

“The First First Responder”

**911
Dispatchers
ROCK!**

EMD CPR



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Medical Director, Davie and Stokes County EMS
Assistant Medical Director, Forsyth County EMS

North Carolina
College of Resuscitation





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“The First, First Responder”

- Objectives
 - 1. Review Scope of Cardiac Arrest Problem
 - 2. Review Science of CPR
 - 3. Review Role of EMD as Key Part
 - 4. Review Barriers to Bystander CPR

“The First, First Responder”

- Conflicts of Interest / Financial Disclosers
 - Sadly, I have no financial or industrial conflicts of interest to disclose.





Frequently Asked Questions

- Can I harm the patient?
- Should dispatcher's be trained in CPR?
- Caller doesn't want to perform CPR?
- Caller knows CPR and is doing it?
- Dispatcher feels bad if person dies?
- Cannot get patient into position for CPR?
- Most die, why all the work?



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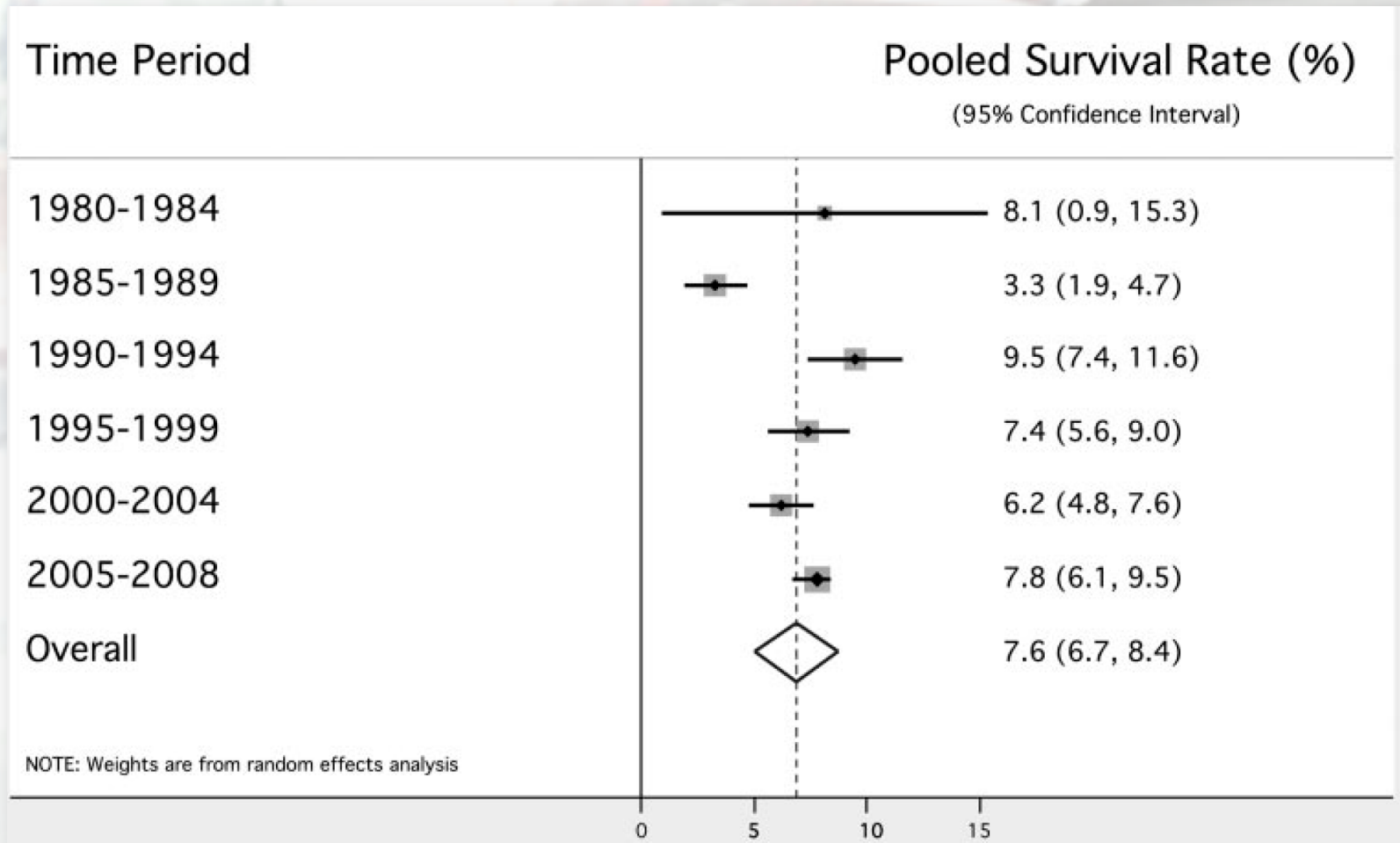
Cardiopulmonary Resuscitation

**LETS GET RE-EXCITED
ABOUT CARDIAC ARREST
AND CPR**

OHCA SURVIVAL TO HOSPITAL DISCHARGE

by 5-year time periods n = 141,581

Overall 7.6%





OUT OF HOSPITAL CARDIAC ARREST

- About 350,000 people in the United States each year
 - 600-1000 Americans will suffer OHCA today
 - 20+ during this talk
- 3rd leading cause of death
- High morbidity and mortality
 - ~80 - 92% die before hospital admission



CARDIAC ARREST IN NC

~ 5000-8000 per year (ED vs. EMS records)

