The Arrest Cycle

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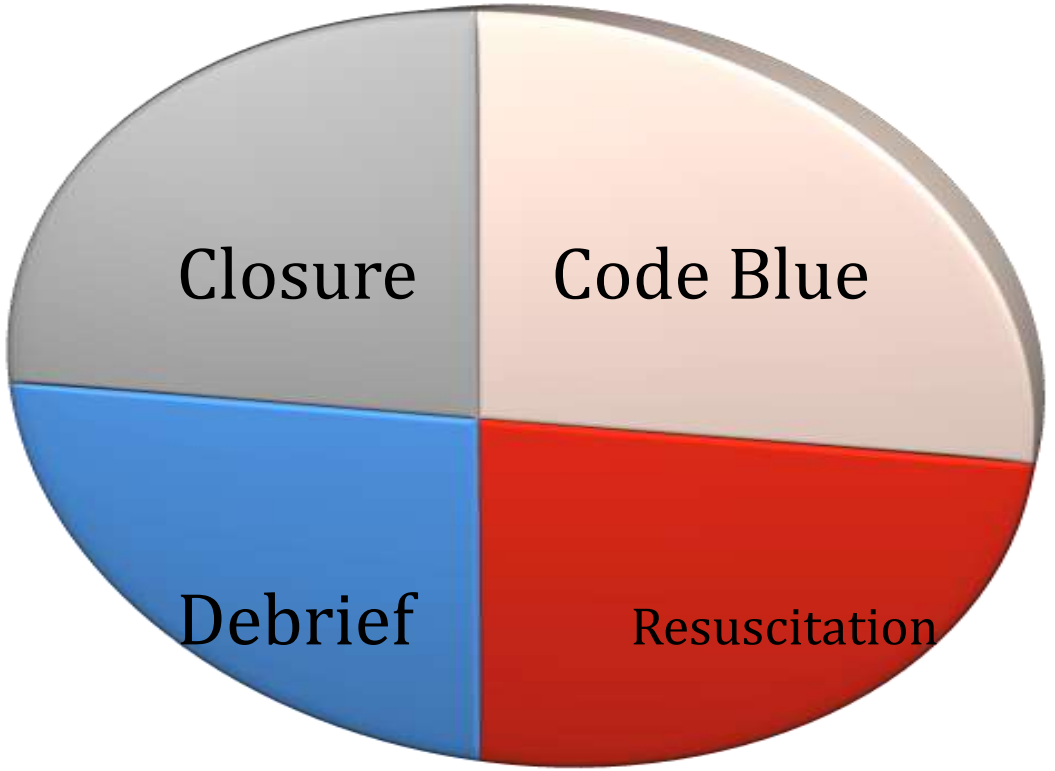
Presentation Objectives

1. Discuss the concept of the Arrest Cycle.
2. Explain the importance of an algorithmic approach to cardiac arrest.
3. Identify limitations of the AHA algorithmic approach.
4. Identify the principle of a clinical debrief post-event.
5. Recognize the importance of the arrest closure.

