

HIGHLIGHTS

of the 2020 AMERICAN HEART ASSOCIATION

GUIDELINES FOR
CPR AND ECC



RJP pada Dewasa

Pendahuluan

- Kejadian henti jantung di Indonesia: \pm **300.000-350.000** kejadian per tahunnya
- Jumlah pasien yang bertahan hidup (sampai di RS): \pm **5-10%**
- Intervensi RJP oleh penolong awam sebelum bantuan medis datang memberikan 2 atau 3 kali lipat jumlah angka bertahan hidup dari henti jantung tiba-tiba
- Resusitasi awal dan defibrilasi segera (dalam waktu 1-2 menit dapat meningkatkan angka bertahan hidup (>60%))

BASIC LIFE SUPPORT

- Basic life support (BLS) merupakan urutan prosedur yang dilakukan untuk mengembalikan sirkulasi setelah henti nafas atau henti jantung tiba-tiba
- BLS termasuk skill psikomotor terkait RJP berkualitas tinggi, penggunaan automated external Defibrillator (AED) dan manajemen obstruksi /sumbatan jalan nafas pada semua usia.
- Kompresi dada dan ventilasi pulmoner dilakukan **siapa saja** yang mengetahui bagaimana cara melakukannya, **dimana saja, segera, tanpa bantuan peralatan.**



Summary of Key Issues and Major Changes (Update AHA 2020)

- **Enhanced algorithms and visual aids** provide easy to remember guidance for BLS and ACLS resuscitation scenarios.
- **The importance of early initiation of CPR by lay rescuers** has been re-emphasized.
- Previous recommendations about epinephrine administration have been reaffirmed, with **emphasis on early epinephrine administration**.
- Use of **real-time audiovisual feedback** is suggested as a means to maintain CPR quality.
- Continuously measuring arterial blood pressure and end tidal carbon dioxide (ETCO₂) during ACLS resuscitation may be useful to improve CPR quality



Summary of Key Issues and Major Changes (2)

- On the basis of the most recent evidence, routine use of double sequential defibrillation is not recommended.
- **Intravenous (IV) access is the preferred route of medication** administration during ACLS resuscitation. Intraosseous (IO) access is acceptable if IV access is not available.
- Care of the patient after return of spontaneous circulation (ROSC) requires close attention to oxygenation, blood pressure control, evaluation for percutaneous coronary intervention, targeted temperature management, and multimodal neuroprognostication.
- Because recovery from cardiac arrest continues long after the initial hospitalization, patients should have formal assessment and support for their physical, cognitive, and psychosocial needs.



Summary of Key Issues and Major Changes (3)

- After a resuscitation, debriefing for lay rescuers, EMS providers, and hospital-based healthcare workers may be beneficial to support their mental health and well-being.
- **Management of cardiac arrest in pregnancy focuses on maternal resuscitation**, with preparation for early perimortem cesarean delivery if necessary to save the infant and improve the chances of successful resuscitation of the mother.

RANTAI KELANGSUNGAN HIDUP IHCA DAN OHCA-Update 2020

Figure 3. AHA Chains of Survival for adult IHCA and OHCA.

IHCA



OHCA



Ringkasan Komponen High-Quality CPR

Komponen	Dewasa dan Anak Remaja	
Keamanan lokasi	Pastikan lingkungan telah aman untuk penolong dan korban	
Pengenalan serangan jantung	Periksa adanya reaksi Napas terhenti atau tersengal (misalnya, napas tidak normal) Tidak ada denyut yang terasa dalam 10 detik (Pemeriksaan napas dan denyut dapat dilakukan secara bersamaan kurang dari 10 detik)	
Pengaktifan sistem tanggapan darurat	Jika Anda sendiri tanpa ponsel, tinggalkan korban untuk mengaktifkan sistem tanggapan darurat dan mengambil AED sebelum memulai CPR Atau, kirim orang lain untuk melakukannya dan mulai CPR secepatnya; gunakan AED segera setelah tersedia	
Rasio kompresi-ventilasi <i>tanpa saluran udara lanjutan</i>	1 atau 2 penolong 30:2	

