# On-scene Assessment, Triage, Stabilization, and Referral Pathways

## Preventing Cardiac Arrest through Timely Prehospital Management

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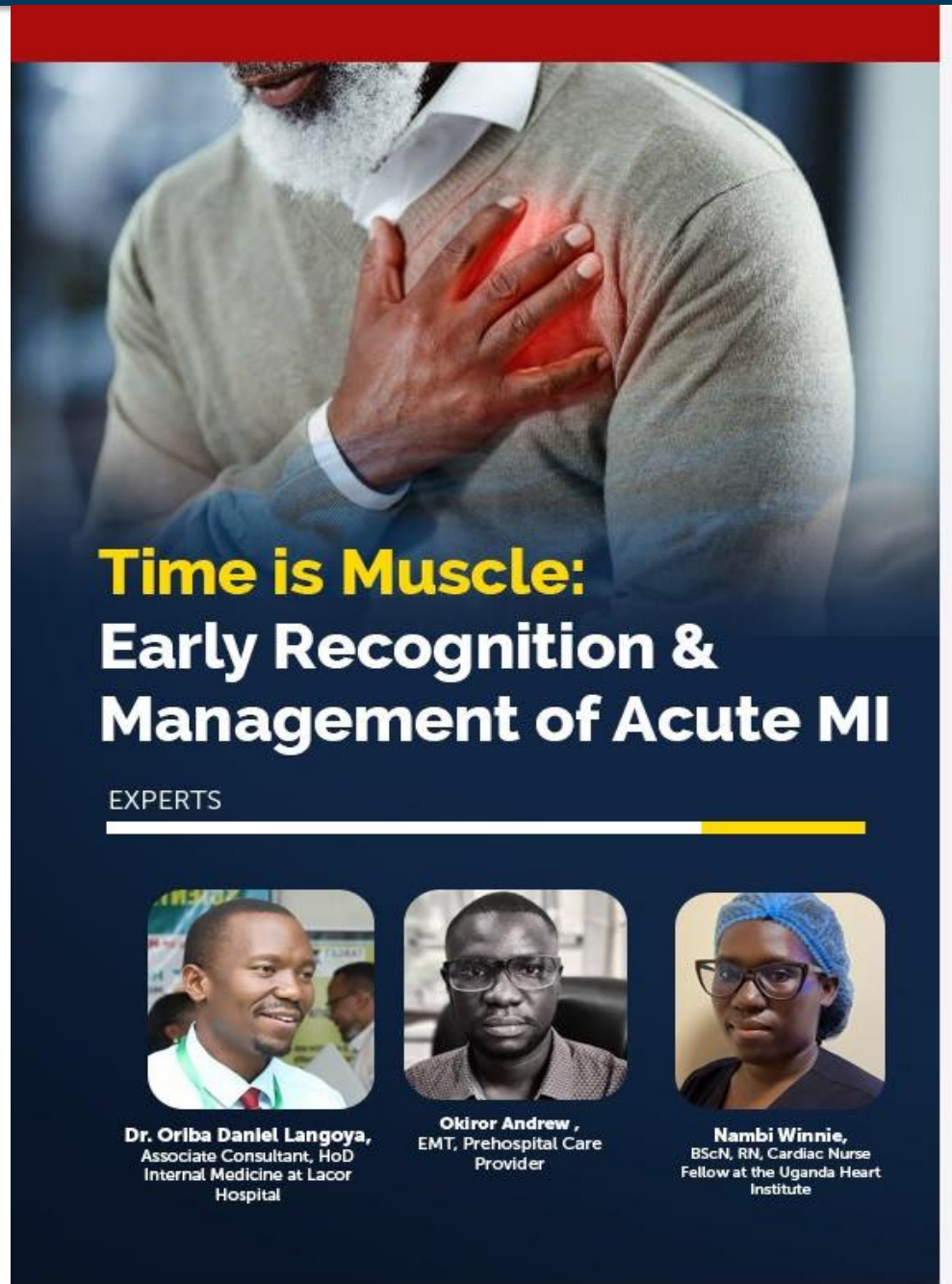


# Case Scenario: A Patient with Acute Chest Pain

## Patient: A 56-year-old man

Chief complaint: Sudden, severe central chest pressure for about 40 minutes, with sweating, nausea and shortness of breath.