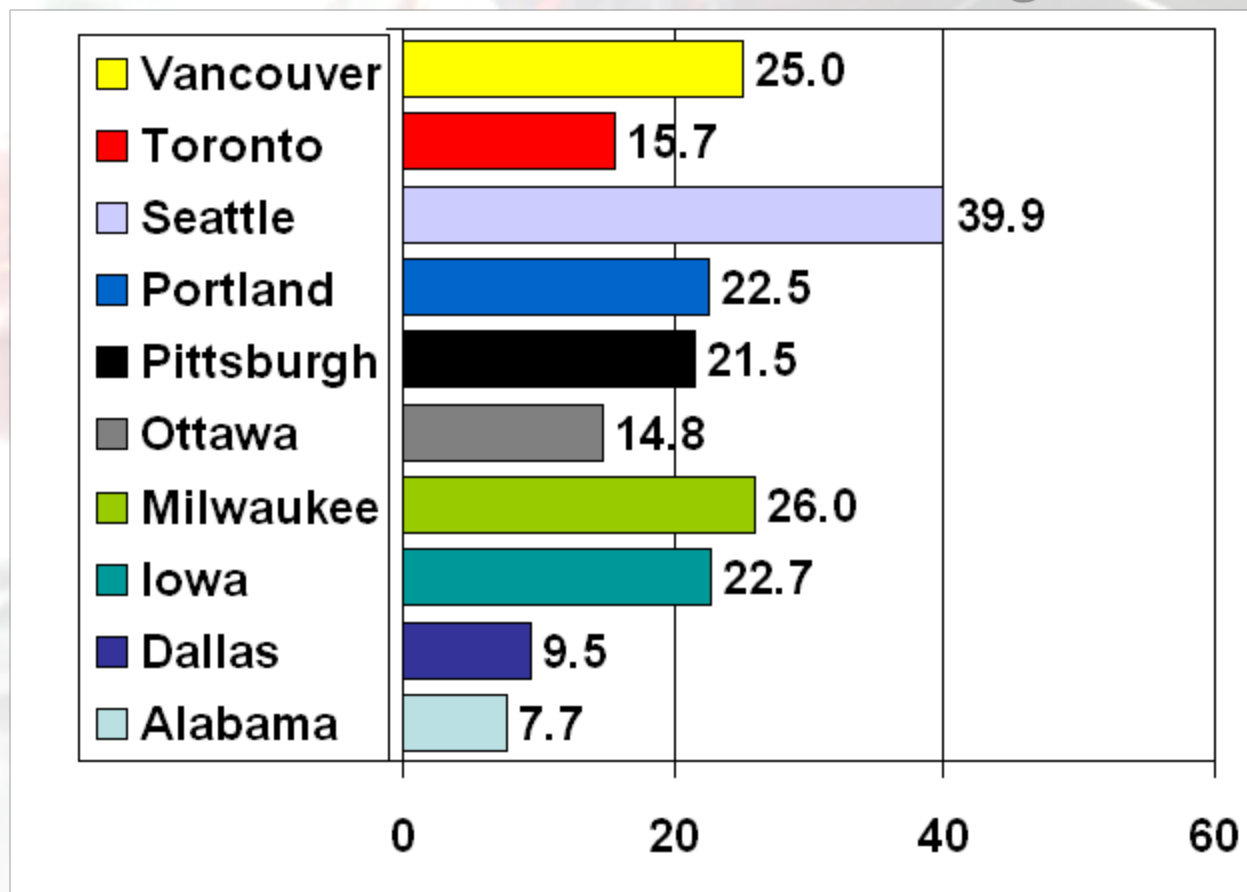
NC Office of EMS Preliminary data

- Statewide Cardiac Arrests: 5,213
- EMS Return of Spontaneous Circulation: 1,845 (35%)
- Arrived at Emergency Department Alive: 1,034 (20%)
- Admitted to Hospital Alive: 589 (11%)
- Discharge from Hospital Alive :not available... likely under 5%

Variation in survival VF arrest

Resuscitations Outcomes Consortium

Survival to discharge





Cardiac arrest in North Carolina From the CARES Registry:

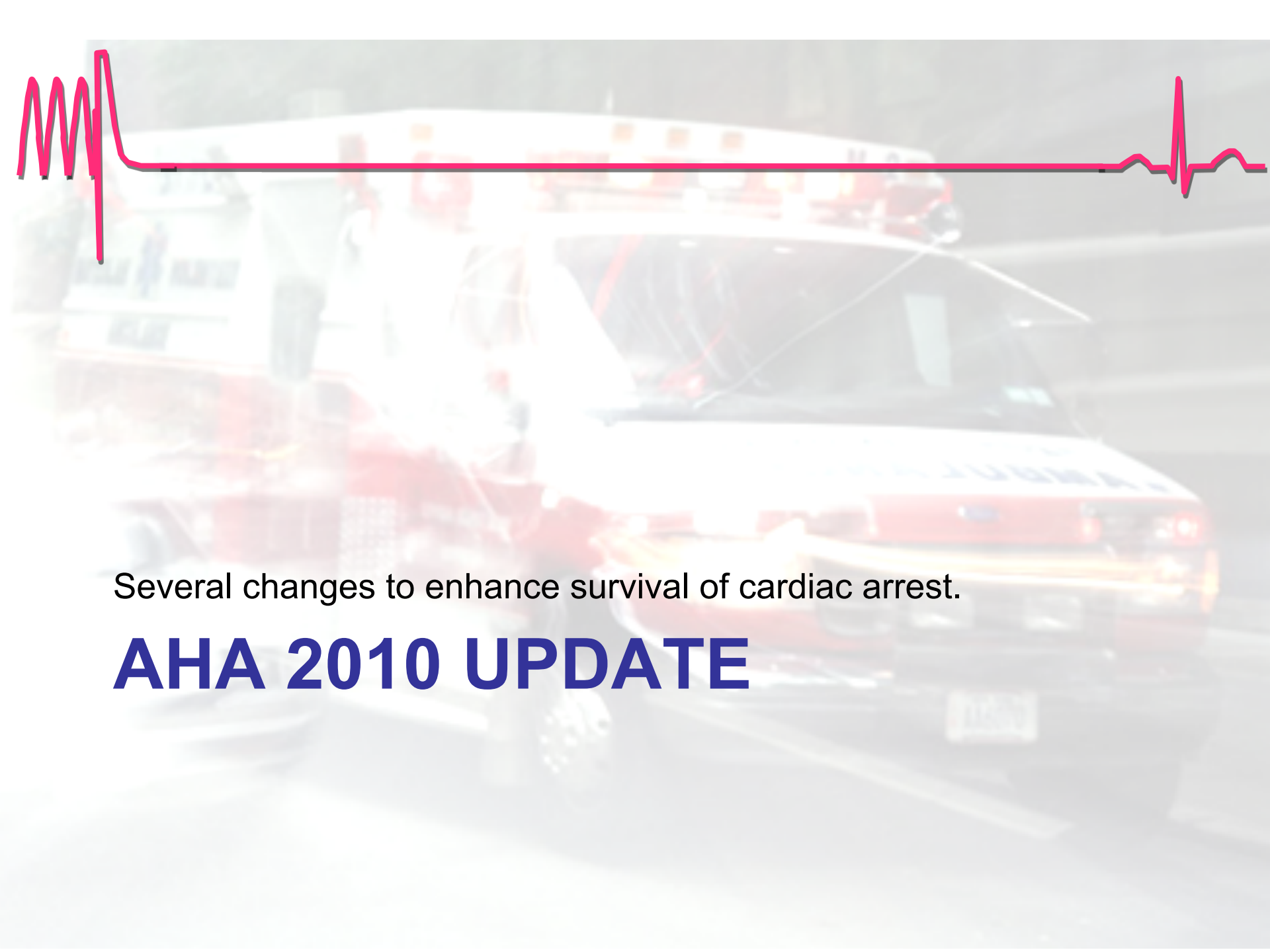
Bystander CPR 23%

AED Use 1.3%

Public CPR training 3% / year

32% Survival Rate

Original CARES data from Wake, Durham and
Mecklenburg Counties



Several changes to enhance survival of cardiac arrest.

AHA 2010 UPDATE



Summary of 2010 Guidelines

- Many resuscitation systems and communities have documented improved survival from cardiac arrest.
- Too few victims of cardiac arrest receive bystander CPR.
- CPR quality must be high.
- Victims require excellent post–cardiac arrest care by organized, integrated teams.
- Education and frequent refresher training key to improving resuscitation performance.
- We must rededicate ourselves to improving the frequency of bystander CPR, the quality of all CPR and the quality of post–cardiac arrest care.

HIGH QUALITY CPR

ACLS: De-emphasis of Devices, Drugs and other Distracters

- Focus on high-quality CPR and defibrillation
- Atropine no longer recommended for routine use in

Adult Chain of Survival



1. Immediate recognition of cardiac arrest and activation of the emergency response system
2. Early CPR with an emphasis on chest compressions
3. Rapid defibrillation
4. Effective advanced life support
5. Integrated post–cardiac arrest care



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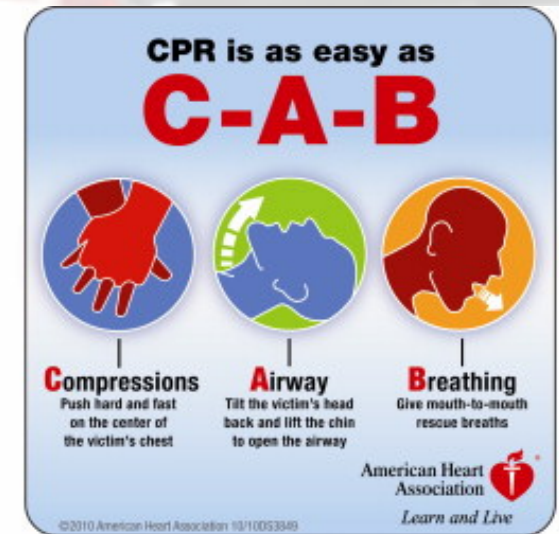


High Quality CPR

- Goal: High quality means continuous chest compressions with limited interruptions
 - Rate: 100 – 120/min
 - Depth: 2 inches
 - Allow for complete chest recoil
 - Change every 2 minutes with pulse check
 - not to exceed 5 seconds
 - Address airway after unless indicated earlier

High Quality CPR

- Best chance for survival from OHCA:
 - Early, continuous compressions and early defibrillation
 - Don't interrupt chest compression for inserting airway
 - Adult takes 10 – 15 minutes to de-saturate below 80%





Ventilation



- Recommended rate: 8 – 10/min
- Maintain SpO₂ ≥ 94%
- Avoid Hyperventilation
 - Worsens brain ischemia by inducing cerebral vasoconstriction as PaCO₂ falls
 - Hyperinflation of the chest
 - increased intra-thoracic pressure
 - and
 - impedes venous return to heart, affecting BP

