

# ACUTE LEFT VENTRICULAR FAILURE

**MODULE:** ACUTE CARE

**TARGET:** FY1 & FY2 TRAINEES AND FINAL YEAR MEDICAL STUDENTS

**BACKGROUND:**

Recognition and management of acute left ventricular failure is a time-critical medical emergency. This may involve assessment of ECGs, prescription / administration of a number of medications, or co-ordination of advanced respiratory and cardiovascular support. FY2 trainees should be able to work within and lead a team to safely assess and treat patients in a timely manner to ensure the best possible outcomes.

## RELEVANT AREAS OF THE FOUNDATION PROGRAMME CURRICULUM

<p><b>1</b> Professionalism</p>	<p><b>1.4 Team Working:</b></p> <ul style="list-style-type: none"> <li>• Demonstrates clear and effective communication within the team</li> </ul> <p><b>1.5 Leadership:</b></p> <ul style="list-style-type: none"> <li>• FY2 demonstrates extended leadership role by making decisions and dealing with complex situations across a greater range of clinical and non-clinical situations</li> </ul>
<p><b>7</b> Good clinical care</p>	<p><b>7.5 Safe prescribing</b></p> <ul style="list-style-type: none"> <li>• Prescribes drugs and treatments appropriately, clearly and unambiguously in accordance with Good Practice in Prescribing Medicines (GMC, 2008)</li> <li>• Uses the BNF plus pharmacy and computer-based prescribing-decision support to access information about drug treatments, including drug interactions</li> <li>• Performs dosage calculations correctly and verifies that the dose is of the right order</li> <li>• Chooses appropriate intravenous fluids as vehicles for intravenous drugs and calculates the correct volume and flow rate</li> <li>• Prescribes oxygen appropriately including to patients with the risk of carbon dioxide retention</li> <li>• Relates prescribing activity to available prescribing guidelines / audit data eg antibiotic usage</li> </ul> <p><b>7.7 Infection control and hygiene</b></p> <ul style="list-style-type: none"> <li>• Demonstrates correct techniques for hand hygiene with hand gel and with soap and water</li> <li>• Takes appropriate microbiological specimens in a timely fashion</li> <li>• Follows local guidelines / protocols for antibiotic prescribing</li> </ul> <p><b>7.9 Interface with different specialties and with other professionals</b></p> <ul style="list-style-type: none"> <li>• Understands the importance of effective communication with colleagues in other disciplines</li> </ul>

<p><b>8 Recognition and management of the acutely ill patient</b></p>	<p><b>8.1 Promptly assesses the acutely ill, collapsed or unconscious patient</b></p> <ul style="list-style-type: none"> <li>• Uses Airway, Breathing, Circulation, Disability, Exposure (ABCDE) approach to assessing the acutely unwell or collapsed patients</li> <li>• Uses the GCS or Alert, Voice, Pain, Unresponsive (AVPU) to quantify conscious level</li> <li>• Investigates and analyses abnormal physiological results in the context of the clinical scenario to elicit and treat cause</li> <li>• Uses monitoring (including blood glucose) to inform the clinical assessment</li> <li>• Asks patients and staff appropriate questions to prioritise care</li> <li>• Seeks senior help with the further management of acutely unwell patients both promptly and appropriately</li> <li>• Summarises and communicates findings to colleagues succinctly</li> <li>• Appropriately communicates with relatives/friends and offers support</li> </ul> <p><b>8.2 Responds to acutely abnormal physiology</b></p> <ul style="list-style-type: none"> <li>• Formulates treatment plan in response to acutely abnormal physiology taking into account other co-morbidities and long-term conditions</li> <li>• Administers and prescribes oxygen, fluids and antimicrobials as appropriate (see Good Clinical Care: Safe Prescribing and Infection Control)</li> <li>• Recognises when arterial blood gas sampling is indicated, identifies abnormal results, interprets results correctly and seeks senior advice</li> <li>• Plans appropriate action to try to prevent deterioration in vital signs</li> <li>• Reassesses ill patients appropriately after starting treatment</li> <li>• Recognises the indicators for intensive care unit review when physiology abnormal</li> </ul> <p><b>8.3 Manages patients with impaired consciousness, including seizures</b></p> <ul style="list-style-type: none"> <li>• Assesses conscious level (GCS or AVPU)</li> <li>• Treats ongoing seizures</li> <li>• Recognises causes of impaired consciousness and seizures and seeks to correct them</li> <li>• Recognises the potential for airway and respiratory compromise in the unconscious patient (including indications for intubation)</li> <li>• Understands the importance of supportive management in impaired consciousness</li> <li>• Seeks senior help for patients with impaired consciousness in an appropriate and timely way</li> </ul>
<p><b>11 Investigations</b></p>	<p><b>11.1 Investigations</b></p> <ul style="list-style-type: none"> <li>• Requests investigations appropriate for patients' needs in accordance with local and national guidance to optimise the use of resources</li> <li>• Seeks out, records and relays results in a timely manner</li> <li>• Plans/organises appropriate further investigations to aid diagnosis and/or inform the management plan</li> <li>• Provides concise, accurate and relevant information and understands the diagnostic question when requesting investigations</li> <li>• Understands what common tests (Table 1) and procedures entail, the diagnostic limitations and contraindications, in order to ensure correct and relevant referrals/requests</li> <li>• Interprets the results correctly within the context of the particular patient/presentation e.g. plain radiography in a common acute condition</li> <li>• Prioritises importance of investigation results</li> </ul>

