

2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

報告者: R1 許哲彰
指導者: F1 陳欣伶
991103

CPR Overview

Strengthening the Links in the Chain of Survival

- Immediate **recognition** of cardiac arrest and **activation** of the emergency response system
- Early **CPR** with an emphasis on chest compressions
- Rapid **defibrillation**
- Effective **advanced life support**
- Integrated **post-cardiac arrest care**
- **Witnessed VF Cardiac arrest survival of Almost 50%**

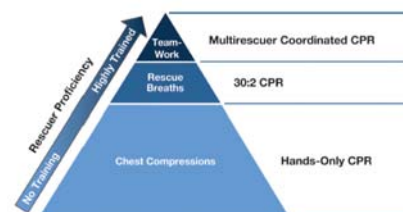


Component	Recognition		
	Unresponsive (for all ages)		
	No breathing, not breathing normally (eg, only gasping)	No breathing or only gasping	
		No pulse palpated within 10 seconds (HCP Only)	
CPR Sequence	CAB	CAB	CAB
Compression Rate		At least 100/min	
Compression Depth	At least 2 inches (5 cm)	At least 1/3 AP Depth About 2 inches (5 cm)	At least 1/3 AP Depth About 1 1/2 inches (4 cm)
Chest Wall Recoil	Allow Complete Recoil Between Compressions HCPs Rotate Compressors Every 2 minutes		
Compression Interruptions	Minimize Interruptions in Chest Compressions Attempt to limit interruptions to less than 10 seconds		

Airway	Head tilt-chin lift (HCP suspected trauma: jaw thrust)		
Compression to Ventilation Ratio (until advanced airway placed)	30:2 (1 or 2 rescuers)	30:2 Single Rescuer 15:2 2 HCP Rescuers	30:2 Single Rescuer 15:2 2 HCP Rescuers
Ventilations: When rescuer Untrained or Trained and Not Proficient	Compressions Only		
Ventilations with advanced airway (HCP)	1 breath every 6–8 seconds (8–10 breaths/min) Asynchronous with chest compressions About 1 second per breath Visible Chest Rise		
Defibrillation	Attach and use AED as soon as available. Minimize interruptions in chest compressions before and after shock, resume CPR beginning with compressions immediately after each shock		

Rescuer and Victim

- chest compressions should be the initial CPR action for all victims regardless of age



- **Rescue breathing may be more important for children** than for adults in cardiac arrest.

Quality Improvement

Developing a culture of high quality resuscitation



Table 2. Key Challenges to Improve CPR Quality for Adults, Children, and Infants

CPR Component	Key Challenges to Improving Quality
Recognition	<ul style="list-style-type: none"> Failure to recognize gasping as sign of cardiac arrest Unreliable pulse detection
Initiation of CPR	<ul style="list-style-type: none"> Low bystander CPR response rates Incorrect dispatch instructions
Compression rate	<ul style="list-style-type: none"> Slow compression rate
Compression depth	<ul style="list-style-type: none"> Shallow compression depth
Chest wall recoil	<ul style="list-style-type: none"> Rescuer leaning on the chest
Compression interruptions	<ul style="list-style-type: none"> Excessive interruptions for <ul style="list-style-type: none"> rhythm/pulse checks ventilations defibrillation intubation intravenous (IV) access other
Ventilation	<ul style="list-style-type: none"> Ineffective ventilations Prolonged interruptions in compressions to deliver breaths Excessive ventilation (especially with advanced airway)
Defibrillation	<ul style="list-style-type: none"> Prolonged time to defibrillator availability Prolonged interruptions in chest compressions pre- and post-shocks
Team Performance	<ul style="list-style-type: none"> Delayed rotation, leading to rescuer fatigue and decay in compression quality Poor communication among rescuers, leading to unnecessary interruptions in compressions

Adult Basic Life Support

Point

- Immediate recognition of SCA
- “Look, Listen, and Feel” removed from the BLS algorithm
- Encouraging Hands-Only CPR for the untrained lay-rescuer
- CAB rather than ABC
- Increased focus on methods to ensure high-quality CPR
- de-emphasis on pulse check for health care providers

Strengthening the Links in the Chain of Survival

- Immediate **recognition** of cardiac arrest and **activation** of the emergency response system
- Early **CPR** with an emphasis on chest compressions
- Rapid **defibrillation**
- Effective **advanced life support**
- Integrated **post– cardiac arrest care**



emergency response system

- Dispatchers should be appropriately trained to **provide telephone CPR instructions** (Class I)
- Dispatchers should be specifically educated in **recognition of abnormal breathing** in order to improve recognition of gasping and cardiac arrest (Class I)
- Dispatchers should recommend CPR for unresponsive victims who are not breathing normally because most are in cardiac arrest and the **frequency of serious injury from chest compressions in the non-arrest group is very low** (Class I)

Check pulse

- The **healthcare provider check pulse <10s** and, if the rescuer does not definitely feel a pulse → start chest compressions (Class IIa)

Early CPR

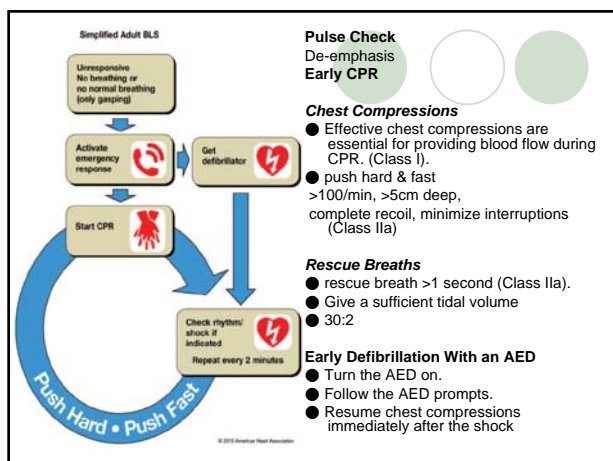
- all patients in cardiac arrest should receive chest compressions (Class I)
- >100/min, >5cm deep, complete recoil, minimize interruptions, 30:2 (Class IIa)