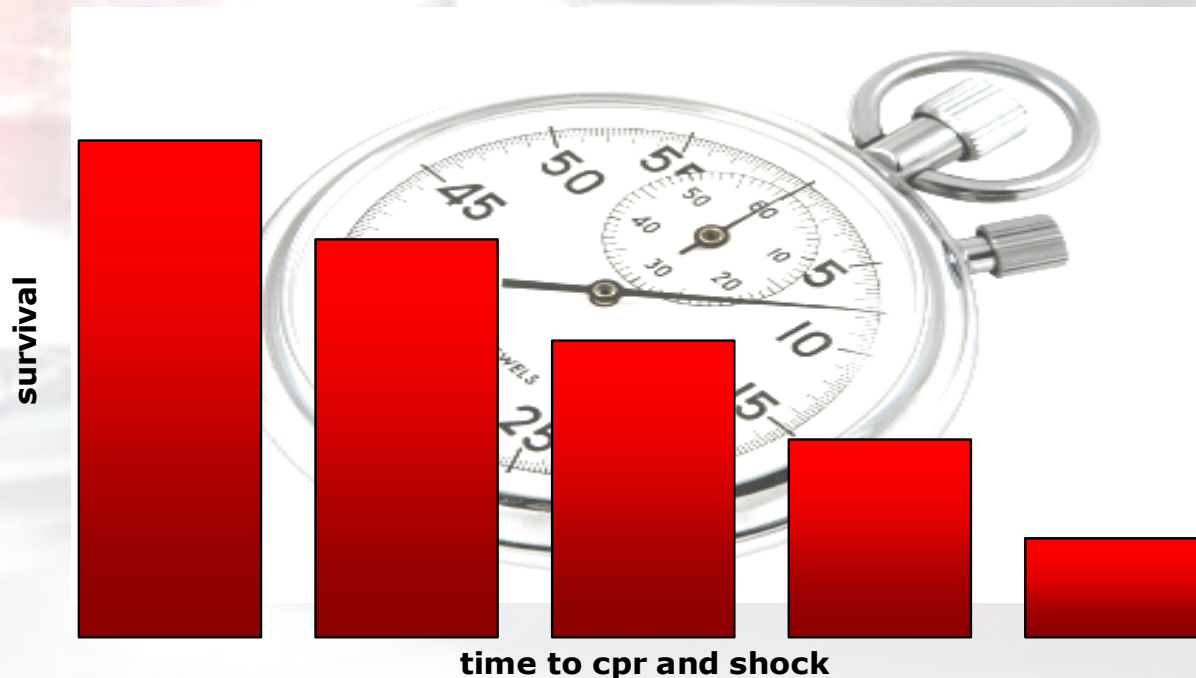


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- What are the two interventions which result in best chance of survival?
 - 1. High-Quality CPR
 - 2. Early Defibrillation
- Why is EMD so important in cardiac arrest?