## INFORMATION FOR FACULTY

### LEARNING OBJECTIVES:

- ABCDE assessment and initial management of deteriorating patient
- Early recognition of left ventricular failure, appropriate investigations and use of local treatment protocols
- Appropriate call for help and concise transfer of information

### SCENE INFORMATION:

- Location: Emergency Department
- Expected duration of scenario: 15 mins (a), 10 mins (b)
- Expected duration of debriefing: 20-30 mins (a), 15-20mins (b)

### EQUIPMENT & CONSUMABLES

- Mannequin: On ED Trolley, IV Access
- Stocked airway trolley  
(Specifically: Airway adjuncts (OPA, NPA))
- O2 and selection of masks incl. NRB
- Monitoring equipment (SpO2, ECG, NIBP)
- ECG showing Anterolateral ST Depression
- Syringes, flushes, IV fluid and giving sets
- Simulated drugs (GTN infusion, Furosemide)
- Blood bottles and request forms
- Observation chart, medical note paper, drug chart
- Stocked crash trolley
- Mock up anaesthetic drugs/Intubation equipment

### PERSONS REQUIRED

- FY Trainee to lead scenario
- Ward nurse as assistant
- Medical Registrar (If requested)
- ITU Registrar (If requested)

### PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

1. Scene-setting: Recognition and initial management of the acutely unwell patient are essential skills to develop during FY training. Today we would like one of you to assess a patient in the Emergency Department. Please assess the patient methodically and treat the problems / symptoms that you find.
2. Assistance: An assistant will be present as the scenario begins (faculty will tell you who this is and what experience they have). If other (appropriate) help is needed at any stage, ask for it (the faculty will let you know how to request it).
3. The scenario will run until a natural conclusion, after which we will regroup to discuss the scenario and any related subjects that the group raises. This is not a test of the person who participates in the scenario and they will not be judged in any way on their performance.
4. We may then move back to the manikin again for the next steps in the management of the patient, followed by a further discussion of any matters that arise.

**'VOICE OF MANIKIN' BRIEFING:**

Your name is Malcolm (Mary) Emory. You are a 70 year old retired shopkeeper. You have a history of angina for which you take a GTN spray and had a heart attack 8 years ago. You have COPD, have smoked since the age of 15, have an exercise tolerance of about 100 yards (on a good day) limited by shortness of breath.

Your chest has been uncomfortable for the past hour. Your chest feels tight and it is really difficult to breathe. You can only say 2-3 words at a time. You took your GTN spray and your usual inhalers but they haven't helped. If prompted by the faculty, you will deteriorate and may arrest.

**IN SCENARIO BRIEFING:****ED nurse:**

You are looking after Malcolm (Mary) Emory, a 70 year old patient who has presented with acute shortness of breath and chest discomfort, on a background of IHD and COPD. You ask the FY doctor to assess them in the Emergency Department. An observation chart is available with the first set of obs recorded.

