

Guidelines 2010: Adapting Them for Your EMS Agency



Kathleen Schrank, MD, FACEP, FACP
City of Miami Fire Rescue
University of Miami

AHA, ILCOR, ERC Guidelines for Emergency Cardiac Care

- Rigorous process with period for comments
- Amazingly talented folks do a ton of work
- Full guidelines, worksheets posted— *read them!*
- Evidence based (ranked LOE A - C or 1-5)
- Final recommendation
 - Class I, IIa, IIb, III (and indeterminate)
- Extensive bibliography
- *These are guidelines not mandates*

Some big “YES!!”s

- **Focus on high quality chest compressions**
 - Lay public chest compression only
 - Push Hard, Push Fast, Just Do It
 - CAB
 - Minimal interruptions
- **Team approach to CPR**
- **Waveform capnography peri-resuscitation**
- **Induced hypothermia post ROSC**
- **And more...**

BUT

- One size doesn't fit all
- Many topics either have limited evidence or NOT been studied
- Old studies in humans often flawed:
 - Excess ventilation
 - Pauses in compressions
 - No induced hypothermia for survivors
 - *So where animal studies showed 4 gold stars but human studies not, maybe the treatment needs re-search*
- Top quality research in humans is extremely difficult to carry out, so gaps will remain





- **Our primary goal must be focused on survival to discharge home with good quality of life...**
- **But when a Rx ↑↑ ROSC but not survival to discharge...**
 - **Where is the true problem—pre-ROSC care, the study Rx or post-resuscitation care?**

More difficulties...

- “not for routine use” in cardiac arrest
- reason for change: “to simplify”
- “there is insufficient evidence to support or refute the use of _____ but no evidence of harm”



Need “Best Practice”

- As an EMS medical director, I have to write a protocol, 650+ paramedics have to learn it, remember it, & do it
- If I differ from guidelines, I should have a good reason
- What would I want done if my loved one has a cardiac arrest?



BLS Concerns

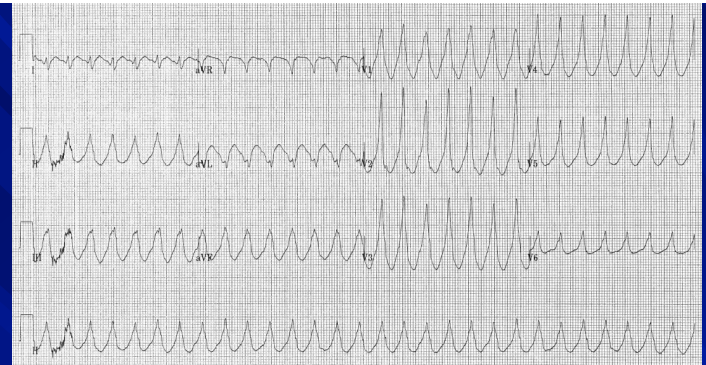
Do you really want to tell a firefighter:

- “Compression rate should be at least 100 per minute”
- “The adult sternum should be depressed at least 2 inches”

And can't we be stronger on:

- “AEDs may be considered for the hospital setting”

VF/pulseless VT



- Shock- epi & CPR for 2 min before pulse check
- Procainamide for EMS??
- 2nd amio dose +CPR + epi + shock @14 min
- THEN WHAT?
- Altho no evidence, I have to pick something!
 - Second antiarrhythmic?
 - Just “CPR-epi-shock-CPR-epi-shock-”?
 - 720 joules?
 - Or just quit at 14 min?

Asystole/brady arrests

- We're seeing more arrests with initial rhythm of asystole despite shorter response times
- Also more EMS-witnessed arrests with 1st rhythm asystole
- LOTS of potential causes beyond just last event after VT→VF→flatline
- We're getting to good ETCO₂ levels quickly but without pulse



Asystole/brady arrest

Atropine:

“No prospective controlled clinical trials have examined the use of atropine...Lower-level clinical studies provide conflicting evidence...There is no evidence that atropine has detrimental effects ...routine use of atropine...is unlikely to have a therapeutic benefit...atropine has been removed...”

Suppression of HR, SA/AVN function, automaticity

- BB
- CCB
- Digoxin
- Several antiarrhythmics
- Lots more meds
- Acute MI
- Acute stroke
- Sleep apnea
- Conduction system disease
- Abnl electrolytes
- Electric shock/lightning
- Myo-, endocarditis
- Chagas
- Sarcoid
- Autoimmune disease
- Amyloid
- Calcific aortic stenosis
- Congenital ht disease
- Drowning
- Vomiting
- Straining to void or defecate
- And lots more

Missing VF or PEA due to technology

- “confirm in 2 or more leads” isn’t strong enough
- Some EL screens may miss small complex PEA or VF
- ALWAYS PRINT A STRIP
- ALWAYS CONFIRM IN 6 limb leads and with increased gain

PEA

- **“Consider hypovolemia”**
- **Why not IVF boluses for all except where there’s another obvious H or T?**
- **After IVF, why not trial of dopamine?**



Special Situations: Toxins

- Most: 'no data to support specific antidotes/ interventions in arrest...follow standard BLS/ ACLS...but for hemodynamic instability:'
 - CCB, BB:
 - Glucagon, Calcium
 - Vasopressors (no maximum—crank it up)
 - At ED: maybe lipid infusion, ECMO
 - Cocaine, Cyclic antidepressants: Bicarb
 - *I'm gonna give 'em a shot in arrests*
- If cyanide from smoke, no nitrites

Accidental Hypothermia

- Very cold but alive victims are stiff: Don't use "rigor" as sign of obvious death
- "Patients should not be considered dead before warming has been provided" but if they drown in Miami in July and are cold, they are truly dead



NEAR - DROWNING



Whopping lactic acidosis pre arrest, so we give early bicarb

High vagal tone so we give atropine

First Aid: Hemorrhage Control

- **Direct pressure:**
 - “until bleeding stops or EMS rescuers arrive”
 - maintained “for a long time”
- **TQ if properly trained**
- **Hemostatic agents: not for routine use because of significant variation in effectiveness by different agents and potential adverse effects e.g., thermal injury**
 - *This is for lay public training, not EMS*

So keep studying...

- **USA Guidelines 2010**
 - www.americanheart.org
- **European Guidelines 2010**
 - www.erc.edu
- **International Guidelines 2010**
 - www.ilcor.org



And if you get “Saves” with something you try, WRITE IT UP!!

Cool Stuff



And more



FRENETIC WANDERINGS swensonfunnies.com

UH EXCUSE ME, ARE YOU SURE
YOU'RE IN THE RIGHT CLASS?

CPR
101

HOW
EMBARRASSING.