TIME IS CRITICAL

Survival decreases by **10%** for every **minute** treatment is delayed



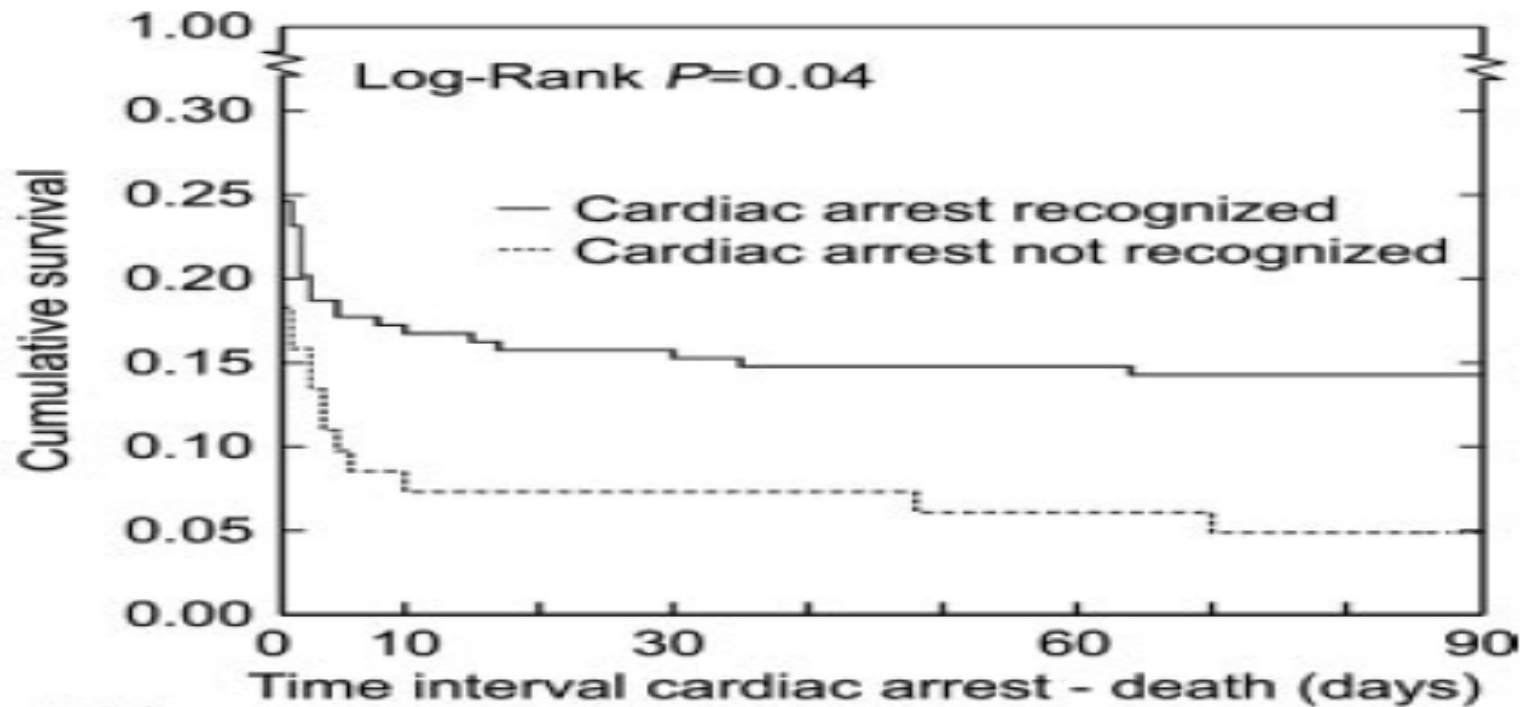


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- Time from collapse to CPR critical
- PAI CPR decreases this time interval
- Goal for CPR initiation is?
 - 1 minute
- US average response time 4 – 6 minutes
- Average response time in Region I
 - 8 – 12 minutes



- Amsterdam dispatch



Resuscitation Science

Importance of the First Link

Description and Recognition of an Out-of-Hospital Cardiac Arrest in an Emergency Call

Jocelyn Berdowski, MS, MSE; Freerk Beekhuis, RN; Aeilko H. Zwinderman, PhD;
Jan G.P. Tijssen, PhD; Rudolph W. Koster, MD, PhD

Berdowski, J. *Circulation*. 2009;119:2096-2102



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 JAMA

ORIGINAL CONTRIBUTION

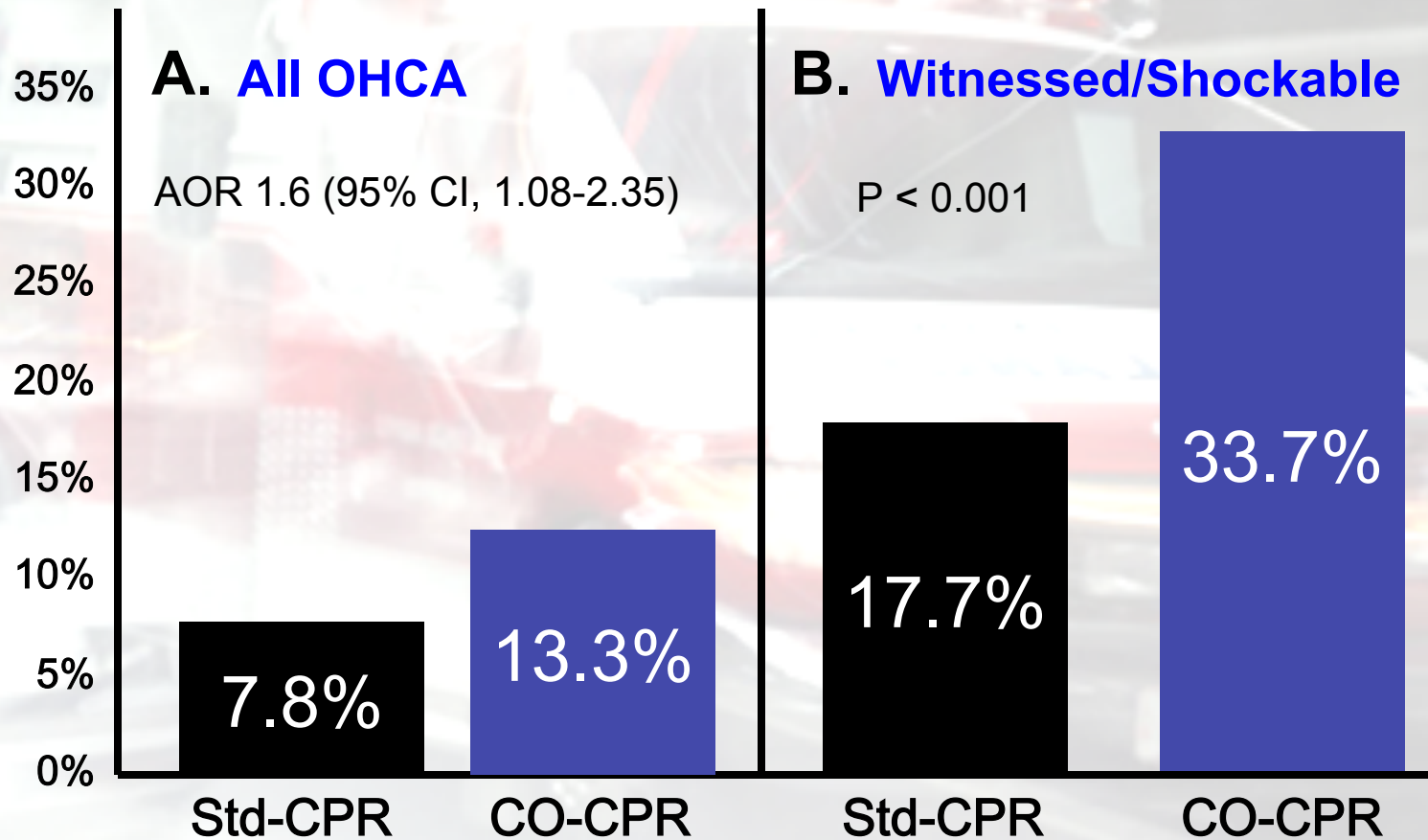
Chest Compression-Only CPR by Lay Rescuers and Survival From Out-of-Hospital Cardiac Arrest