The Arrest Cycle



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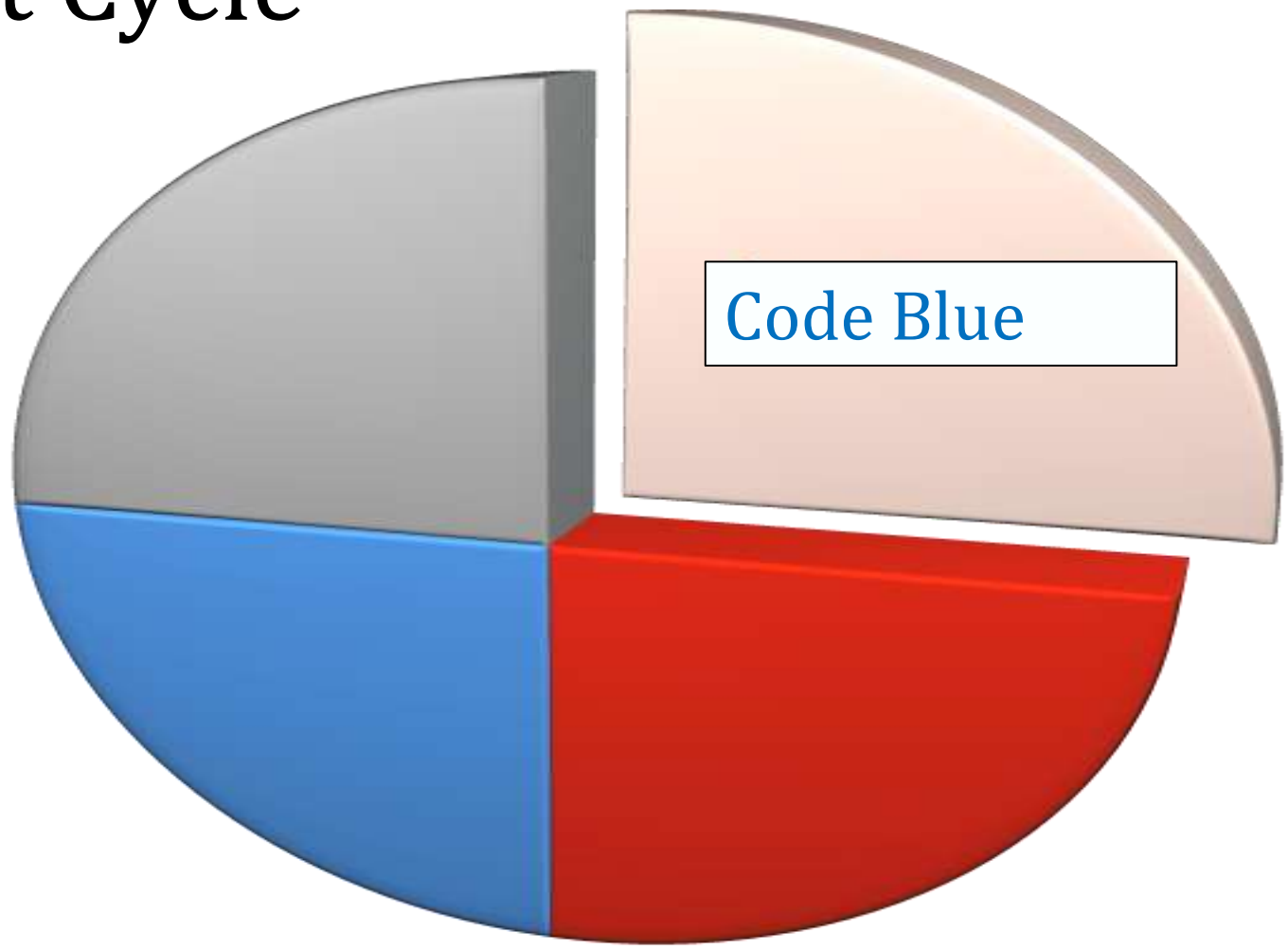