Ringkasan Komponen High-Quality CPR

Komponen	Dewasa dan Anak Remaja	Anak-Anak (Usia 1 Tahun hingga Pubertas)	Bayi (Usia Kurang dari 1 Tahun, Tidak Termasuk Bayi Baru Lahir)
Rasio kompresi-ventilasi dengan saluran udara lanjutan	Kompresi berkelanjutan pada kecepatan 100-120/min Berikan 1 napas buatan setiap 6 detik (10 napas buatan/min)		
Kecepatan kompresi	100-120/min		
Kedalaman kompresi	Minimum 2 inci (5 cm)*		
Penempatan tangan	2 tangan berada di separuh bagian bawah tulang dada (sternum)		
Rekoil dada	Lakukan rekoil penuh dada setelah setiap kali kompresi; jangan bertumpu di atas dada setelah setiap kali kompresi		
Meminimalkan gangguan	Batasi gangguan dalam kompresi dada menjadi kurang dari 10 detik		

*Kedalaman kompresi tidak boleh lebih dari 2,4 inci (6 cm).

Singkatan: AED, defibrilator eksternal otomatis; AP, anteroposterior; CPR, resusitasi kardiopulmonari.

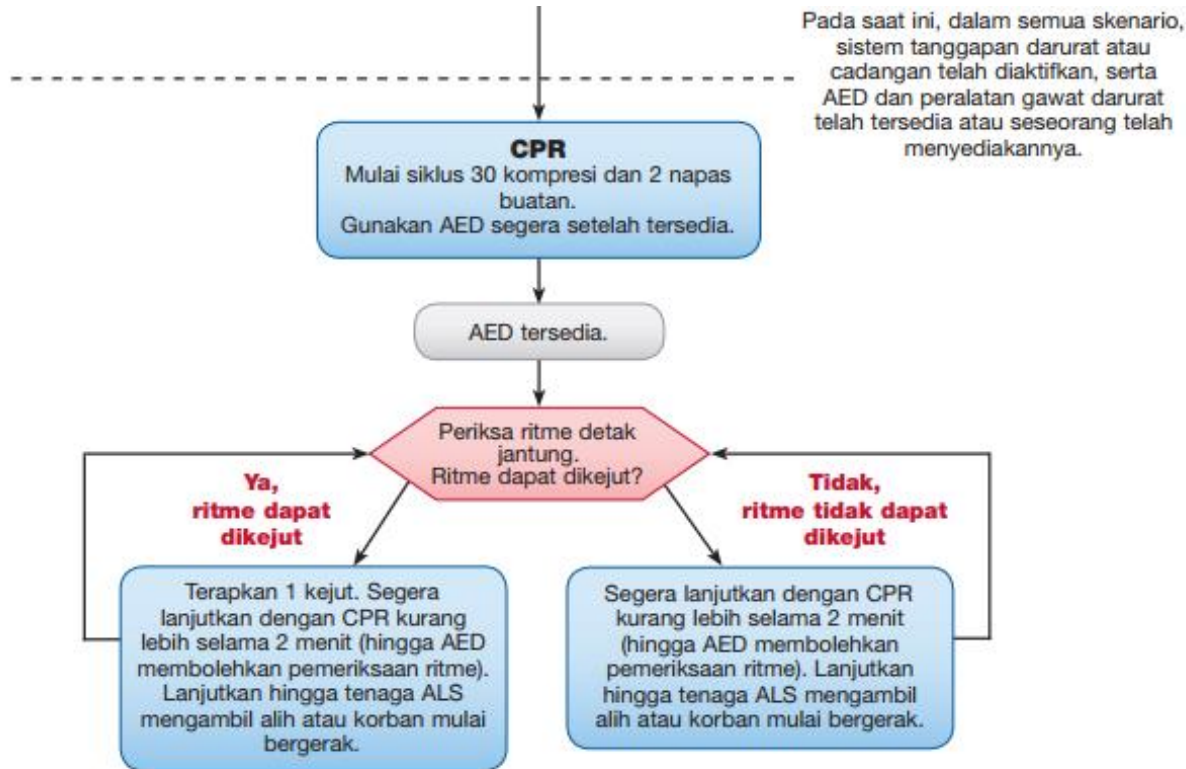
Anjuran dan Larangan High-Quality CPR Dewasa