Initial findings: BP 168/98 mmHg; heart rate 104/min; $SpO_2$ 98% on room air. He is alert but anxious and uncomfortable.

Scene information: He is seated at home. No major trauma is reported. An EMT crew has arrived and begins a systematic assessment.

EMTs Rensponse: Assess scene safety, perform ABCDE, obtain a focused OPQRST history, consider differential diagnoses, assign a provisional diagnosis, initiate appropriate care and choose a referral destination.

## Questions?

- What are your immediate concerns?
- What are the life threats to rule out?
- What is your provisional diagnosis?
- Which differential diagnoses must be considered?
- What care and destination are appropriate?

# Session Objectives



1. Perform a systematic on-scene assessment of a patient with chest pain or an acute cardiac emergency.
2. Triage cardiac patients appropriately.
3. Provide evidence-based prehospital stabilization to prevent deterioration and cardiac arrest.
4. Identify appropriate referral pathways and communicate effectively with receiving facilities.

# Why Early Prehospital Management Matters for EMTs



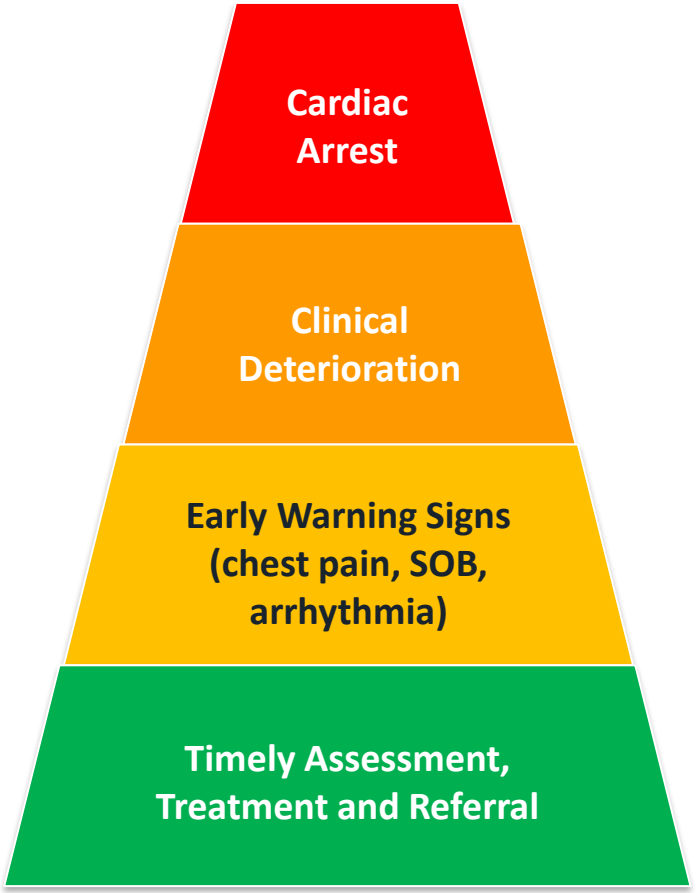
Most cardiac arrests are preceded by deterioration phases, such as:

- Severe chest pain
- Arrhythmias
- Heart failure
- Shock

Early recognition and treatment can prevent cardiac arrest.

Timely intervention improves survival and reduces complications and disability.

