

Out Of Hospital Cardiac Arrest

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Disclosures

Speakers Bureau at Edwards Lifesciences

Speakers Bureau Abbott

Out of Hospital Cardiac Arrest

- 25 to 32.6% of EMS treated cardiac arrest survive long enough to make it to the hospital
- Overall survival rate of out of hospital cardiac arrest is 9 to 10.5% for all EMS treated non-traumatic cases survival to discharge
- Immediate CPR and defibrillation can double or triple chances of survival but for every minute delayed survival drops by 10%
- Witnessed vs. Unwitnessed: Witnessed arrest have much higher survival rate especially when 911 assisted compared to unwitnessed arrests
- Shockable rhythm has significantly better survival and long term outcomes than those with non-shockable rhythm
- 70% of OHCA occurs at home which lowers survival due to delays in response and AED access

The Call

11:17pm - You are called by ED with a 64 YO man who collapses at home while getting ready for bed

- Wife starts CPR
- EMS arrives in 6 minutes
- Initial rhythm is ventricular fibrillation requiring defibrillation x 2 and epi x 1. ROSC after 15 minutes
- No known CAD hx. Has HTN/HLD



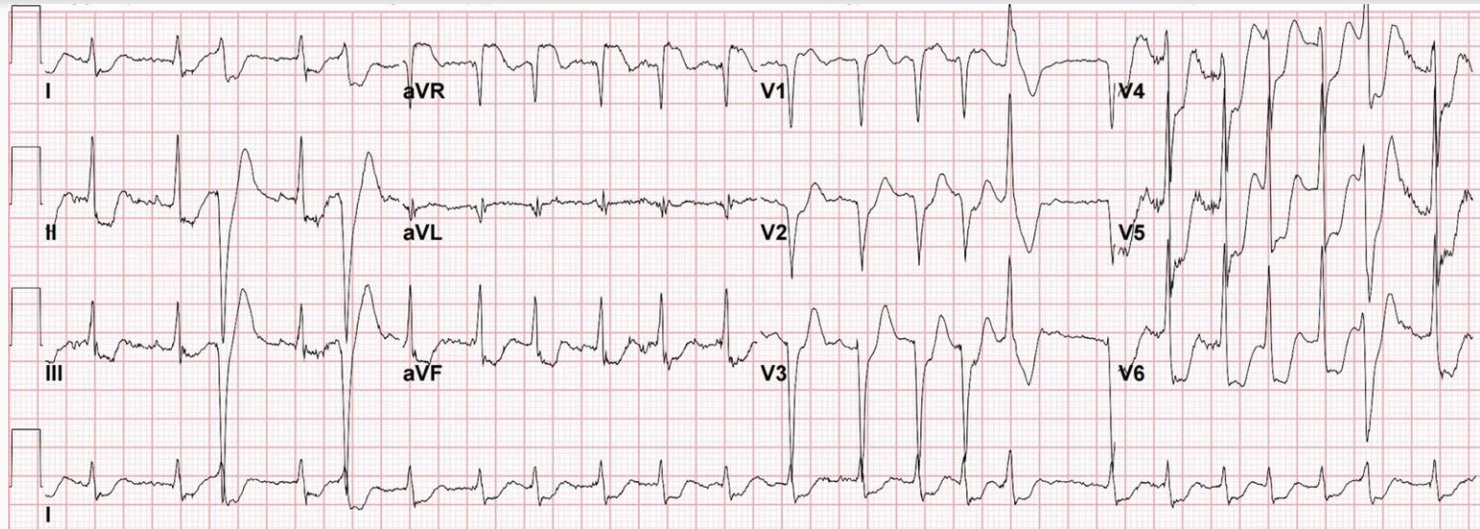
What do you do?

- A. Activate the lab immediately
- B. Wait for ECG
- C. Wait for troponin
- D. No cath unless he wakes up



He just celebrated the birth of a grandchild.
Active at baseline. Works and independent.

Post ROSC EKG



There is a STEMI in lead aVR with reciprocal changes. Cath Lab now?

Timing of post-ROSC EKG

- 2025 AHA post-Cardiac Arrest Guidelines still recommends 12 lead EKG as soon as feasible after ROSC.
- A study of OHCA shows that EKG obtained <8 minutes after ROSC showed significantly more false-positive STEMI finding
- Reasonable to wait 8 minutes post-ROSC for EKG Up to $\frac{2}{3}$ STEMI patterns evolved NSTEMI patterns

Initial STEMI ≤ 8 minutes with hemodynamically or electrically unstable/convincing clinical picture. Activate cath lab

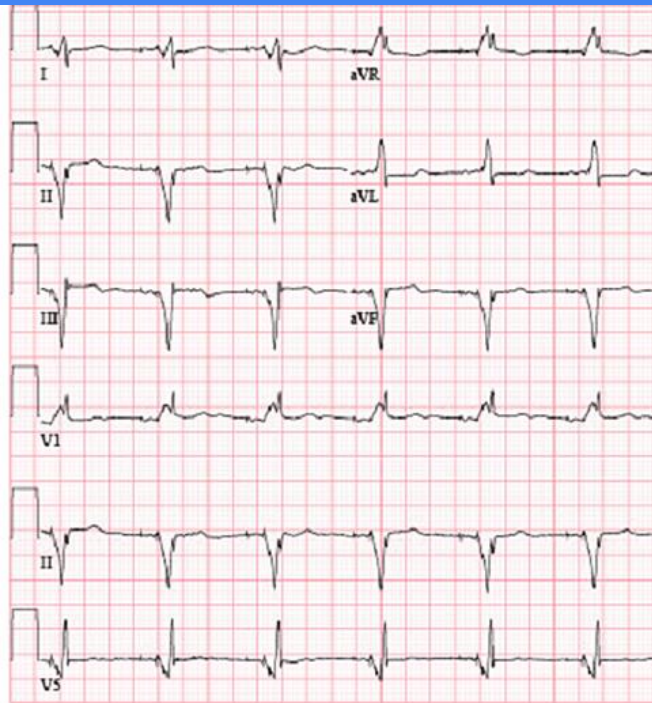
Initial STEMI ≤ 8 minutes, patient stable repeat. If normalized re-assess