Penolong Harus	Penolong Tidak <i>Boleh</i>
Melakukan kompresi dada pada kecepatan 100-120/min	Mengkompresi pada kecepatan lebih rendah dari 100/min atau lebih cepat dari 120/min
Mengkompresi ke kedalaman minimum 2 inci (5 cm)	Mengkompresi ke kedalaman kurang dari 2 inci (5 cm) atau lebih dari 2,4 inci (6 cm)
Membolehkan rekoil penuh setelah setiap kali kompresi	Bertumpu di atas dada di antara kompresi yang dilakukan
Meminimalkan jeda dalam kompresi	Menghentikan kompresi lebih dari 10 detik
Memberikan ventilasi yang cukup (2 napas buatan setelah 30 kompresi, setiap napas buatan diberikan lebih dari 1 detik, setiap kali diberikan dada akan terangkat)	Memberikan ventilasi berlebihan (misalnya, terlalu banyak napas buatan atau memberikan napas buatan dengan kekuatan berlebihan)

Algoritma BLS Dewasa pada Serangan Jantung—2015

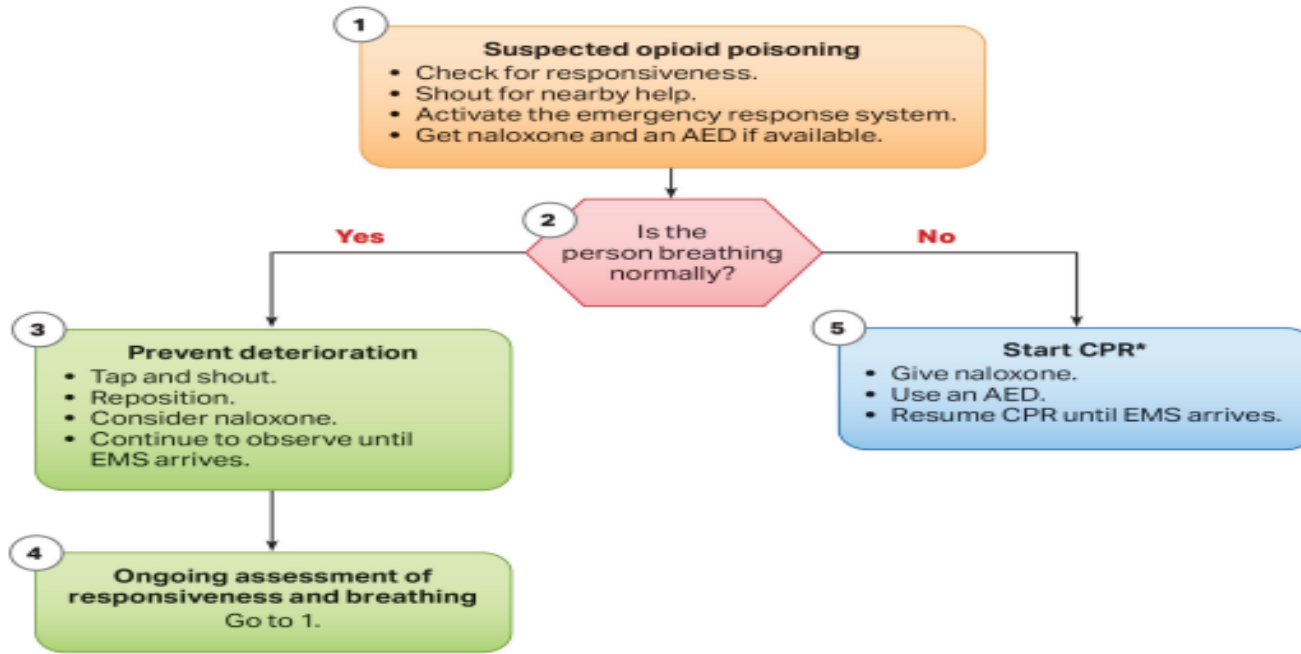


Algoritma BLS Dewasa pada Serangan Jantung—2015 (lanjutan)



