

X CONGRESSO NAZIONALE SIMEU

Napoli, 18/20 Novembre 2016

ARRESTO CARDIACO

RCP: le nuove linee guida

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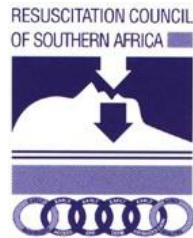
FINANCIAL DISCLOSURE

No relevant financial relationships exist

UNLABELED/UNAPPROVED USES DISCLOSURE

None

Its mission is to **identify and review international science and knowledge** relevant to cardiopulmonary resuscitation (CPR) and emergency cardiovascular care (ECC) and **when there is consensus to offer treatment recommendations.**



CPR
Cardiopulmonary
Resuscitation

ECC
Emergency
Cardiovascular
Care

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SIMEU



TOP 5

CPR

ACLS

ACS

BLS

PALS

Special
Circumstances

Post AC

Education

Read the complete 2015 AHA Guidelines at this link:
<https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/>

1



Compression rate: 100-120

A higher upper rate limit was added as CPR as quality decreases with >120 compressions per minute.

Maximize compression time

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



2

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.

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.



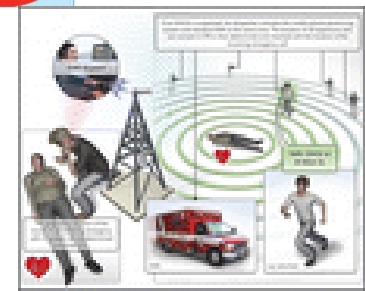
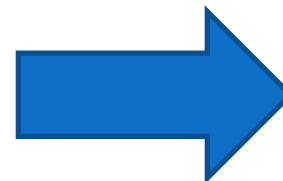
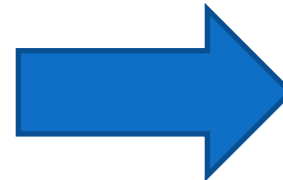
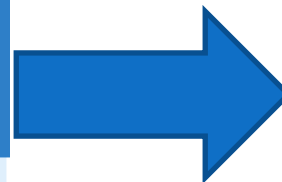
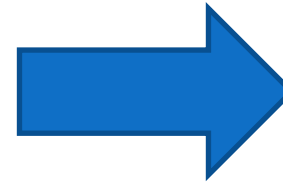
4

5



Audiovisual feedback

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



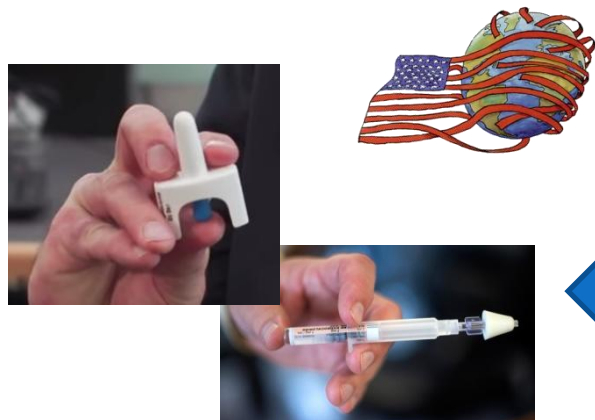
CPR +

2015 AHA Guideline Highlights

Top 3 Changes to BLS



Read the complete 2015 AHA Guidelines at this link:
<https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/>



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.

Opioid overdose education

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



2

3



Manual spinal immobilization

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

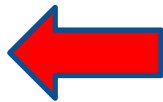
From: <https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/>
* For more Canadian content by the HSFC, check out <http://goo.gl/fHu8lc>

Per soccorritori
non
professionisti

CPR +



Class IIa, LOE C-LD

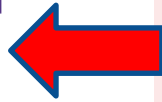


BMJ 2014

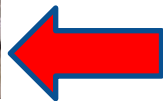
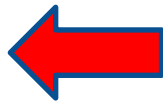
BMJ 2014;348:g3028 doi: 10.1136/bmj.g3028 (Published 20 May 2014)

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RESEARCH



Time to administration of epinephrine and outcome after in-hospital cardiac arrest with non-shockable rhythms: retrospective analysis of large in-hospital data registry



Class IIb, LOE C-LD

**2015 AHA
Guideline
Highlights**

**Top 5 Changes to
ACLS**



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<https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/>

1



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.



