AHA 2005 Guidelines Update for RWJUH Code Blue/White Presented by EMS & Trauma Education

Key Universal BLS Concepts
- Effective chest compressions
- Consolidated C:V ratio
- Single defibrillatory shock
- Ventilations
  - Slower, smaller
  - Avoid hyperventilation
- New "pediatric" definition
- FBAO simplified

Effective Chest Compression
- Studies show CPR too shallow, slow, sparse
- Push hard. Push fast.
  - Nobody pushed too hard.
  - Rate: 100/min for all ages
- Allow complete chest recoil
  - Partial release impairs venous return
- Change compressor q 2 minutes
- Minimize all interruptions
  - Flow stops abruptly with compressions
  - Advanced airway allow uninterrupted compressions
  - Not less than 2 minutes

Consolidated C:V Ratio
- 30:2
  - All layperson CPR
  - All single-rescuer CPR
  - All adult CPR
  - **5 cycles of 30:2 takes 2 minutes**
- 15:2
  - Healthcare providers offering 2-rescuer CPR to infants & children
- 3:1 unchanged for newly born

Single Defibrillatory Shock
- No stacked shocks
- CPR continues right up to shock
  - AED analysis still requires pause in compressions
- Follow immediately by 2 min. of compressions, NOT pulse check
- Pulse checks follow each 2-minute CPR period
- Biphasic: 120, 150-200, or 200 J
- Monophasic: 360 J

HeartStart XL used at 150 J

AED is still life-saving
- Four fixed public AEDs in the hospital
- HeartStart XL on code carts has AED capability when pads connected
- Code Purple becomes Code Blue when cardiac arrest
  - Delegate call to 2222
  - Perform vigorous CPR until the AED arrives
- AED: Main hospital lobby
- AED: Main children's hospital lobby
- AED: Hospital Dining Room on 2-North
- AED: Stage side of courtyard/atrium
- AED: HeartStart XL on code carts with pads

Shock or CPR First?
- Defibrillate first
  - Witnessed, fresh VF/VT arrest
  - Promptness improves survival
- CPR first
  - Unwitnessed collapse
    - Verify cardiac arrest
  - Asphyxial arrest
  - Improves survival several-fold

Ventilation Changes
- During CPR
  - Q 6-8 sec. (8-10/min)
- During perfusion
  - Adults: Q 5-6 sec. (10-12/min)
  - Pediatric: Q 3-5 sec. (12-20/min)
- 1-second inspiratory time
- Limit tidal volume to chest rise
- NO HYPERVENTILATION

New Pediatric Definition
- Onset of puberty
  - 12-14 years of age
  - Axillary hair on males
  - Breast buds on females
- 1-8 years still the pediatric age for AED usage

Severe Airway Obstruction
- Unresponsive pt. receives CPR instead of abdominal thrusts
  - Inspect the mouth for obstruction before each set of ventilations
- Head-tilt-chin lift is acceptable if jaw thrust ineffective

ACLS Update

ACLS Dominated by CPR
- HIGH QUALITY CPR is king!
  - High quality CPR has a greater impact on outcome than any drug or ACLS therapy in VF sudden cardiac arrest.
  - ACLS interventions of airway management, vascular access, drug administration, etc. are organized around

2-minute periods of CPR.
    - Check pulse and rhythm checks after 2-min. of CPR

Airway Management

- Advanced airway allows uninterrupted CPR
    - Insertion can be deferred if it will significantly interrupt CPR
- LMA & Combitube acceptable alternatives to ETT
- CO_2 and esophageal detector now primary devices
    - Reconfirm placement after any pt. movement

Pulseless Arrest

- Therapy coordinated around 2-minute CPR intervals
- Pulse and rhythm NOT checked after shock
- Don't interrupt CPR for airway or vascular access
- Carefully consider underlying causes for all arrests

Pulseless Arrest Drugs

- Administer during CPR
- Vasopressin can replace first or second bolus of epinephrine
- Amiodarone preferred to lidocaine in VT/VF arrest
- Atropine maximum 3.0 mg
- IV preferred to intraosseous (IO) preferred to ET

Bradycardia

- Pace high-degree block without delay
- Atropine dose is 0.5 mg while awaiting pacemaker
- Isoproterenol eliminated from algorithm
- Determine contributing causes

Tachycardia

- Tachyarrhythmia classification changed
    - Wide vs. narrow (assisted by 12-lead ECG)
    - Regular vs. irregular
- Early distinction of preserved/impaired heart function abandoned
- Cardiology consultation advised after initial management

Post-Resuscitation

- Anticipate and support stunned myocardium with vasoactive Tx
- Chill unconscious adults resuscitated from VF to 32-34°C for 12-24 hours
- Maintain strict glucose control

PALS Update

PALS Updates

- Good PALS begins with Good CPR
- Advanced Airway devices
- Drug Changes
- Defibrillation dose

Good PALS begins with Good BLS

- High quality CPR is key
- Therapies designed around 2-minute periods of uninterrupted CPR
- Provide chest compressions to infant and children with pulse < 60/min.

Airway Management

- LMA acceptable for experienced provider if ETT impossible
- Cuffed ET tubes acceptable for hospitalized infants
- CO_2 detector now primary confirmation device
- Monitor CO_2 during perfusing rhythm

Drug Changes

- Vascular (IV or IO) route preferred to endotracheal route
- Epinepherine
    - Standard dose unchanged
    - High dose no longer recommended
- Amiodarone preferred to lidocaine

Defibrillation Dose

- VF/VT
    - Second dose is 4 J/kg instead of range (2-4 J/kg) regardless of waveform

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