Algoritma BLS Dewasa pada Serangan Jantung—Update 2020 (lanjutan)

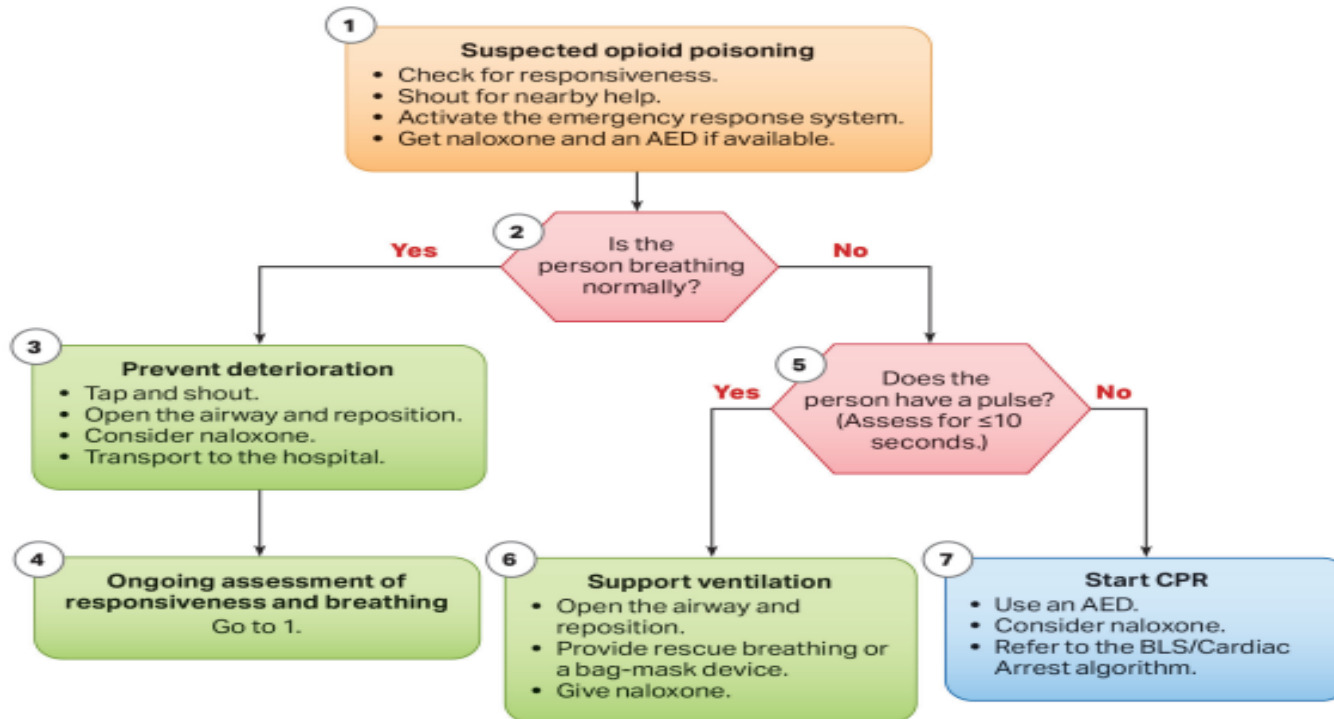
Figure 5. Opioid-Associated Emergency for Lay Responders Algorithm.



*For adult and adolescent victims, responders should perform compressions and rescue breaths for opioid-associated emergencies if they are trained and perform Hands-Only CPR if not trained to perform rescue breaths. For infants and children, CPR should include compressions with rescue breaths.