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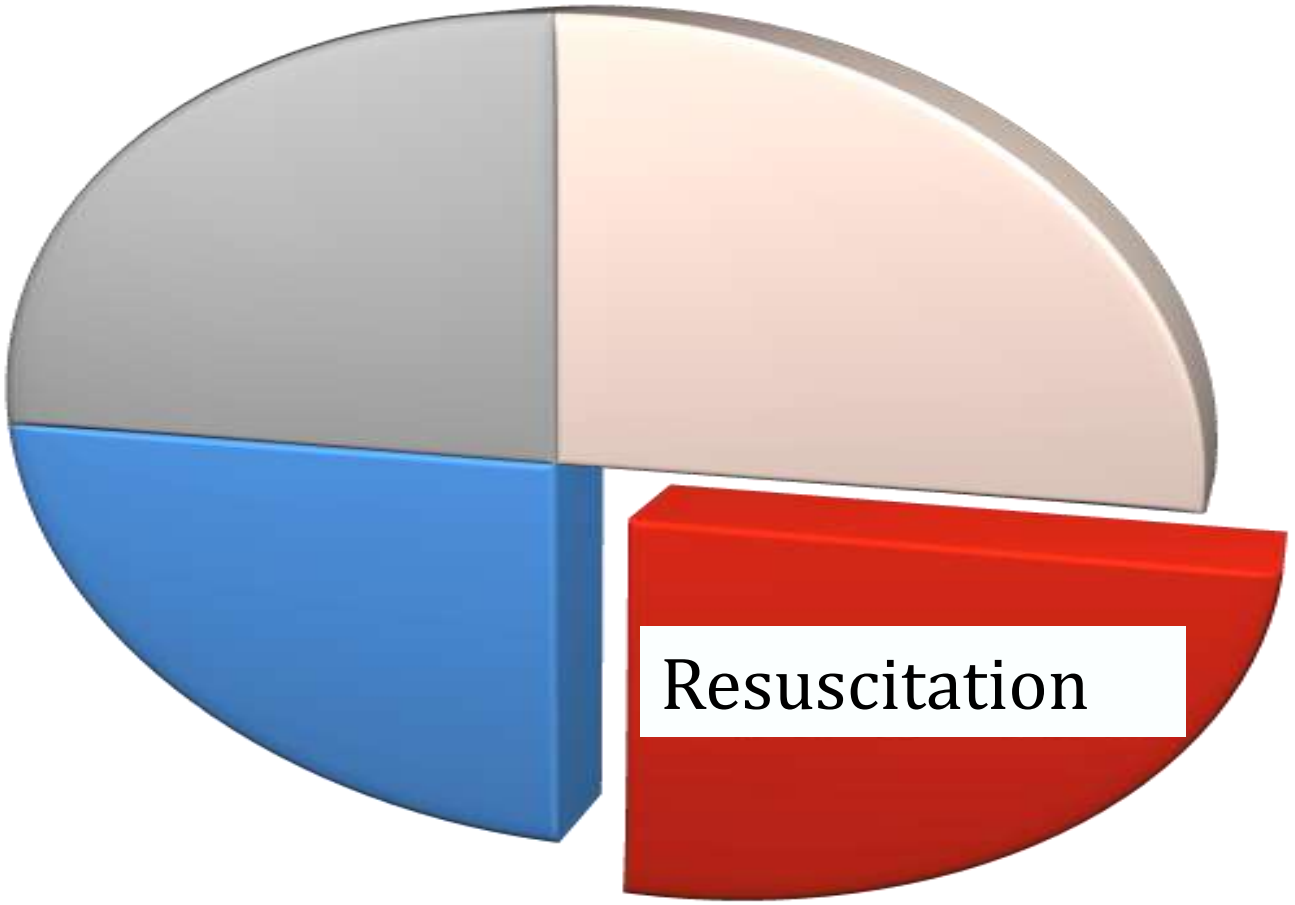