Bobrow *et al.*

JAMA 2010;304:1447-1454

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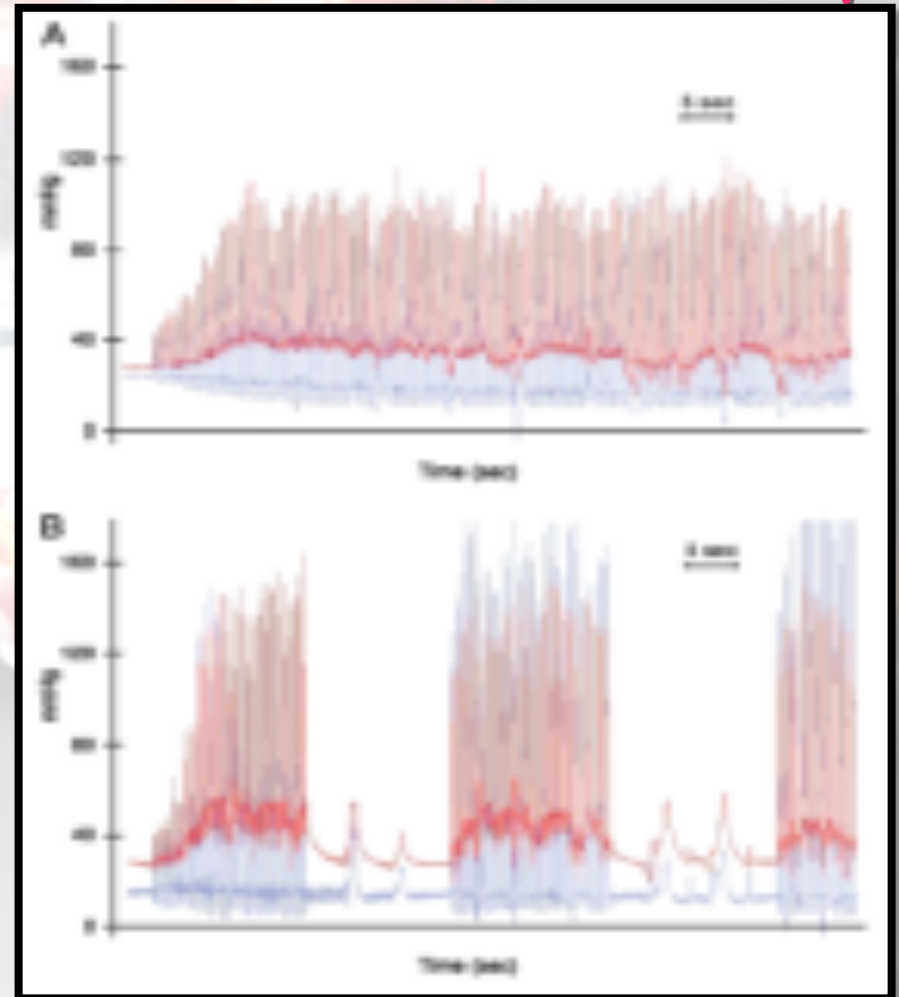
Survival to Hospital Discharge