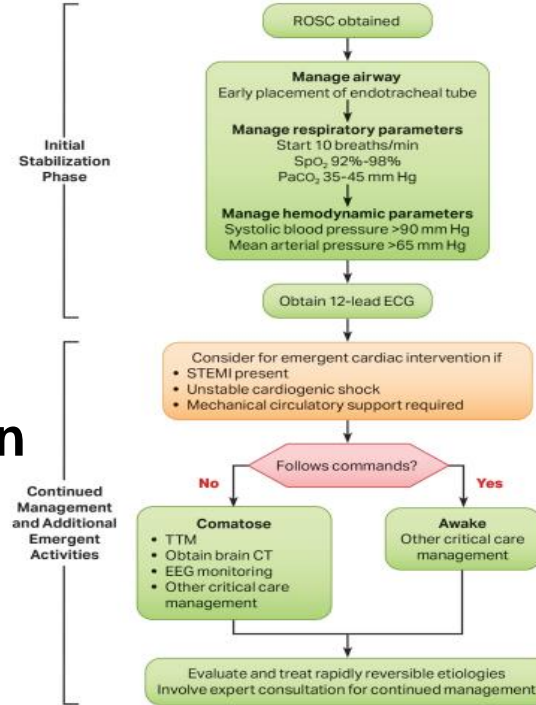
Algoritma BLS Dewasa pada Serangan Jantung—Update 2020 (lanjutan)

Figure 6. Opioid-Associated Emergency for Healthcare Providers Algorithm.



Algoritma BLS Dewasa pada Serangan Jantung—Update 2020 (lanjutan)

Figure 7. 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 F_{IO_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

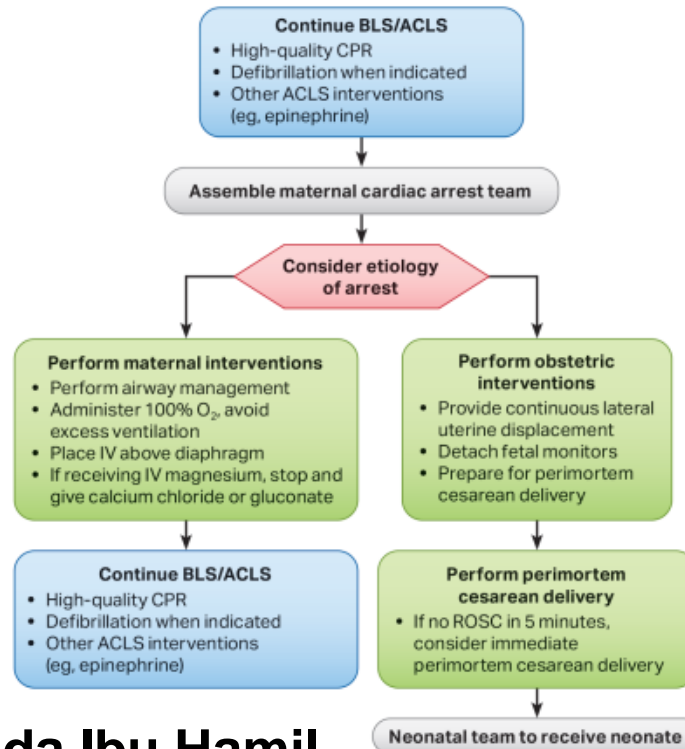
These evaluations should be done concurrently so that decisions on targeted temperature management (TTM) receive high priority as cardiac interventions.

- 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/hyperkalemia
Hypothermia
Tension pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary

Figure 9. Cardiac Arrest in Pregnancy In-Hospital ACLS Algorithm.