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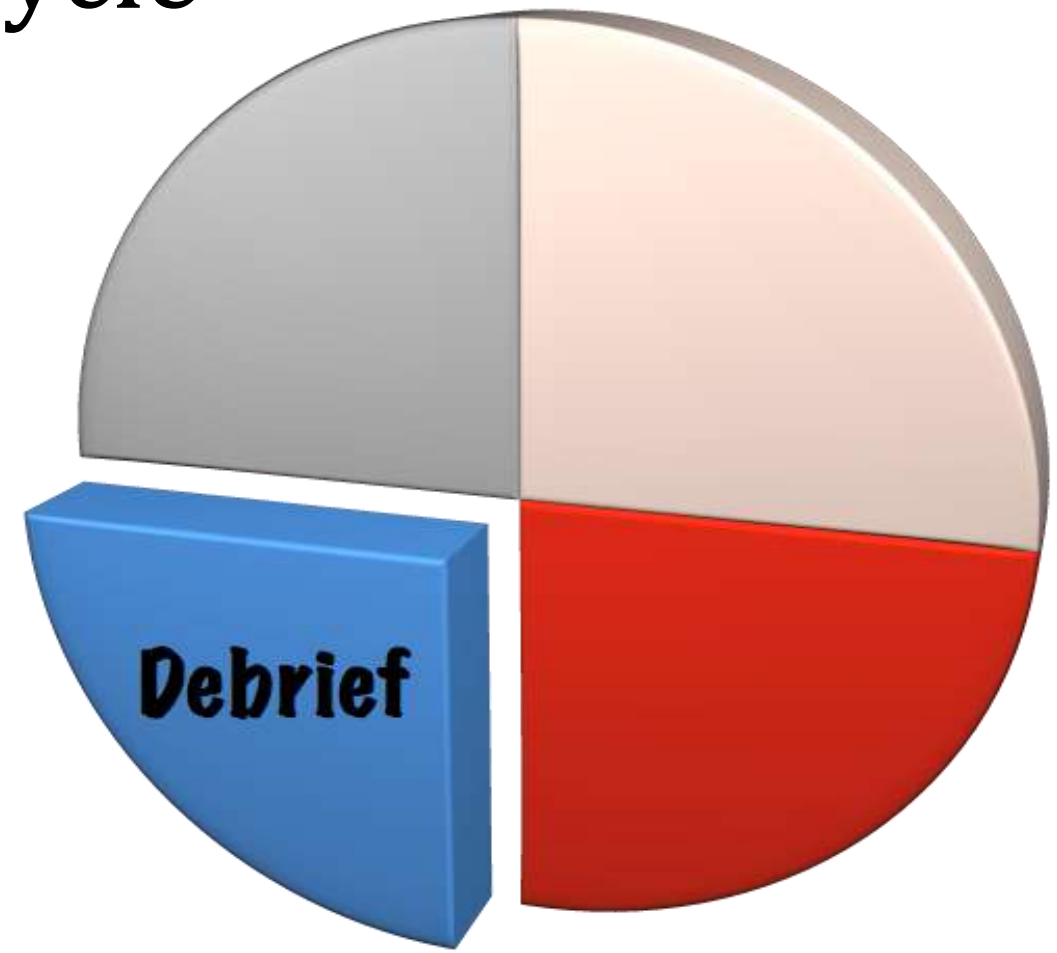
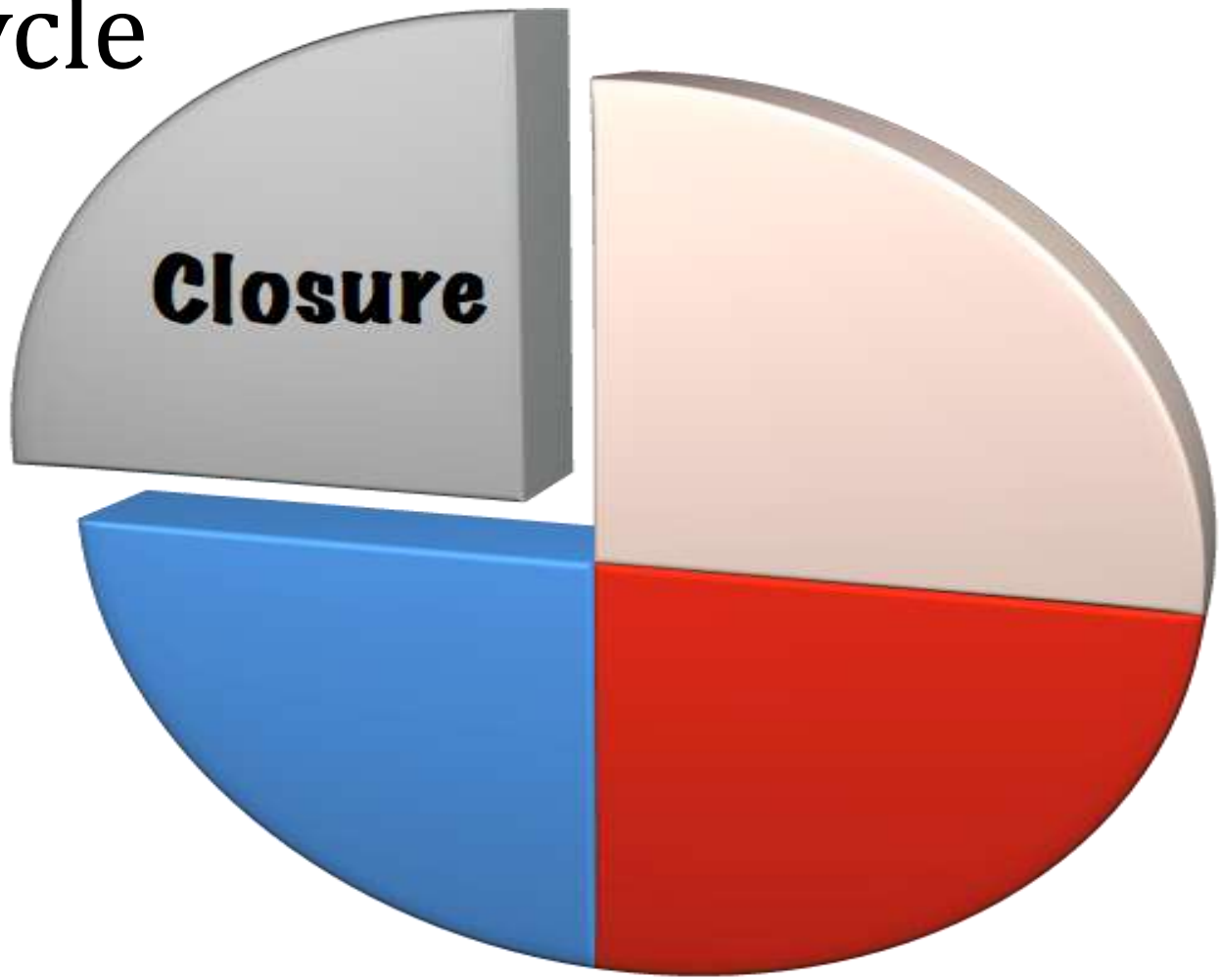