Rescue Breaths

- rescue breath >1 second (Class IIa).
- Give a sufficient tidal volume → *visible chest rise* (Class IIa).
- 30:2

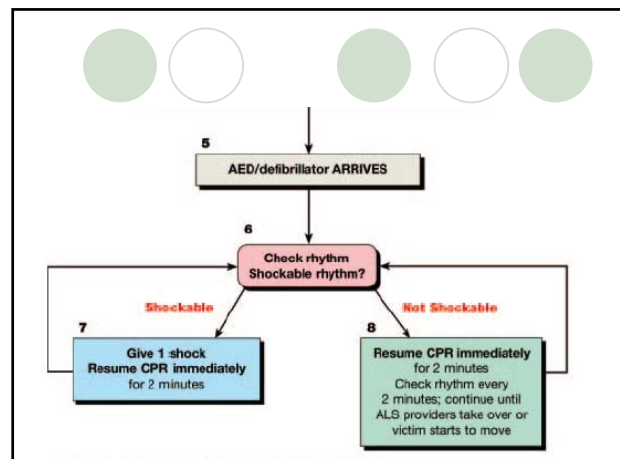
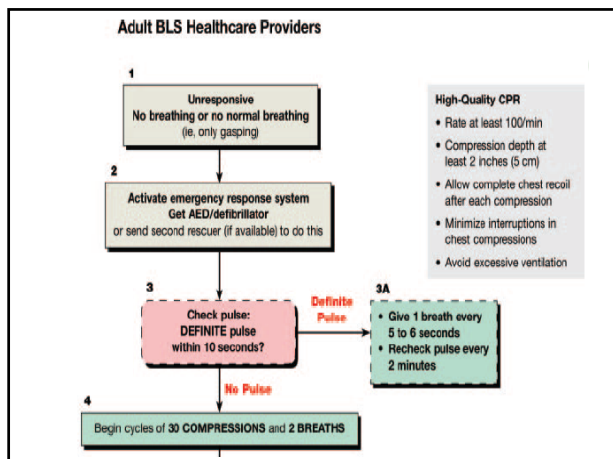
Early Defibrillation With an AED

- ≥ 2 rescuers
one should begin chest compressions
one activates the emergency response system and gets the AED (Class IIa)



Rescuer Specific CPR Strategies: Putting It All Together

- **Untrained Lay Rescuer**
Hands-Only
- **Trained Lay Rescuer**
30:2
- **Healthcare Provider**
30:2, if airway placed → 1 breath/6~8s
p.s. the routine use of cricoid pressure in adult cardiac arrest is not recommended (Class III)



Acute Coronary Syndromes

- Advise patients with potential cardiac symptoms to chew an aspirin (160 to 325 mg) if no contraindication (Class IIa)
- EMS providers should obtain a 12-lead ECG
- O2 therapy to provide the **lowest** administered oxygen concentration that will maintain the SpO2 > 94% (Class I)

Acute Coronary Syndromes

- Insufficient evidence exists to support or refute the routine nitroglycerin use with a suspected ACS (Class IIb)
- EMS providers should administer appropriate analgesics, such as morphine, for STEMI p't (Class IIa)
- Consider morphine for undifferentiated chest pain unresponsive to nitroglycerin (Class IIb)

Stroke

- Recognize the signs and symptoms & call EMS ASAP (Class I)
sudden numbness or weakness of the face; confusion, trouble speaking or understanding; trouble seeing; trouble walking, dizziness, loss of balance or coordination; and severe headache
- EMS personnel should be able to perform an out-of-hospital stroke assessment (Class I)
- O2 if spO2 < 94% (Class I)

Drowning

- CPR, **particularly rescue breathing**, as soon as victim is removed from the water (Class I)
- Mouth-to-mouth ventilation in the water may be helpful when administered by a trained rescuer (Class IIb)
- Maneuvers to relieve foreign-body airway obstruction (FBAO) are not recommended

Hypothermia

- Do not wait to check the victim's temperature and do not wait until the victim is rewarmed to start CPR.
- remove wet clothes, avoid wind, or cold; and if possible, use warm, humidified oxygen.

Foreign-Body Airway Obstruction (Choking)

- recognition of FBAO is the key to successful outcome
- silent cough, cyanosis, inability to speak or breathe & universal choking sign
- abdominal thrusts be applied in adults and children ≥ 1 year of age (Class IIb)
- If abdominal thrusts are not effective, the rescuer may consider chest thrusts (Class IIb)



Figure 3-18 Universal sign of choking

The Quality of BLS

- indicators of blood flow such as end-tidal CO₂ (PETCO₂) → high quality CPR
But no studies to date that demonstrate a significant improvement in patient survival
- visual and auditory prompting devices can improve the quality of CPR (Class IIa)

Summary

- The critical lifesaving steps of BLS are
 - Immediate **Recognition** and **Activation** of the emergency response system
 - Early **CPR**
 - Rapid **Defibrillation** for VF
- *CPR is not harmful. Inaction is harmful and CPR can be lifesaving.*

Thank you for your attention !!