Maternal Cardiac Arrest	<ul style="list-style-type: none"> • Team planning should be done in collaboration with the obstetric, neonatal, emergency, anesthesiology, intensive care, and cardiac arrest services. • Priorities for pregnant women in cardiac arrest should include provision of high-quality CPR and relief of aortocaval compression with lateral uterine displacement. • The goal of perimortem cesarean delivery is to improve maternal and fetal outcomes. • Ideally, perform perimortem cesarean delivery in 5 minutes, depending on provider resources and skill sets.
Advanced Airway	<ul style="list-style-type: none"> • In pregnancy, a difficult airway is common. Use the most experienced provider. • Provide endotracheal intubation or supraglottic advanced airway. • Perform waveform capnography or capnometry to confirm and monitor ET tube placement. • Once advanced airway is in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.
Potential Etiology of Maternal Cardiac Arrest	<ul style="list-style-type: none"> A Anesthetic complications B Bleeding C Cardiovascular D Drugs E Embolic F Fever G General nonobstetric causes of cardiac arrest (H's and T's) H Hypertension

Algoritma Henti Jantung pada Ibu Hamil di RS—Update 2020 (lanjutan)

RESCUE BREATHS

RECOMMENDATIONS:

- **Tidal volume**

Dewasa: 500 – 600 ml (9-10 cc/kgBB)

Pediatrik: 7-8 cc/kgBB

- **Respiratory rate**

give each breaths over about 1s with enough volume to make the victim's chest rise

CONTINUE RESUSCITATION UNTIL

- Qualified help arrives and takes over
- The victim starts breathing normally
- Rescuer becomes exhausted

IF VICTIM STARTS TO BREATHE NORMALLY PLACE IN RECOVERY POSITION



The recommended recovery position has changed from supine to a lateral side-lying position

AED dan Bag mask Device

AUTOMATED EXTERNAL DEFIBRILLATOR (AED)



Some AEDs will automatically switch themselves on when the



ATTACH PADS TO CASUALTY'S BARE CHEST



ANALYSING RHYTHM DO NOT TOUCH VICTIM



SHOCK INDICATED



- Stand clear
- Deliver shock

SHOCK DELIVERED FOLLOW AED INSTRUCTIONS



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2

**IF NO SHOCK ADVISED
FOLLOW AED INSTRUCTIONS**

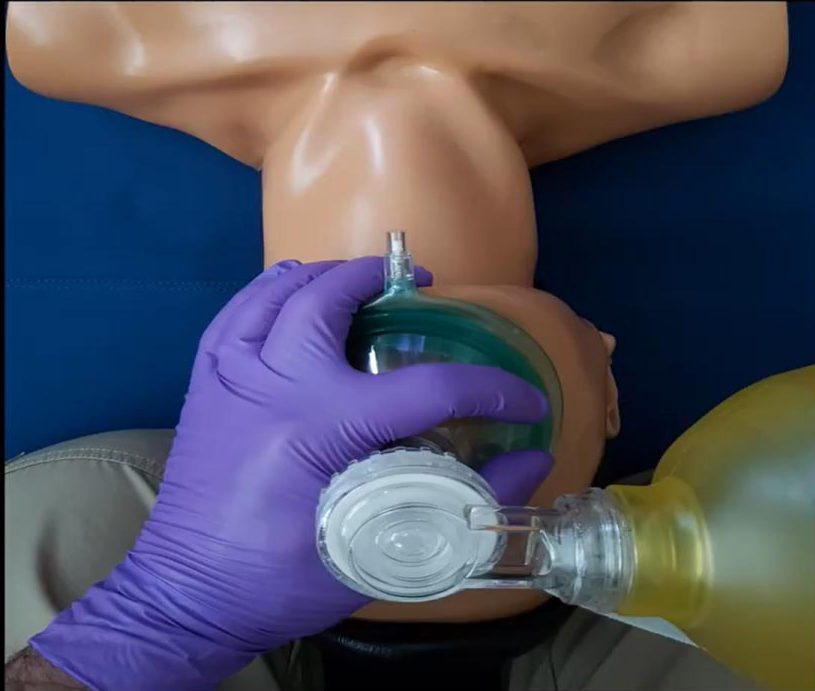


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2

Bag Mask Device



Bag Mask Device



Team Dynamics

Positions for 6-Person High-Performance Teams*

Resuscitation Triangle Roles



Compressor

- Assesses the patient
- Performs compressions according to local protocols
- Rotates every 2 minutes or earlier if fatigued