"What Could We Have Done Better

The Arrest Cycle



The Arrest Cycle

Opinion

VIEWPOINT

Resuscitations That Never End
Originating From Unresolved Integrity-Related Moral Distress

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Cardiopulmonary resuscitation (CPR) is a time-dependent clinical intervention. Unlike most other clinical interventions (eg, antibiotics for sepsis, chemotherapy regimens, and duration of mechanical ventilation) that are marked with distinct start and stop times, attempts at CPR are dependent on many process times requiring intense multidisciplinary teamwork in a short period of time. Process times that are simultaneously coordinated and recorded include the following: when the nurses and physicians arrive in the patient's room; the administration of medication; the cycle of chest compressions; pulse and rhythm checks; defibrillations or cardioversion attempts; and the last recorded time in a resuscitation, return of spontaneous circulation, or death. The resuscitation team leader declares, "the end," and the team's work stops. The title of

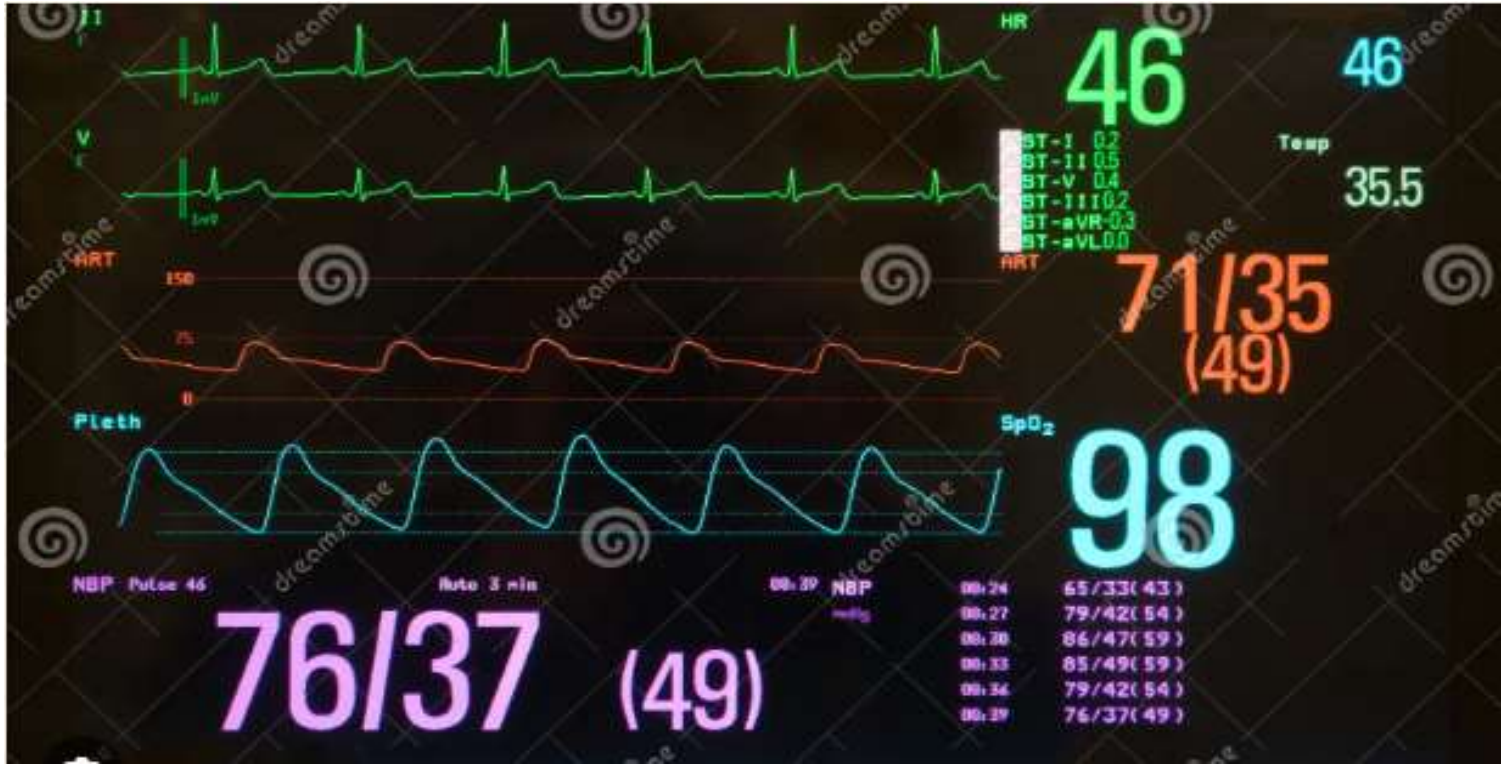
times never end when they escalate beyond the emotional turmoil and become a source of integrity-related moral distress: an individual's professional integrity is challenged, threatened, or violated[2] because one "know[s] the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action."[3(p4),4(p7)] Such damage to professional integrity causes integrity-related moral distress that differs from the emotional distress of attempting CPR.[2]

Most of the time CPR is performed consistent with standards of professional integrity[2]; however, there are examples of when potentially inappropriate therapies are requested by families (eg, to buy time for the miracle to occur) against the professional judgments of health care professionals). Some colleagues expressed thoughts of impending failure in the time before CPR: "We know this

Case Present:

A 45-year-old man had coronary artery stents placed 2 days ago. Today, he is in severe distress and is reporting “crushing” chest discomfort. He is pale, diaphoretic, and cool to touch. His radial pulse is very weak, blood pressure is 64/40 mm Hg, respiratory rate is 28 breaths per minute, and oxygen saturation is 89% on room air. The cardiac monitor shows sinus tachycardia initially which then quickly changes to bradycardia and the monitor begins to alarm.