EMTs play a critical role in early intervention and rapid transport. (Al-Azawi et al 2024)



# Common Cardiac Emergencies in the Prehospital Setting



**Acute Coronary Syndrome**

**(heart attack)**



**Arrhythmias**

**(e.g. SVT, VT)**



**Acute heart failure/**

**pulmonary oedema**




**Cardiogenic shock**




**Myocarditis**




**Other causes**

**(e.g. aortic dissection)**



# Scene Safety and Initial Approach



- ✓ Ensure scene safety (you, patient, bystanders/N.O.K).
- ✓ Use appropriate personal protective equipment (PPE).
- ✓ Check for hazards.
- ✓ Approach calmly and introduce yourself, Obtaining conscent.
- ✓ Gain quick information from the patient and bystanders.



# Primary Survey – ABCDE



| | | |
|---|---|---|
| A | **Airway** | Is it open? Assess ability to speak; look and listen. |
| B | **Breathing** | Rate, effort, oxygen saturation. |
| C | **Circulation** | Pulse, BP, perfusion, control major bleeding. |
| D | **Disability** | AVPU/GCS, blood glucose. |
| E | **Exposure** | Look for other injuries and causes. |

# Focused History – OPQRST & Risk Factors



## Use OPQRST approach:

| | | |
|---|---|---|
| 1 | **Onset** | When did it start? |
| 2 | **Provocation** | What brings it on? |
| 3 | **Quality** | Character (e.g. pressure) |
| 4 | **Radiation** | E.g. to jaw or arm |
| 5 | **Severity** | Pain scale (0–10) |
| 6 | **Time** | Duration and pattern |

**SAMPLE**

S – Signs and symptoms

A – Age, athleticism, allergies

M – Medication

P – Past history

L – Last oral intake

E – Events leading up to incident

**R - RISK FACTORES**

## Provisional diagnosis

**Working diagnosis** based on the presenting symptoms, examination, vital signs and available ECG.

Example: suspected acute coronary syndrome (ACS) in a patient with acute central chest pressure, sweating and nausea.

State the level of certainty; do not present a suspected diagnosis as confirmed.

## Important differential diagnoses

- **Acute coronary syndrome / myocardial infarction**
- Aortic dissection
- Pulmonary embolism
- Pneumothorax (including tension pneumothorax)
- Pericarditis / myocarditis
- Acute heart failure / pulmonary oedema
- Gastro-oesophageal causes or musculoskeletal chest pain
- Etc....

*Clinical reminder: Differential diagnosis supports risk recognition, not definitive diagnosis in the field. Follow current Uganda EMS protocols, standing orders and medical direction.*

## Clues that help distinguish causes

- **Pain radiating to arm/jaw, diaphoresis or ECG changes: consider ACS.**
- Sudden tearing pain to the back, pulse/BP difference: consider aortic dissection.
- Pleuritic pain, sudden dyspnoea, hypoxia or VTE risk: consider pulmonary embolism.
- Unilateral reduced breath sounds with severe distress: consider pneumothorax.
- Etc....

## EMT actions and documentation

- Perform ABCDE, record vital signs and obtain a 12-lead ECG if trained/equipped.
- Treat immediately life-threatening problems and reassess frequently.
- Document provisional diagnosis, supporting findings, differentials, treatment and response.
- Pre-alert and transport to the appropriate facility; do not delay transport for a definitive diagnosis.

# MCQ 1

**Which of the following findings would place a cardiac patient in the RED (immediate) triage category?**

A. Mild chest pain, stable vital signs

B. Moderate chest pain, normal ECG

C. Severe chest pain (9/10) with hypotension and signs of shock

D. Chest pain that started 2 days ago, stable

**Answer: C**

**Rationale: Severe chest pain with haemodynamic instability or shock requires immediate stabilization and rapid transport.**

| Category | Criteria | Action |
|---|---|---|
| Red (Immediate) | ❖ Severe chest pain (≥7/10); hemodynamic instability; signs of shock; life-threatening arrhythmias (VT, VF, severe bradycardia). UAMS | ❖ Immediate stabilization and rapid transport with pre-alert.<br>❑ Protect the airway. |
| Yellow (Urgent) | ❖ Moderate chest pain; stable vital signs but high-risk history/ECG changes. | ❖ Stabilize and urgent transport (within 1 hour). |
| Green (Non-urgent) | ❖ Mild symptoms, stable, low risk. | ❖ Refer to appropriate facility / outpatient. |