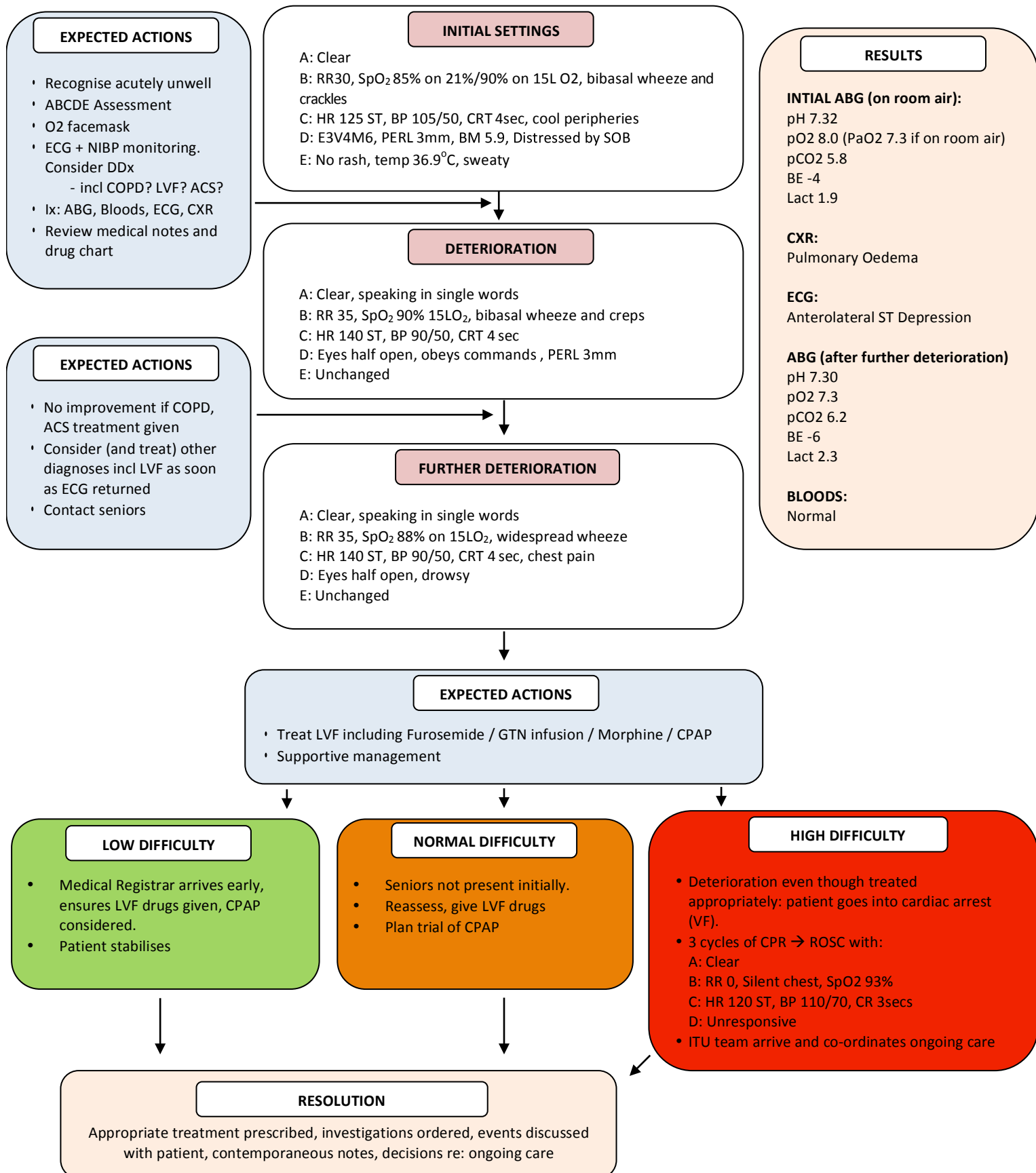
**ADDITIONAL INFORMATION:**

The main focus of this scenario is recognition of acute left ventricular failure with timely investigation and treatment.

If the participant doesn't recognise this and commence treatment, then the patient should deteriorate, however, this may make the scenario too complex for some participants to manage. Instead, the medical registrar may arrive to continue care, or the faculty could choose to pause for a discussion and then continue with another participant managing the further deterioration.

If the participant is doing really well and faculty wish to expand the clinical challenge, then the patient could deteriorate before the senior medical staff arrive. The participant should then continue the relevant ward-based treatments and / or management of cardiorespiratory arrest.

CONDUCT OF SCENARIO



## DEBRIEFING

### POINTS FOR FURTHER DISCUSSION:

- Differential diagnosis of acute shortness of breath
- The recognition and immediate treatment of acute LVF
- Appropriate administration of oxygen
- How to proceed with arranging CPAP / CCU support
- Recognition of severity of illness and appropriate call for senior assistance

### DEBRIEFING RESOURCES

1. European Society of Cardiology guidelines for the diagnosis and treatment of acute and chronic heart failure 2012. European Heart Journal 33:1787-1847 available at:  
<http://www.escardio.org/guidelines-surveys/esc-guidelines/GuidelinesDocuments/Guidelines-Acute%20and%20Chronic-HF-FT.pdf>

**INFORMATION FOR PARTICIPANTS**

**KEY POINTS:**

- Differential diagnosis of acute shortness of breath
- The recognition and immediate treatment of acute LVF
- Appropriate administration of oxygen
- How to proceed with arranging CPAP / CCU support
- Recognition of severity of illness and appropriate call for senior assistance

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## DEBRIEFING RESOURCES

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**PARTICIPANT REFLECTION:**

What have you learnt from this experience? (Please try to list 3 things)

How will your practice now change?

What other actions will you now take to meet any identified learning needs?

**PARTICIPANT FEEDBACK**

Date of training session:.....

Profession and grade:.....

What role(s) did you play in the scenario? (Please tick)

Primary/Initial Participant	
Secondary Participant (e.g. 'Call for Help' responder)	
Other health care professional (e.g. nurse/ODP)	
Other role (please specify):	
Observer	

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
I found this scenario useful					
I understand more about the scenario subject					
I have more confidence to deal with this scenario					
The material covered was relevant to me					

Please write down one thing you have learned today, and that you will use in your clinical practice.

How could this scenario be improved for future participants?  
 (This is especially important if you have ticked anything in the disagree/strongly disagree box)



**FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM**

What went particularly well during this scenario?

What did not go well, or as well as planned?

Why didn't it go well?

How could the scenario be improved for future participants?