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- New Guidelines previously published every 5 years
- Based on science and studies from around the globe
- Course materials begin to be available 2/16/2016
So what has changed?

- Ethics
- QA / QI
- BCLS
- Alternate technology
- ACLS
- Post Arrest / ROSC
- ACS
- Special Circumstances
- PALS
- Neonate
- Education
- First Aid

Ethics

- Termination of efforts
  - ETCO2 of <10 mmHg after 20 minutes of CPR is a validated component of termination decision

- Organ donation
  - All patients resuscitated from cardiac arrest who progress to death or brain death- should be evaluated for organ donation
Systems and Quality Improvement

- Public Service Access Points (PSAPs)
  - Should be aware of AED locations and able to direct callers to them
  - Give compression only CPR instructions to callers
  - Utilize social media to summon nearby CPR trained rescuers

- EMS Systems
  - Consideration of transporting ROSC to specialized cardiac resuscitation centers
  - Quality assurance / Quality improvement of CPR, ROSC, ACS and Stroke
    - Driven by providers, Ideally those involved in the event

BCLS

- New Chains of Survival

- Emphasis on identification of arrest by Dispatchers and CPR instructions

- Simultaneous checks for breathing and pulse- <10 seconds
BCLS

• CPR Changes
  • Compressions at 100-120 per minute
  • At least 2 inches but not more than 2.4 inches

• AED Use
  • Defibrillation should be attempted as soon as an AED is available

### Table 1: BLS Dos and Don'ts of Adult High-Quality CPR

<table>
<thead>
<tr>
<th>Rescuers Should</th>
<th>Rescuers Should Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform chest compressions at a rate of 100-120/min</td>
<td>Compress at a rate slower than 100/min or faster than 120/min</td>
</tr>
<tr>
<td>Compress to a depth of at least 2 inches (5 cm)</td>
<td>Compress to a depth of less than 2 inches (5 cm) or greater than 2.4 inches (6 cm)</td>
</tr>
<tr>
<td>Allow full recoil after each compression</td>
<td>Lean on the chest between compressions</td>
</tr>
<tr>
<td>Minimize pauses in compressions</td>
<td>Interrupt compressions for greater than 10 seconds</td>
</tr>
<tr>
<td>Ventilate adequately (2 breaths after 30 compressions, each breath delivered over 1 second, each causing chest rise)</td>
<td>Provide excessive ventilation (ie, too many breaths or breaths with excessive force)</td>
</tr>
</tbody>
</table>

### Table 2: Summary of High-Quality CPR Components for BLS Providers

<table>
<thead>
<tr>
<th>Component</th>
<th>Adults and Adolescents</th>
<th>Children (Age 1 Year to 12 Years)</th>
<th>Infants (Age Less Than 1 Year Excluding Newborns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression-ventilation ratio without advanced airway</td>
<td>1 or 2 rescuers/30</td>
<td>1 rescuer/30</td>
<td>1 rescuer/30</td>
</tr>
<tr>
<td>Compression-ventilation ratio with advanced airway</td>
<td>1 to 2 rescuers/30</td>
<td>1 rescuer/30</td>
<td>1 rescuer/30</td>
</tr>
<tr>
<td>Compression rate</td>
<td>100-120/min</td>
<td>100-120/min</td>
<td>100-120/min</td>
</tr>
<tr>
<td>Compression depth</td>
<td>At least 2 inches (5 cm)</td>
<td>At least one third of chest diameter</td>
<td>At least one fifth of chest diameter</td>
</tr>
<tr>
<td>Hand placement</td>
<td>2 hands on the lower half of the clavicles</td>
<td>2 hands on the lower third of the clavicles</td>
<td>2 hands on the lower third of the clavicles</td>
</tr>
<tr>
<td>Chest recoil</td>
<td>Allow full recoil of chest after each compression, do not lean on the chest after each compression</td>
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<td>Allow full recoil of chest after each compression, do not lean on the chest after each compression</td>
</tr>
</tbody>
</table>

*Compress depth should be no more than 2.4 inches (6 cm). Alternatives: CPR, automated external defibrillator, AED, anteroposterior, PPH, posthemodynamic resuscitation.*
BCLS

• Cell phones and Speakerphones are here!