2

3



If you can't shock, give epi ASAP

Non-shockable rhythms (e.g. PEA) may have distinct pathophysiologic 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.



4

5



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.

From: <https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/>
* For more Canadian content by the HSFC, check out <http://goo.gl/fHu8lc>

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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.



The NEW ENGLAND
JOURNAL of MEDICINE June 30, 2011 |
ORIGINAL ARTICLE

Mortality after Fluid Bolus in African Children with Severe Infection

Kathryn Maitland, M.B., B.S., Ph.D., Sarah Kiguli, M.B., Ch.B., M.Med., Robert O. Opoka, M.B., Ch.B., M.Med., Charles Engoru, Kathryn MAITLAND

20 ml/Kg

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.



2



Preintubation doses of 0.02 mg/kg, with no minimum dose, were shown to be effective.

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!



TTM

Per i bambini in stato comatoso rianimati da un OHCA, è ragionevole mantenere 5 gg di normotermia (da 36° a 37,5° C) o 2 gg di ipotermia iniziale (da 32° a 34° C) seguiti da 3 gg di normotermia

www.thapca.org

THAPCA TRIALS
Therapeutic Hypothermia After Pediatric Cardiac Arrest

Resuscitation. 2014 Mar; 85(3): 381–386.

Outcomes associated with amiodarone and lidocaine in the treatment of in-hospital pediatric cardiac arrest with pulse less ventricular tachycardia or ventricular fibrillation. Santiago O. Valdes



Improved ROSC with the use of lidocaine as compared with amiodarone, but no improved survival to hospital discharge

Avoid fever & control temp

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



4

Amiodarone OR lidocaine

Both anti-arrhythmics are acceptable for treatment of shock-refractory VF or pulseless VT in pediatric patient

5



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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 favoured.



Sindromi coronariche acute

L'aggiornamento delle linee guida 2015 segna un cambiamento nell'ambito delle Linee guida AHA per la valutazione e la gestione dell'ACS. Iniziando con questo aggiornamento, le raccomandazioni saranno limitate alle fasi di assistenza pre-ospedaliera e del dipartimento d'emergenza. L'assistenza ospedaliera viene affrontata dalle linee guida per la gestione dell'infarto miocardico pubblicate congiuntamente dall'AHA e dall'American College of Cardiology Foundation.

No cath lab? Transfer all STEMI's 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.



2

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.

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.



4

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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STEMI Guidelines recommendation that PPCI is the preferred reperfusion strategy when time from symptom onset is less than 12 hours and time to PPCI from first medical contact in these patients is anticipated to be less than 120 minutes. Regardless of whether time of symptom onset is known, the interval between first medical contact and reperfusion should not exceed 120 minutes (Class I, LOE C-EO).

In STEMI patients presenting within 2 hours of symptom onset, immediate fibrinolysis rather than PPCI may be considered when the expected delay to PPCI is more than 60 minutes (Class IIb, LOE C-LD).

< 2 h da inizio sintomi

In STEMI patients presenting within 2 to 3 hours after symptom onset, either immediate fibrinolysis or PPCI involving a possible delay of 60 to 120 minutes might be reasonable (Class IIb, LOE C-LD).

2-3 h da inizio sintomi

In STEMI patients presenting within 3 to 12 hours after symptom onset, performance of PPCI involving a possible delay of up to 120 minutes may be considered rather than initial fibrinolysis (Class IIb, LOE C-LD).

