please state the investigations you would like to request for this patient.

### Bedside:

- A → E approach including a fresh set of observations
- Pulse oximetry for oxygen saturations since he is breathless
- Peak flow measurement – to calculate PEFr
- ECG due to chest discomfort to detect cardiac causes

### Bloods:

- FBC for anaemia, WCC, and **eosinophilia**, to check potential infective causes/asthma which would have eosinophilia
- CRP
- ABG – checking for respiratory failure and acid base disturbance since he is breathless
- U&E's because if this is asthma, then salbutamol is contraindicated if he has severe hypokalaemia
- D-dimer – if suspecting PE

### Imaging:

Chest X-ray to check for respiratory causes of breathlessness like pneumothorax or infection

2. Please interpret the investigations on the last page and tell me what you see.
  - Peak flow: 39% - severe asthma
  - CXR: normal
  - ABG: Uncompensated respiratory alkalosis + type 1 respiratory failure

3. Considering this information, please state your top differential diagnosis and preferred management plan.
- **ACUTE Severe asthma exacerbation**
  - Keep doing regular A→E and observations
  - Oxygen through a 15L non-rebreathe mask and titre down aiming for sats of 94-98% if the patient has low oxygen saturations
  - 5mg nebulised salbutamol every 15 minutes
  - 40mg oral prednisolone
  - Then give nebulised ipratropium bromide
  - After this we can reassess and move onto medications like aminophylline and magnesium sulphate if the patient deteriorates
4. The diagnosis is acute severe asthma, please prescribe a medication to **quickly** reduce the patient's breathlessness, which works by antagonising muscarinic cholinergic receptors.

Student must prescribe a **SHORT** acting muscarinic antagonist, like ipratropium bromide. See mark scheme below for further details.

		Marks		
Initial Diagnosis	Student states a sensible and likely diagnosis which they can justify from the initial information provided. (1)			
Requesting Investigations	<p>Student requests a range of investigations in a structured order such as bedside, bloods and imaging. (1)</p> <p>Requested investigations must be backed up by sound and specific rationale and not generic comments like 'U&amp;Es to check electrolyte levels' (1)</p>			

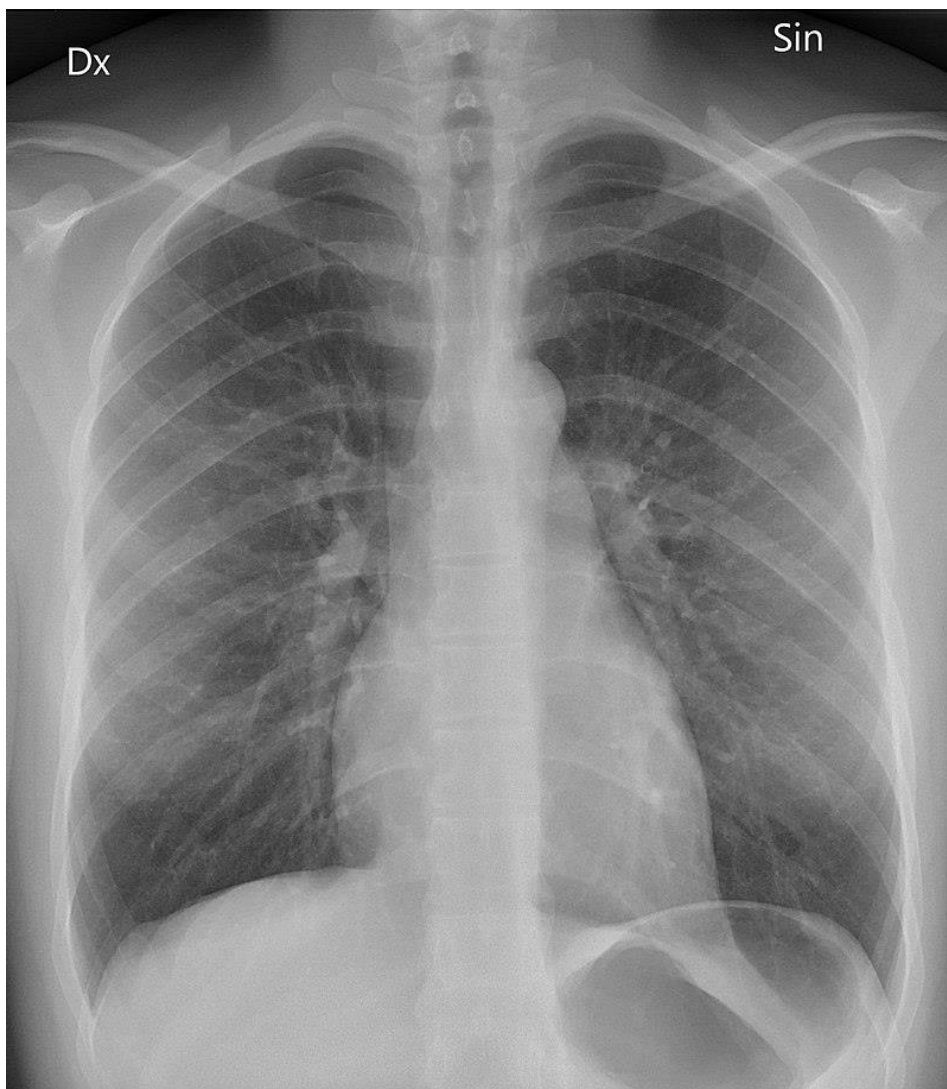
	Investigations must be requested to support the theorised differential and rule out other differentials. (1)			
Interpretation	<p>Student interprets more than half of the investigation results correctly and in a systematic and structured order (1)</p> <p>Student interprets all investigations correctly in the context of the differential diagnosis, in a systematic and structured order (1)</p>			
Diagnosis and Management plan	<p>Correct diagnosis made (1)</p> <p>Appropriate management plan outlined in a structured format such as conservative, medical, surgical (1)</p>			
PRESCRIPTION	<p>Patient details and allergy status correctly recorded (1)</p> <p>Medication prescribed in the correct location (1)</p> <p>Medication name in all capitals and correctly spelt with correct dosage and route (1)</p> <p>Date and prescriber details recorded correctly (1)</p>			

Global Rating: Fail    Borderline    Good    Very Good    Excellent

## Management and Prescribing INTERPRETATION

Peak flow	202 L/min
Expected peak flow	520 L/min

pH (7.35 – 7.45)	7.47
PO <sub>2</sub> (10 – 14 kPa)	8.0
PCO <sub>2</sub> (4.5 – 6.0 kPa)	3.2
HCO <sub>3</sub> (22 – 28 mmol/L)	27.0
Lactate (< 4mmol/L)	2.0



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