BCLS

• Ventilation with Advanced Airway
  • 1 breath every 6 seconds
• BLS and Lay rescuer Narcan for apnea with a pulse
• Audiovisual feedback devices for CPR performance
• Delayed ventilation
  • 3 cycles of 200 continuous compressions with passive oxygen and defib
Alternative Technology

• Impedance Threshold Device
  • Not for routine use, but may be of use with active compression/decompression CPR

• Mechanical Chest Compression Devices
  • Manual CPR is still the standard of care
  • Mechanical devices a reasonable alternative in challenging or dangerous situations
    • Limited rescuers
    • Prolonged CPR
    • Moving Ambulance

ACLS

• Goodbye to vasopressin
• Low ETCO2 after 20 min of CPR can be helpful in terminating resuscitation
• Non-shockable arrest- Epi should be administered ASAP
• Post V-fib / V-tach arrest- consider Lidocaine
Post Arrest Care / ROSC

• Emergency angiography
  • All ROSC with STEMI
  • Any hemodynamically or electrically unstable patient without STEMI

• Targeted Temperature Management (In hospital)
  • All comatose adults after ROSC for 24 hours

• Out of Hospital cooling
  • No more routine cold saline or prehospital hypothermia

• Hypotension after ROSC
  • Systolic of < 90mmHg (MAP of <65) should be immediately corrected

ACS

• Early Prehospital 12 lead for all ACS patents
• Prehospital notification and/or activation of cath lab for all STEMI
• Transport to a PCI center is preferred over fibrinolysis

• Oxygen administration
  • Supplemental O2 should be withheld in ACS patients with spO2 >94%
**Special Circumstances**

- **Narcan in Cardiac Arrest**
- **Cardiac Arrest in Pregnancy**
  - Perimortem C-section should be considered after 4 minutes of resuscitation in cases where maternal resuscitation are futile

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**Pediatric ALS (PALS)**

- Cell phones and Speakerphones are here!
Pediatric ALS (PALS)

- Use AED or Defibrillator as soon as available

- Compression depth (1/3 AP Diameter)
  - Infants = 1 ½ inches
  - Children = 2 inches
  - Adolescents to adult = 2 to 2.4 inches

- Compression rate
  - 100 to 120 per minute

- No compression only CPR for pediatrics

Pediatric ALS (PALS)

- No routine use of Atropine for intubation

- Amiodarone or Lidocaine for V-fib / V-tach

- Hypotension after ROSC
  - Fluids and vasoactive agents to maintain systolic

- Oxygen administration with ROSC
  - Titrated or weaned to maintain a spO2 of >94 %
Neonatal Resuscitation

• No routine meconium suctioning

• 3 lead ECG for heart rate / spO2 for oxygenation
  • Resuscitation with 21%-30% O2, only if needed

• Training to take place sooner than current 2 year cycle

Education

• CPR feedback devices for CPR training

• High fidelity manikins

• AEDs can be used by lay rescuers

• Pre-course preparation and skills improve learning in classes

• Compression only CPR training for lay rescuers

• Two year training cycle is not optimal. More frequent training may be beneficial.
American Red Cross First Aid

- Dental avulsion: place tooth in saline or whole milk
- Chest pain: chew adult ASA or 2 “baby” ASA
- Anaphylaxis: Epi pen with a single repeat
- Open chest wounds: do not seal
- O2 administration: no routine use of supplemental oxygen
- Bleeding control: Add hemostatic agents after direct pressure and before tourniquet
- No cervical collars for use by first responders
  - Now classified as “Class III- harmful”

THANK YOU FOR WHAT YOU DO!!
Stay Safe Out There!!

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