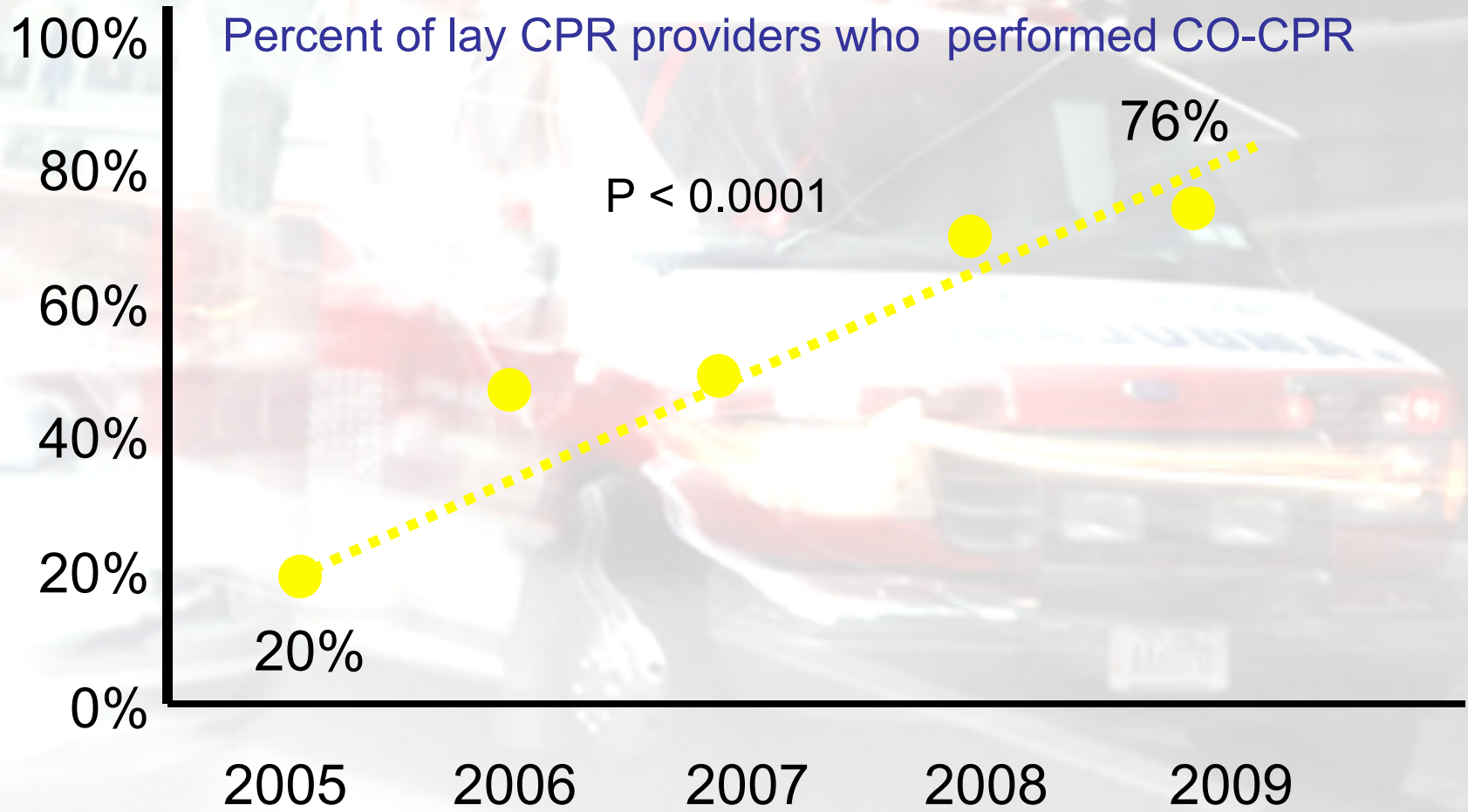
Bobrow, et al. JAMA 2010;304:1447-1454

Chest Compression only CPR:

- Bystanders more willing to initiate
- Arterial blood is adequately oxygenated at onset of **primary cardiac arrest**
- Less likely to cause regurgitation of stomach contents
- Rescue breathing interrupts critical chest compressions
- Easier to teach
- Observational evidence of improved survival



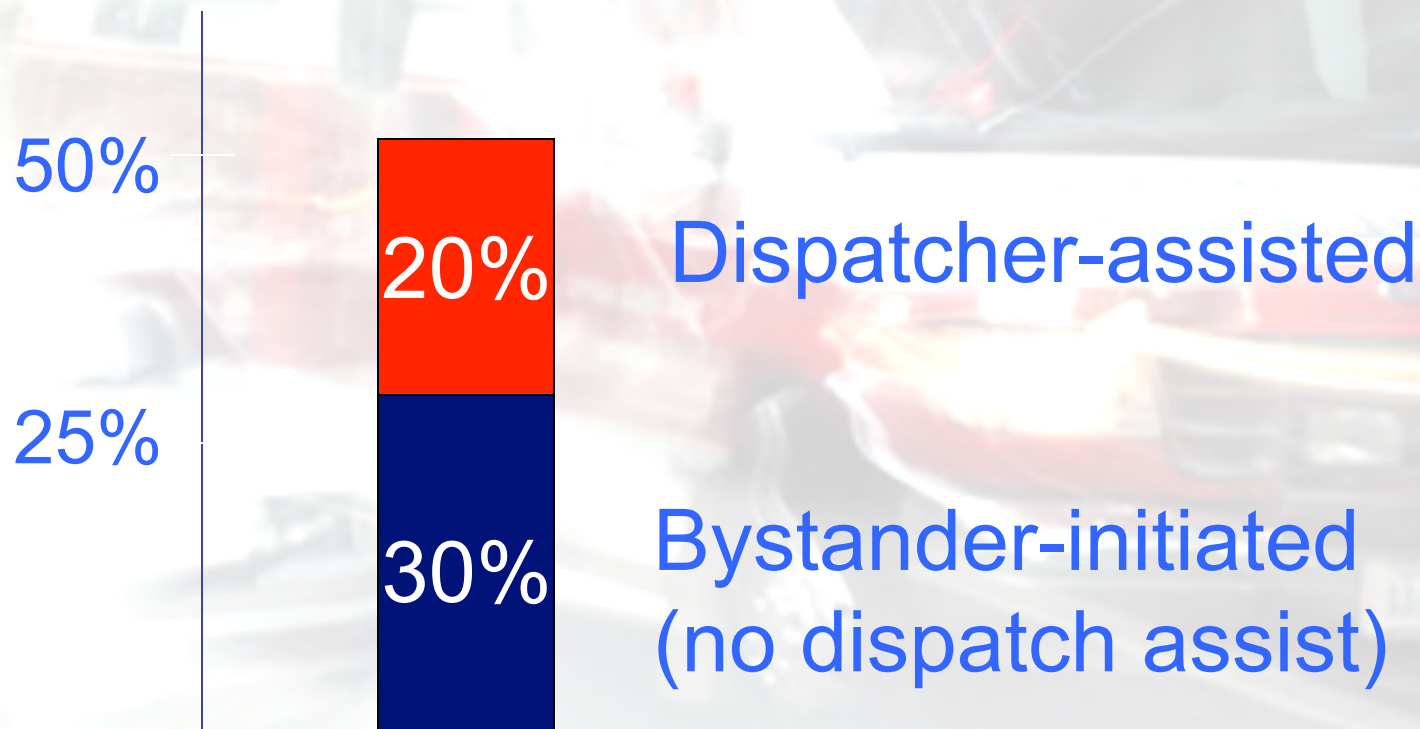
Bystander CPR OHCA in Arizona (2005 to 2010)



Bobrow, et al. JAMA October 6 2010

Dispatcher Assisted CPR King County

Bystander CPR since initiation of dispatcher assistance (1985 - 2007)



Potential to nearly double proportion who receive CPR




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- Common Delays in CPR
 - 1. Unnecessary questions
 - 2. Omission of “breathing normally”
 - 3. Bystander not near patient
 - 4. Deviation from protocols



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- How old is the patient?
- Does the patient have a heart history?
- Duplication of questions.
- What is the patient experiencing?



