American Heart Association
Revised CPR Guidelines 2010

Presentation by: Jennifer Mizak, RN, CNP
NEON Health Services, Cleveland, Ohio
Recommendations

- The revised CPR recommendations were made with consideration to effectiveness, ease of teaching and practical applications.

- The new recommendations are effective as of April 1, 2011.

- The development of these guidelines were from 356 resuscitation efforts and extensive review of the literature and international consensus of experts.
Recommendations Continued

- There is a new section in the health care provider manual which discusses improving resuscitation education, implementation and team skills. Emphasis is on team.
- Quality re-training is critical factor in improving effectiveness.
- Re-training should not be limited to every 2 years and skill performance can be assessed more often.
Recommendations Continued

- High Quality CPR:
  - adequate rate and depth
  - full chest rise
  - minimizing interruptions
  - avoiding excessive ventilation
Why Changes???

- High quality CPR and early defibrillation are critical elements to survival from sudden cardiac arrest.
- Research showed poor quality compressions, variation in survival rates, and lack of bystander CPR needed to be addressed.
Why Changes

- Evidence shows neurologically intact survival (NIS) is directly correlated to the number of chest compressions.
- Compression rates of 100 or greater and minimizing interruptions is a determinant of spontaneous circulation and NIS.
- Highest survival rate is with a witness arrest when the critical elements of CPR & early defibrillation were initiated.
Why Changes?

• ABC Sequence issues became evident
  1. Research showed compressions were delayed while rescuers opened the airway, got a barrier device and equipment, and began breathing.
  2. By changing the sequence, compressions should be started sooner.
  3. Bystander CPR impeded because A & B of ABC were the most difficult to learn.
Why Changes?

- Starting compressions first ensures victims may receive some kind of attempt of CPR.
- Untrained individuals may be more willing to do chest compressions.
- Dispatchers can readily guide untrained persons to recognize unresponsiveness, agonal breathing, and deliver chest compressions.
Major Recommendations

• Improve victim outcomes with emphasis on hands only CPR for adults (simplified for lay rescuer training with emphasis on early chest compressions).

• Push hard and fast.

• Change in sequencing.

• All rescuers should provide chest compressions regardless of training.
Building Blocks for CPR

- **Chest Compressions**
  - Hands-Only CPR
- **Rescue Breaths**
  - 30:2 CPR
- **Team-Work**
  - Multirescuer Coordinated CPR

- No Training → Highly Trained

- Rescuer Proficiency
New Guidelines

- Chest Compressions **Hard** and **Fast**:
  - Compression depth is now at least two inches for all ages. (confusion occurred with range of compression depths).
  - Compression rate is 100/minute.
- Single Rescuer CPR 30:2 for everyone.
New Guidelines

- Minimize interruptions in chest compressions
- Removal of “look, listen, feel”. Look for normal breathing
- Untrained or unavailable equipment is “hands only” CPR
- No changes in relief of foreign body airway obstruction
- Health care providers rotate every 2 minutes
New Guidelines

- Cricoid pressure is not recommended because it may impede ventilation
- Minimize importance of pulse check by health care providers. Research shows healthcare providers have difficulty detecting a pulse.
- No changes in age groups
- Simplified adult BLS provider algorithm
New Guidelines – Chain of Survival

- ABC is gone.
- Recognition/EMS, CPR, defibrillation, EMS, post-cardiac arrest care
Adult BLS Healthcare Providers

1. Unresponsive
   No breathing or no normal breathing
   (i.e., only gasping)

2. Activate emergency response system
   Get AED/defibrillator
   or send second rescuer (if available) to do this

3. Check pulse:
   DEFINITE pulse within 10 seconds?

   Definite Pulse

3A. Give 1 breath every 5 to 6 seconds
    Recheck pulse every 2 minutes

4. No Pulse

   Begin cycles of 30 COMPRESSIONS and 2 BREATHS

5. AED/defibrillator ARRIVES

6. Check rhythm
   Shockable rhythm?

   Shockable

   Give 1 shock
   Resume CPR immediately
   for 2 minutes

   Not Shockable

   Resume CPR immediately
   for 2 minutes
   Check rhythm every 2 minutes; continue until ALS providers take over or victim starts to move

High-Quality CPR
- Rate at least 100/min
- Compression depth at least 2 inches (5 cm)
- Allow complete chest recoil after each compression
- Minimize interruptions in chest compressions
- Avoid excessive ventilation

Note: The boxes bordered with dashed lines are performed by healthcare providers and not by lay rescuers.
Pediatric chain of survival
Pediatric BLS

- Children: compression depth 2 inches
- Infants: compression depth is 1/3 AP of chest
- HCP 2 rescuers: 15:2
- See changes in electrical therapy.
- No changes in foreign body airway obstruction.
Pediatric BLS

1. Unresponsive
   Not breathing or only gasping
   - Send someone to activate emergency response system, get AED/defibrillator

2. Lone Rescuer: For Sudden Collapse, activate emergency response system, get AED/defibrillator

3. Check pulse: DEFINITE pulse within 10 seconds?
   - Definite Pulse
     - Give 1 breath every 3 seconds
     - Add compressions if pulse remains
       -50/min with poor perfusion despite adequate oxygenation and ventilation
     - Recheck pulse every 2 minutes
   - No Pulse

4. One Rescuer: Begin cycles of 30 COMPRESSIONS and 2 BREATHS
   Two Rescuers: Begin cycles of 15 COMPRESSIONS and 2 BREATHS

5. After about 2 minutes, activate emergency response system and get AED/defibrillator (if not already done).
   - Use AED as soon as available.

6. Check rhythm: Shockable rhythm?
   - Shockable
     - Give 1 shock
     - Resume CPR immediately for 2 minutes
   - Not Shockable
     - Resume CPR immediately for 2 minutes
     - Check rhythm every 2 minutes; continue until ALS providers take over or victim starts to move

High-Quality CPR
- Rate at least 100/min
- Compression depth to at least 1/2 anterio-posterior diameter of chest, about 1 1/2 inches (4 cm) in infants
  and 2 inches (5 cm) in children
- Allow complete chest recoil after each compression
- Minimize interruptions in chest compressions
- Avoid excessive ventilation

Note: The boxes bordered with dashed lines are performed by healthcare providers and not by lay rescuers © 2010 American Heart Association
Electrical Therapy

- No change in 1 shock protocol for defibrillation
- Now 3 possible pad placements:
  - ✓ AP and Anteriolateral (standard)-AL
  - ✓ AL and anteriorleft infrascapular
  - ✓ AL and anterior right infrascapular
- Do not concern yourself about an implanted device.
Electrical Therapy

- Now includes infants.
- Preference for defibrillation on infants is manual defibrillation.
- However, you can use an AED on an infant.
- Research shows AED’s used in infants have no clear adverse effects.
- AED with pediatric dose attenuator system would be the best but can use the adult AED.
Final Note

• Healthcare providers in a health care system need to:
  ➢ **First** determine unresponsiveness and begin chest compressions until equipment and personnel arrive.
  ➢ **Then** move to airway and breathing using a bag mask device.

• Healthcare provider (HCP) must be able to do all skills.

• Hands only is for a lay rescuer, HCP with no equipment, or until equipment arrives.