Top 5 Changes to CPR

1. Compression rate: 100-120
   A higher upper rate limit was added as CPR quality decreases with >120 compressions per minute.

2. Maximize compression time
   Increased emphasis has been placed on minimizing the time without compressions to maximize coronary perfusion.

3. Deep, but not too deep
   An upper limit on the depth of chest compressions has been added. They should be between 5cm (2") and 6cm (2.5"). Deeper can be harmful.

4. Directive dispatchers
   Callers can receive increased guidance from emergency dispatchers regarding when to begin CPR. Dispatchers can also utilize social media applications to direct nearby assistance.

5. Audiovisual feedback
   Feedback to lay-providers may improve CPR. When available, audiovisual devices may be used to optimize CPR quality.

* For more Canadian content by the HSFC, check out http://goo.gl/tHu8lc

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Template designed by Alvin Chin MSc, MD (cand)
Summary by Brent Thoma MD, FRCP(C) and Ponn Benjamin, MD
Reviewed by Teresa Chan MD, FRCP(C)
Special thanks to Laurie Morrison and the American Heart Association.
Top 3 Changes to BLS

1. Not breathing? Naloxone!
The administration of naloxone (IM or IN) by trained BLS providers is reasonable in patients with abnormal breathing and suspected opioid ingestion.

2. Opioid overdose education
Training to treat an opioid overdose can be provided to opioid abusers and their close contacts.

3. Manual spinal immobilization
In suspected spinal cord injuries, lay rescuers should manually immobilize the spine with their hands rather than using immobilization devices.

Read the complete 2015 AHA Guidelines at this link:

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Summary by Brent Thoma MD, MA, FRCPC
Reviewed by Teresa Chan MD, FRCPC

Special thanks to Laurie Morrison and the American Heart Association.
Vasopressin is OUT
In an effort to streamline and simplify cardiac arrest algorithms, vasopressin has been removed. Epinephrine & vasopressin have equivalent outcomes.

Ultrasound for ETT confirmation
Ultrasound has been added as an additional method for confirming endotracheal tube placement.

If you can't shock, give epi ASAP
Non-shockable rhythms (e.g. PEA) may have distinct pathophysiological origins. It is reasonable to administer epinephrine ASAP to these non-shockable rhythms.

Use maximum Oxygen during CPR
Use maximum FiO2 during CPR. This recommendation was strengthened, but remember to titrate your oxygen after ROSC.

ECMO is a possible alternative
Venoarterial extracorporeal membrane oxygenation (ECMO) is a possible alternative to conventional CPR in patients with refractory cardiac arrest if the etiology is thought to be reversible.

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Top 5 Changes to PALS

1. Fluids in Sepsis
   An initial fluid bolus of 20cc/kg is reasonable. Further fluid resuscitation should be tailored to the individual patient, with frequent reassessment, recognizing that over-aggressive fluid resuscitation may be harmful in resource-limited settings.

2. Routine atropine unnecessary
   Current evidence does not support routine use of pre-intubation doses of atropine for critically ill children and non-neonatal infants requiring emergency intubation. Of course, however, use it if there is bradycardia.

3. No minimum atropine dose
   If you do use atropine prior to a non-emergency intubation, 0.02mg/kg is effective. Don’t worry about under-dosing!

4. Avoid fever & control temp
   Temperature control & fever management is important for comatose children after out-of-hospital cardiac arrest. Moderate hypothermia (32°C to 34°C) or normothermia (36°C to 37.5°C) are both reasonable.

5. Amiodarone OR lidocaine
   Both anti-arrhythmics are acceptable for treatment of shock-refractory VF or pulseless VT in pediatric patients.

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Template designed by Alvin Chin MSc, MD (cand)
Summary by Teresa Chan MD, FRCP
Reviewed by Allin Pardhan MD, FRCP, MBA
Special thanks to Laurie Morrison and the American Heart Association.
Top 5 Changes to ACS

1. Prehospital STEMI? Go to PCI!
   Prehospital recognition of STEMI with ED or Cath Lab notification decreases time to reperfusion. Inexperienced interpreters may benefit from computer analysis in conjunction with their interpretation. Field thrombolysis carries a risk of bleeding, so PCI is favored.