If patient is not conscious and not breathing - normally do we really need to know medical history?

**All we need to know
...the patient is dead.**

We need to offer CPR without delay and inform the caller that we will help them.



Barriers to Dispatcher Assisted CPR

Misconceptions and Accepted Knowledge

“We couldn’t handle the increased workload.”

“Dispatchers do not want another responsibility.”

“Patients not in cardiac arrest could be **injured** by the dispatcher’s instructions.”

“It would increase our **liability** unacceptably.”

Dispatch Assisted CPR

Because dispatcher CPR instructions substantially increase the likelihood of bystander CPR performance and improve survival from cardiac arrest, ALL dispatchers should be appropriately trained to provide telephone CPR instructions (Class I, LOE B).

2010 AHA Guidelines for CPR & ECC

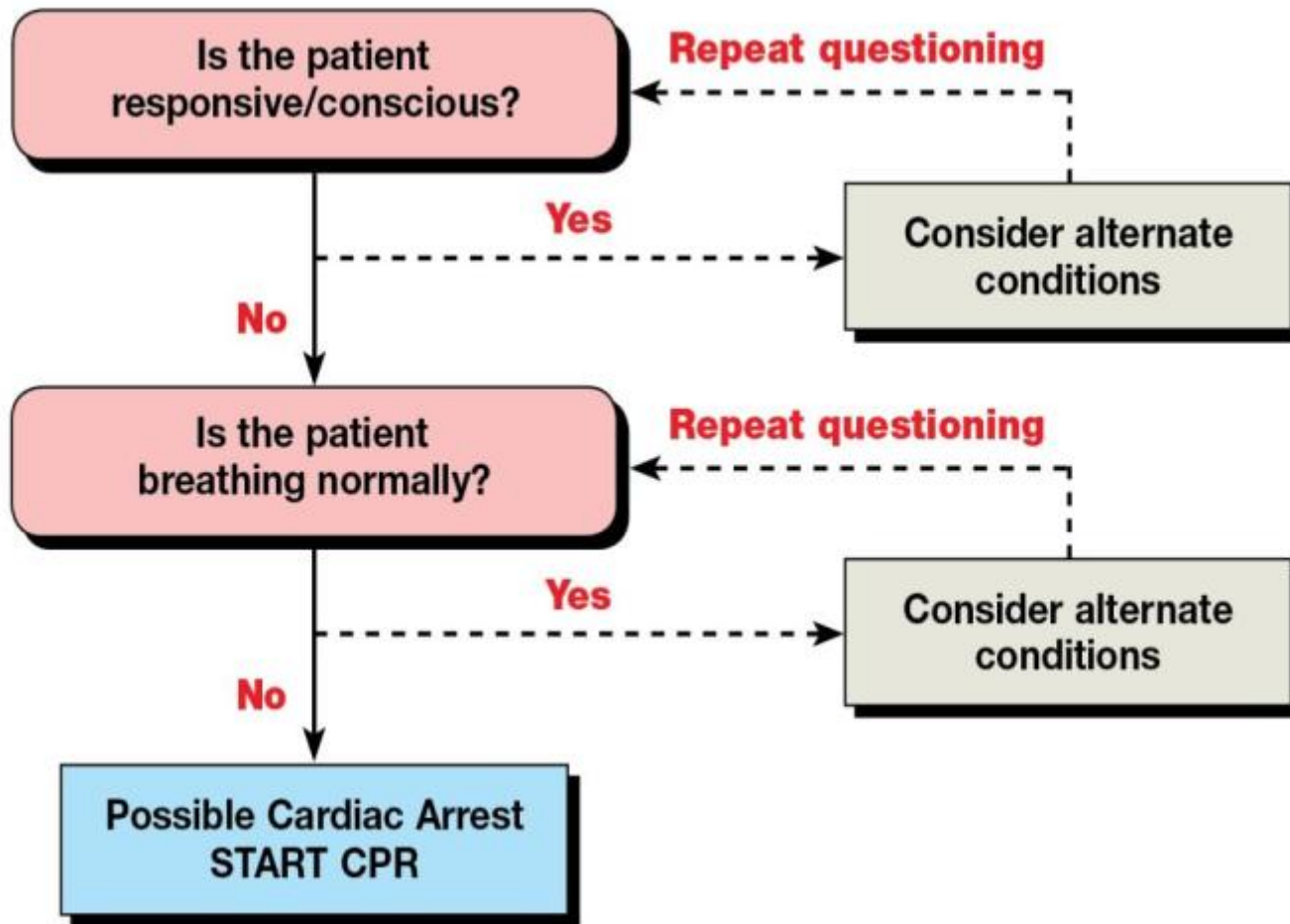




CLOSING: EFFECTIVE EMD CPR

- Quick and efficient call handling
- Immediate recognition of cardiac arrest
- Rapid dispatch of Basic Life Support (BLS) units
- Quickly determining the presence of Public Access Automatic External Defibrillators (AED)
- Rapid dispatch of Advanced Life Support (ALS) units
- **Assisting in the quick and efficient delivery of CPR by the caller or bystander**

2-Question Approach





EMD CPR

BREAK