No STEMI on EKG does NOT = no ACS

11:45pm ED call

Why did you check a Troponin

<G at 8 minutes



Patient HD stable on low dose levophed

Vitals

- BP: 104/68
- HR: 92
- SpO₂: 98%
- Intubated
- No increasing vasopressors
- No recurrent VT/VF

Neurologically:

- Does not follow commands
- Pupils reactive
- GCS 3T

Labs

- Lactate: 5.8
- pH: 7.19
- hs-troponin: 312 ng/L
- Creatinine: 1.1

The 2025 AHA guideline specifically notes that troponin elevation and non-specific EKG changes have inadequate sensitivity/specificity after OHCA.

FACT BREAK: How often is there CAD?

CAD is identified in up to $\frac{2}{3}$ of OHCA patients undergoing angiography while acute culprit lesion is present in roughly $\frac{1}{3}$.

The question is not “Does this patient have CAD?”

It is:

“Does the patient have an acute coronary lesion whose treatment is now likely to improve outcomes?”

CAHP Prognostication Score

CAHP (Cardiac Arrest Hospital Prognosis) Score

Predicts poor prognosis after out-of-hospital cardiac arrest and guides utility of cardiac catheterization.

Instructions

Use in adult patients with out-of-hospital cardiac arrest (OHCA) of suspected cardiac etiology. Do not use for other causes of arrest, e.g. trauma, hanging, drowning, intoxication, overdose.

When to Use ▼ Pearls/Pitfalls ▼ Why Use ▼

Age: 64 years

Setting: **Public setting**
Home

Initial rhythm: **Shockable**
Non-shockable

Duration from collapse to CPR begun: 2 min

Duration from CPR to ROSC: 15 min

Admission pH: 7.19

Total Epinephrine given, mg: 0 **1-2** ≥3

159 points
CAHP Score

Moderate risk
Risk of poor outcome

81 %
Poor neurological outcome

Copy Results Next Steps

- CAHP Score >200 = poor neurological outcome
- Intermediate scores (150-200), a case by case decision including all clinical variables should be made.
- For patients with low CAHP scores (<150), emergency, early or deferred coronary angiography is appropriate depending on clinical circumstances. Patient with active ischemic EKG or high risk EKG changes, persistent hypotension/shock, recurrent malignant arrhythmia or arrest may need immediate cath. In other patients without such high risk features, a deferred approach after neurologic improvement may be appropriate.
- CAHP Score < 150 with no other obvious cause of cardiac arrest should be considered for early vs delayed coronary angiography depending on whether the patients have the following high risk features:
 1. All STEMI (immediate coronary angiography unless obvious contra-indication-consult cath lab immediately).
 2. High risk EKG abnormality apart from STEMI.
 3. Recurrent arrhythmia or arrest.
 4. Shock

The Evidence

COACT:

- No STEMI + shockable rhythm: immediate vs. delayed angiography. No survival benefit

TOMAHAWK:

- Immediate vs. delayed angiography:
- No mortality benefit

DISCO 2026: Presented at ESC 2026

- Immediate angiography did not improve 30 day survival / 180 day survival / neurological outcome when compared to deferred strategy in OHCA patients without STEMI

Plan:

Admit to CICU

Maintain Normothermia

Cath if shows signs of neurological improvement

1am: CICU C

- Patient with Vfib x 2, sh
Lidocaine/amiodarone
- Still no STEMI on post
 - A. Pads on, continu
meds, call back if
 - B. First case tomorr
 - C. Call electrophysic
 - D. Activate Cath Lab



Let's Rewind...Admit to CICU

VF arrest

ROSC

No ST elevation

BP **72/45**

Lactate 8

Cold extremities

Requires norepinephrine

Echo: **LVEF 15%**

Recurrent NSVT

- Activate the cath lab!
- Cardiogenic shock + electrical instability + severe LV dysfunction = high suspicion for CAD
- RHC / MCS

Let's Rewind...Admit to CICU

No VFib overnight

If stable, first case tomorrow is reasonable.

Patient wakes up in unit, following commands

- A. First case tomorrow, back to bed
- B. Activate Cath Lab

Take Home Messages

OHCA → ROSC

Persistent STEMI / STEMI equivalent?

YES → 🚨 CATH LAB

↓ NO

Cardiogenic shock?

YES → 🚨 CATH LAB

↓ NO

Recurrent VT/VF / electrical instability?

YES → 🚨 CATH LAB

Hemodynamically + electrically stable, no STEMI

→ ❌ No routine immediate cath

- ICU/post-arrest care
- Identify non-coronary causes
- Neurologic assessment. normothermia
- Delayed/selective coronary angiography

Thank you for your attention!

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