Case Present:

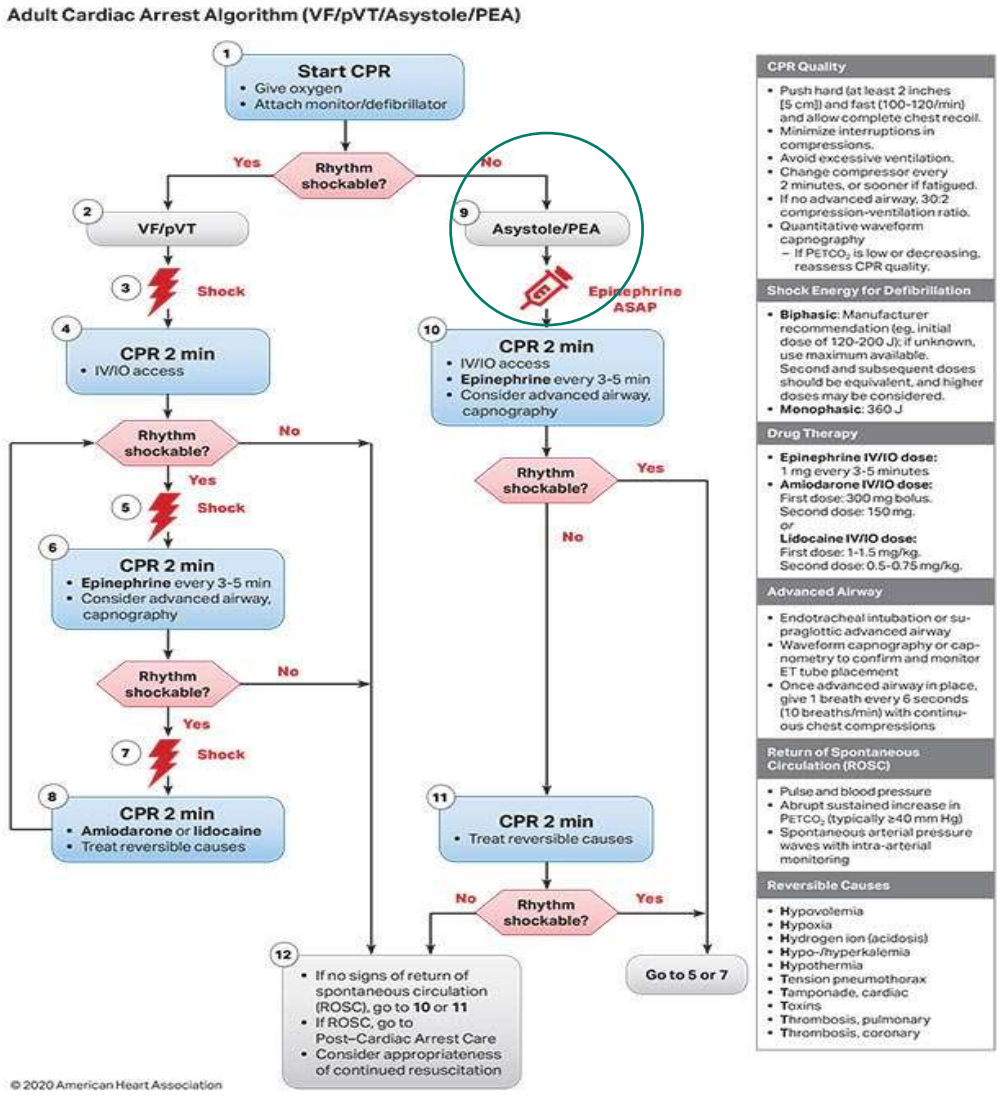


Case Continues:

Resuscitation Begins

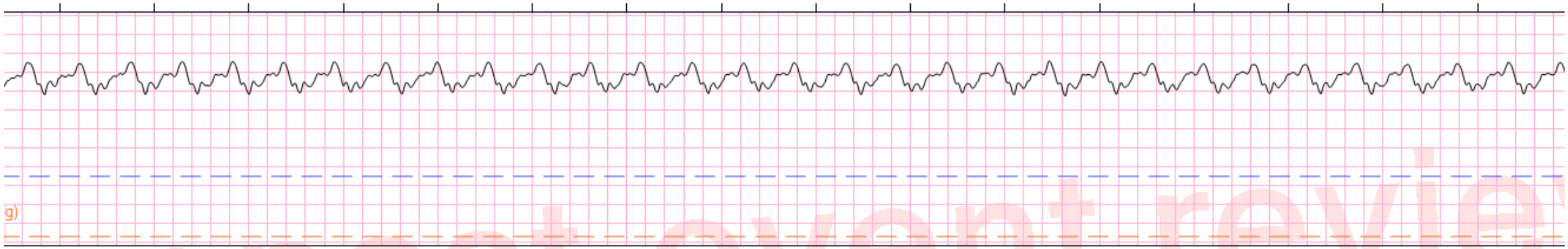
Adult IHCA Chain of Survival

Algorithm

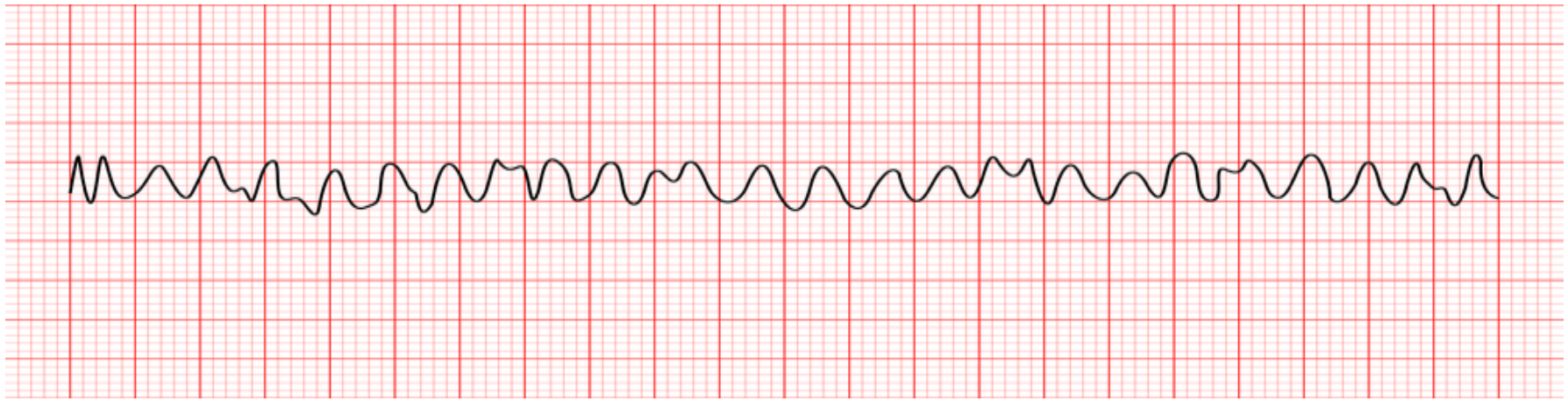


Second Rhythm Check:

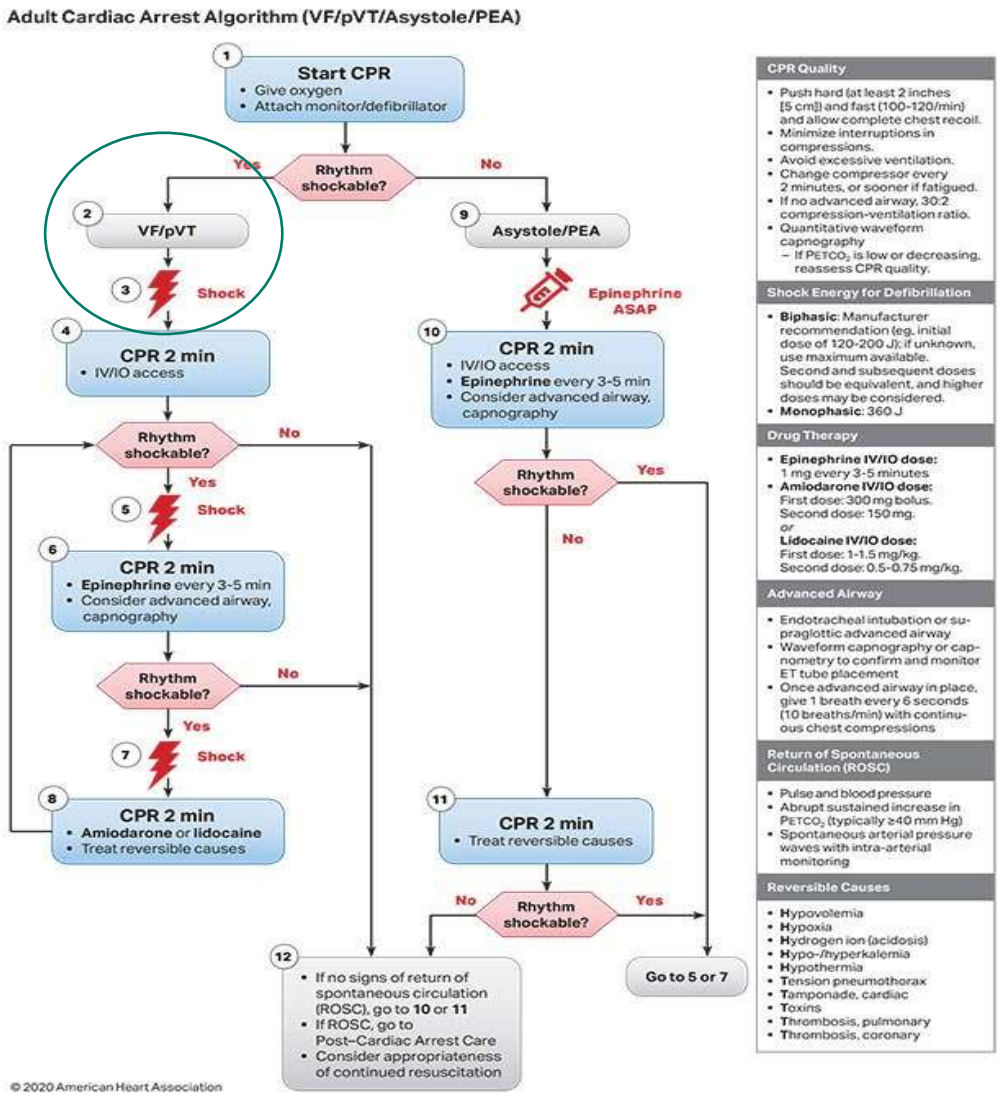
CPR Continues



Third Rhythm Check:

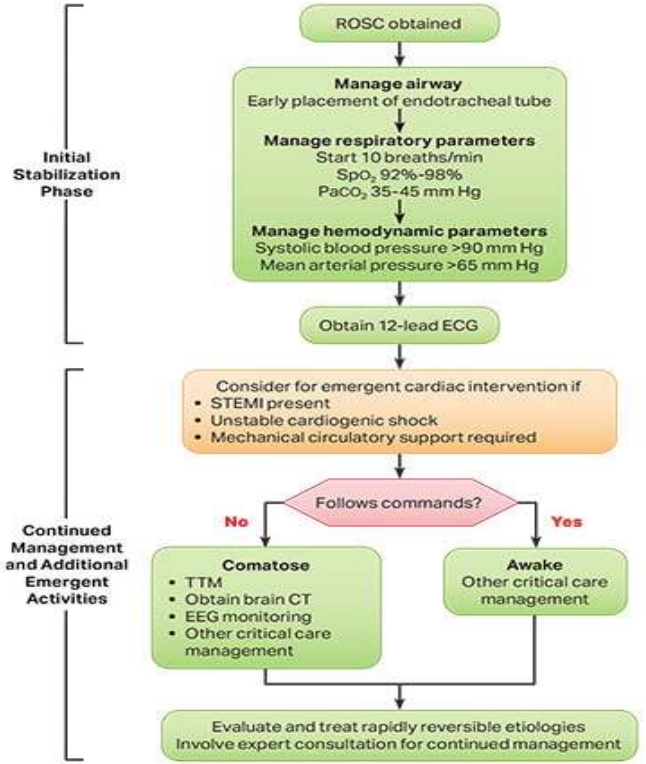


Algorithm



Case Continues:

Adult Post–Cardiac Arrest Care Algorithm



Initial Stabilization Phase

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently. However, if prioritization is necessary, follow these steps:

- Airway management: Waveform capnography or capnometry to confirm and monitor endotracheal tube placement
- Manage respiratory parameters: Titrate FiO_2 for SpO_2 92%-98%; start at 10 breaths/min; titrate to $PaCO_2$ of 35-45 mm Hg
- Manage hemodynamic parameters: Administer crystalloid and/or vasopressor or inotrope for goal systolic blood pressure >90 mm Hg or mean arterial pressure >65 mm Hg

Continued Management and Additional Emergent Activities

These evaluations should be done concurrently so that decisions on targeted temperature management (TTM) receive high priority as cardiac interventions.

- Emergent cardiac intervention: Early evaluation of 12-lead electrocardiogram (ECG); consider hemodynamics for decision on cardiac intervention
- TTM: If patient is not following commands, start TTM as soon as possible; begin at 32-36°C for 24 hours by using a cooling device with feedback loop
- Other critical care management
  - Continuously monitor core temperature (esophageal, rectal, bladder)
  - Maintain normoxia, normocapnia, euglycemia
  - Provide continuous or intermittent electroencephalogram (EEG) monitoring
  - Provide lung-protective ventilation

H's and T's

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypokalemia/**h**yperkalemia
Hypothermia
Tension pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary

Algorithms

- Standardization
  - Elevates care of the novice
  - Predictable delivery of care
- Standardization
  - Potentially degrades the care of the experienced
  - Hinders care outside the algorithm

Clinical Debrief

- Focus
  - Improving education
  - Improving performance
- Results
  - Improves individual performance
  - Improving team performance

Do team and individual debriefs enhance performance? A meta-analysis

Scott I Tannenbaum [1], Christopher P Cerasoli

Affiliations + expand

PMID: 23516804 DOI: 10.1177/0018720812448394

Conclusion: Organizations can improve individual and team performance by approximately 20% to 25% by using properly conducted debriefs.

Reasons for Debrief

- Safety
  - Gaps in care
  - Equipment
  - Processes
  - Pathways
  - etc
- Psychological safety
  - Space for individuals to ask questions
  - Raise thoughts about management
  - Build trust within the team

Which cases should be debrief?

- Cases with negative outcomes
  - Education
  - Always a negative focus
  - Barriers
- Cases with positive outcomes
  - Education
  - Things that went well
  - Reproducibility of actions
  - Often missed opportunities

Barriers

- Clinical Assignments
- Time
- Other Patients
- Facilitator

Stop asking if it works, start making it happen: exploring barriers to clinical event debriefing in the ED

Andrew Petrosoniak [1] [2], Josephine Gabriel [3], Eve Purdy [3] [4]

Debrief

- **I**: Immediate
- **N**: Non-judgmental
- **F**: Fast
- **O**: Opportunity

Any Questions?