Monitor/Defibrillator/ CPR Coach

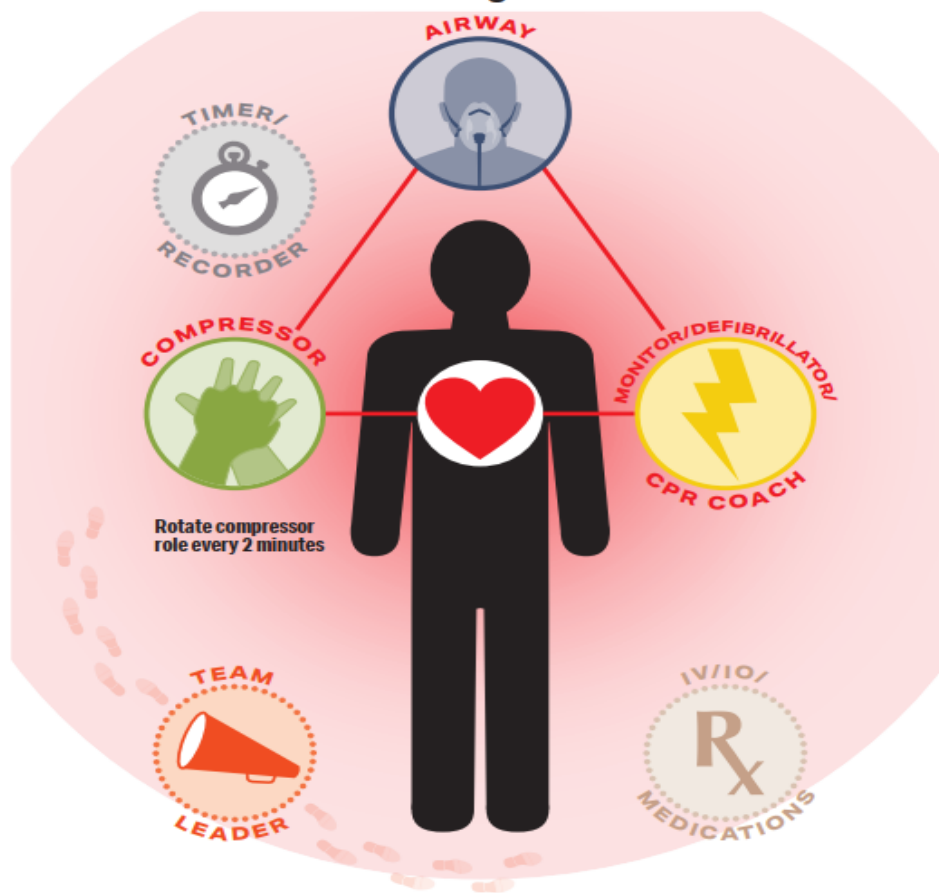
- Brings and operates the AED/monitor/defibrillator and acts as the CPR Coach if designated
- If a monitor is present, places it in position where it can be seen by the Team Leader (and most of the team)



Airway

- Opens the airway
- Provides bag-mask ventilation
- Inserts airway adjuncts as appropriate†

The team owns the code. No team member leaves the triangle except to rotate compressors or to protect his or her safety.



Leadership Roles



Team Leader

- Every resuscitation team must have a **defined leader**
- Assigns roles to team members
- Makes treatment decisions†
- Provides feedback to the rest of the team as needed
- Assumes responsibility for roles not defined



IV/IO/Medications†

- An ALS provider role
- Initiates IV/IO access
- Administer medications



Timer/Recorder

- Records the time of interventions and medications (and announces when these are next due)
- Records the frequency and duration of interruptions in compressions
- Communicates these to the Team Leader (and the rest of the team)

*This is a suggested team formation. Roles may be adapted to local protocol.

†Roles and tasks are performed by advanced providers.

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**Terima
Kasih**