2. No cath lab? Transfer all STEMIs out.
   When timely transfer to PCI cannot be executed, fibrinolysis then transfer may be appropriate. Since PCI has become readily available in many places, quick transfer without fibrinolysis improves reperfusion and decreases risk of bleeding. If unable to transfer, fibrinolytic therapy with routine transfer for angiography is acceptable as an alternative.

3. TIMI 0 or 1 OR Vancouver rule "low risk" AND negative HSTi = discharge
   When risk stratification and high sensitivity Troponin i at 0 and 2 hours are combined, a less than 1% risk of Major Acute Coronary Event (MACE) at 30 days can be determined.

4. Find the sweet spot: Avoid hypoxemia and hyperoxia.
   Oxygen should be titrated to ensure SpO2 of 94% or greater when a patient is not in respiratory distress.

5. Field anticoagulation isn't necessary
   Prehospital STEMI may be treated with heparin, bivalirudin or enoxaparin, but may be given on arrival at the PCI lab or ED instead.

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Manual Left Uterine Displacement
When resuscitating pregnant patients, previous editions of the guidelines listed alternatives (e.g. Tilt) that were not compatible with high-quality CPR. As such, manual left uterine displacement should be used.

4 minutes, and go!
For cardiac arrests in pregnant women with probable fetal viability, a perimortem c-section should be performed after 4m without circulation OR earlier if the mother’s resuscitation is felt to be futile.

Pulmonary Embolism & Lytics
Thrombolysis and thrombectomy are reasonable emergency treatments in cases of arrest due to pulmonary embolism (PE). Thrombolysis may also be considered if PE is the most likely cause.

Toxicology: Lipids to the rescue!
If you suspect that the cardiac arrest is due to a drug overdose (especially anesthetics), consider treatment with intravenous lipid emulsion.

Toxicology: Naloxone for OD
Trained providers should administer naloxone to respiratory arrest patients with suspected opioid overdose. Lay-people likely to see opioid overdoses may be trained to administer naloxone during targeted BLS training.

* For more Canadian content by the HSFC, check out http://goo.gl/fHu8Ic
Post-Arrest Care

Focus on A-B-C’s (again)
Return your focus to maintaining hemodynamics:
Titrate oxygenation to target O2 sat of 94-98%,
Ventilation: normocapnia (ETCO2 30-40 mmHg),
Perfusion: MAP > 65 mmHg and/or SBP > 90 mmHg.

Target 32-36°C for 24 hours in hospital
Targeted temperature management for adult patients with ROSC who are comatose to 32-36°C.
BUT prehospital cooling ain’t so hot. Using cold saline in the field is not beneficial and may cause harm.

If ROSC, consider Cath!
Assess all comatose patients with cardiac etiology for potential angiography. Cath recommended for all with ST-elevation, and selected patients with suspected cardiac etiology even if no ST-elevation.

Wait before you Prognosticate!
Wait 72 hours after arrest or 72 hours after cooling ends before prognostication.

The Gift of Life
Organ donation should be considered in patients who do not have Return of Spontaneous Circulation (ROSC), have brain-death, or withdrawal of care.

From:
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Top 5 Changes to Resuscitation Education

1. **High-fidelity manikins for ACLS**
   The guidelines now recommend the use of high-fidelity manikins for training Advanced Cardiac Life Support in places that have the infrastructure to support this. For low-resource environments, use standard manikins.

2. **More BLS/AED instruction**
   BLS skills seem to be learned as well through self-instruction (video or computer-based) with hands-on practice as compared to traditional instructor-led courses. Reduces cost and resources. Increases potential rescuers. If including AED training, add hands-on component.

3. **More frequent re-training**
   Two-year retraining cycles are not optimal and more frequent training may be helpful for providers likely to encounter a cardiac arrest.

4. **Team & leadership training in ACLS**
   Inclusion of team and leadership training as part of ACLS has potential benefit, and very small risk for harm. All benefit, no risk!

5. **Train bystanders in hands-only CPR**
   Communities may consider training bystanders in compression-only CPR for adult OHCA as an alternative to training in conventional CPR.

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