## MCQ 3 – Oxygen should be given when:

A. $SpO_2$ is 98% on room air

B. All patients with chest pain

C. $SpO_2$ is below 94% or there is respiratory distress

D. The patient is anxious

**Answer: C**

**Oxygen is indicated for hypoxaemia (e.g. $SpO_2$ <94%) or respiratory distress.**

# Prehospital Stabilization to Prevent Cardiac Arrest



| | |
|---|---|
| **Position** | Comfortable position (semi-Fowler's) |
| **Oxygen** | If $SpO_2$ <94% or respiratory distress |
| **Aspirin** | 300 mg chewable if no allergy/contraindication (active bleeding, bleeding disorders etc..) |
| **Nitroglycerin** | For ongoing chest pain if SBP >100 mmHg and no contraindications (Hypotension, PDE-5 Inhibitors, severe Brady/tachycardia, Nitrates allergy) |
| **Pain relief** | E.g. morphine as per protocol |
| **Monitors** | ECG, BP, $SpO_2$, heart rate, CRT etc..... |
| **IV access** | For medications and fluids |
| **Treat arrhythmias** | Follow protocols (e.g. synchronized cardioversion for unstable SVT) |
| **Correct reversible causes** | E.g. hypoxia, hypoglycaemia |
| **Continuous reassessment** | Repeat ABCDE and monitor response |

# What to Avoid / Important Considerations



- ❑ Do NOT delay transport for unnecessary interventions.
- ❑ Do NOT give oxygen routinely if $SpO_2$ is normal.
- ❑ Avoid nitrates if SBP <100 mmHg, suspected right ventricular infarction, or PDE5 inhibitor use.
- ❑ Use morphine cautiously because it can cause hypotension.
- ❑ Do not ignore atypical presentations (elderly patients, people with diabetes, women).
- ❑ Always follow local EMS protocols and standing orders.

On-scene assessment and stabilization → Pre-alert receiving facility (SBAR communication) → Transport to appropriate facility








# SBAR Communication:

- **Situation** – who you are and the patient's current condition
- **Background** – brief history and findings
- **Assessment** – current status (vitals, ECG)
- **Recommendation** – ETA and support needed at the facility

## MCQ 4 – Most appropriate referral destination for STEMI:

A. Nearest health centre

B. Facility with PCI capability (if within acceptable time)

C. Any available hospital regardless of capability

D. Home with follow-up

**Answer: B**

**STEMI patients should be taken to a PCI-capable center if feasible, following local referral guidelines.**

# Destination Decisions

## STEMI or high-risk ACS

- ❑ Nearest PCI-capable center (if within acceptable time)
- ❑ Otherwise, nearest appropriate facility with thrombolysis capacity (as per national protocol)



**TYPE C AMBULANCE**

## Non-STEMI / Unstable Angina

- ❑ Nearest appropriate emergency department
- ❑ Consider facility with cardiology services if available



**Always follow local EMS referral guidelines and communicate early with the receiving facility.**

# Key Take-Home Messages



1. Early recognition and treatment of cardiac problems can prevent cardiac arrest.
2. Use a structured approach: scene safety, ABCDE, focused history, ECG, and continuous monitoring.
3. Provide timely stabilization (aspirin, nitroglycerin, oxygen if needed, pain relief, treat arrhythmias).
4. Triage appropriately and transport to the right facility.
5. Communicate early and effectively with the receiving facility.
6. Continuous reassessment is essential.

# Key Take-Home Messages



Al-Azawi, A. K., & Hussein, M. A. (2024). The critical role of EMT interventions in enhancing patient outcome. *Review of Contemporary Philosophy*, *23*(1), 115–128