3-12 h da inizio sintomi

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1



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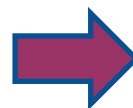
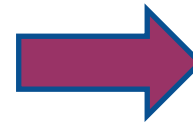
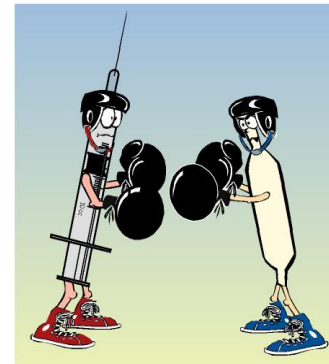
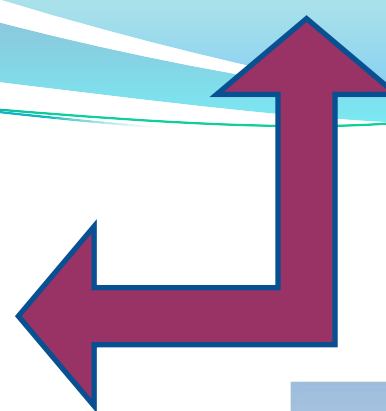
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2 valori negativi di troponinemia ad alta sensibilità possono aiutare ad escludere la presenza di SCA, **ma non sono sufficienti** senza la valutazione clinica (TIMI score, Vancouver, NACP)
Escudere SCA = rischio di morte <1%, paziente dimissibile

CAUTION
OXYGEN

Solo se Sat < 94%

EVITARE I RITARDI

Read the complete 2015 AHA Guidelines at this link:
<https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/>

1



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.



OK

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.



2



STRONGER

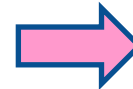


3



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.



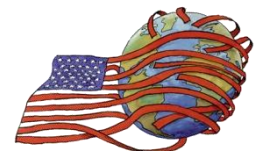
If a qualified sonographer is present and use of ultrasound does not interfere with the standard cardiac arrest treatment protocol(Class IIb, LOE C-EO)

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.



4



5



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.



Read the complete 2015 AHA Guidelines at this link:
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1



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.



2

3



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.



4

5



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.

APPROCCIO
MULTISISTEMICO



TTM



The NEW ENGLAND
JOURNAL of MEDICINE

HOME ARTICLES & MULTIMEDIA * ISSUES * SPECIALTIES & TOPICS * FOR AUTHORS * CME >

ORIGINAL ARTICLE

Targeted Temperature Management at 33°C versus 36°C after Cardiac Arrest

Niklas Nielsen, M.D., Ph.D., Jørn Wetterslev, M.D., Ph.D., Tobias Cronberg, M.D., Ph.D., David Erlinge, M.D., Ph.D., Yvan Gasche, M.D., Thomas Messager, M.D., Ph.D., Søren Holm, M.D., Ph.D., Jan Hovdenes, M.D., Ph.D., Jesper Kjaergaard, M.D., Ph.D.

N Engl J Med 2013; 369:2197- 2206
December 5, 2013

INDICAZIONI
PIU' AMPIE



72 H

Nessun test o rilievo fisico singolo può prevedere il recupero neurologico dopo l'arresto cardiaco con il 100% di certezza. Diverse modalità di test e di valutazione utilizzate insieme per prevedere l'esito dopo gli effetti dell'ipotermia e dei farmaci sono stati presi in considerazione per una decisione prognostica accurata

Gli organi trapiantati di questi donatori hanno un tasso di successo paragonabile agli organi recuperati da donatori simili con altre condizioni.

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1



High-fidelity manikins for ACLS

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

2015 (Aggiornato): l'uso di manichini ad alta fedeltà per la formazione sul supporto vitale avanzato può essere vantaggioso per migliorare le prestazioni al termine del corso.

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.

2015 (Nuovo): si dovranno considerare metodi di apprendimento personalizzato per i professionisti sanitari che imparano le procedure con AED.

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.



CRM

ACUTE CRITICAL CARE

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E
PRINCIPI DI CRISIS RESOURCE
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TOP5

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5

volte GRAZIE



x congresso nazionale

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NAPOLI 18-20 NOVEMBRE 2016