


**The 2010 Guidelines for  
Cardiopulmonary Resuscitation and  
Emergency Cardiovascular Care**

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**Chair -Basic Life Support Subcommittee**



**GUIDELINES  
CPR ECC  
2010**

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**CPR  
or  
TYD**

*Temel Yaşam Desteği*

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**Disclosures**

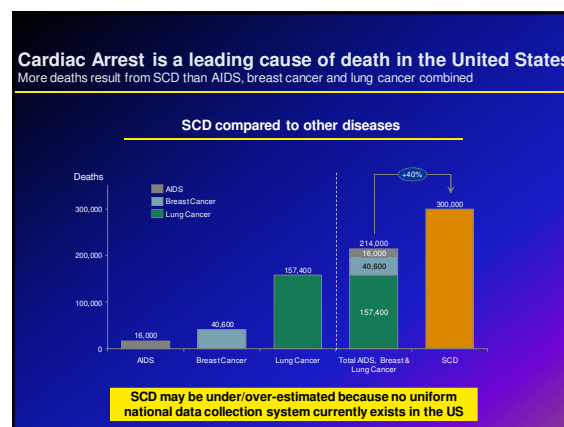
Medtronic Foundation Grant  
– HeartRescue State Systems of Care



**HeartRescue Partners**



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## Regional Variation in Out-of-Hospital Cardiac Arrest Incidence and Outcome

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Chosen "ROC" sites represent some of the best EMS systems in U.S. and Canada

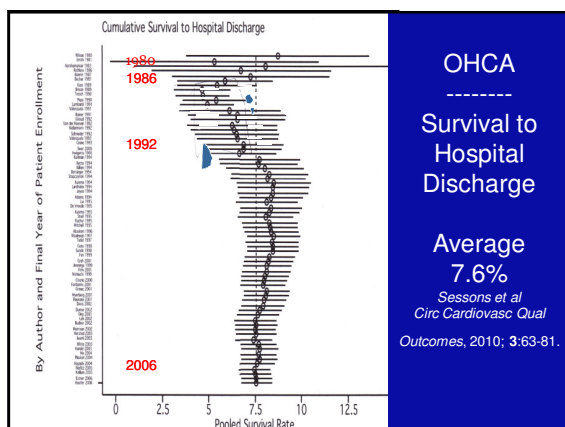
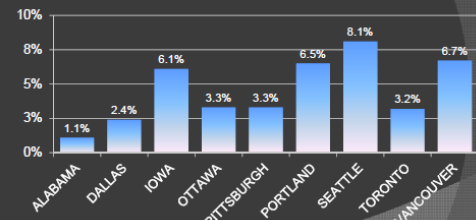
Rates of survival to discharge varied significantly, from 7.7% in Alabama to 39.9% in Seattle

500% Difference in Survival

JAMA 2008;300:1423-1431

## Regional variation in OOH-CA survival Resuscitation Outcomes Consortium (ROC)

Nichol et al. JAMA 2008; 300:1423-31



## Key Changes

2010 AHA Guidelines for CPR and ECC

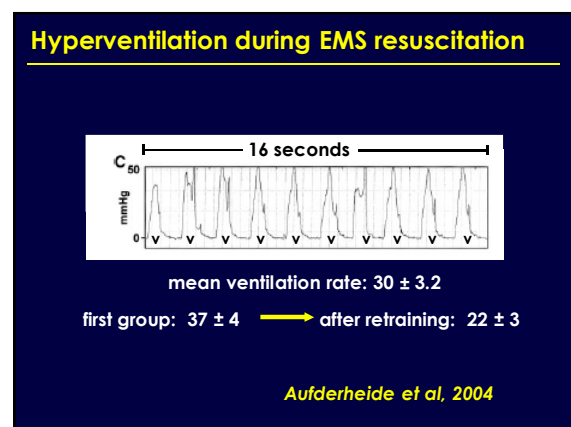
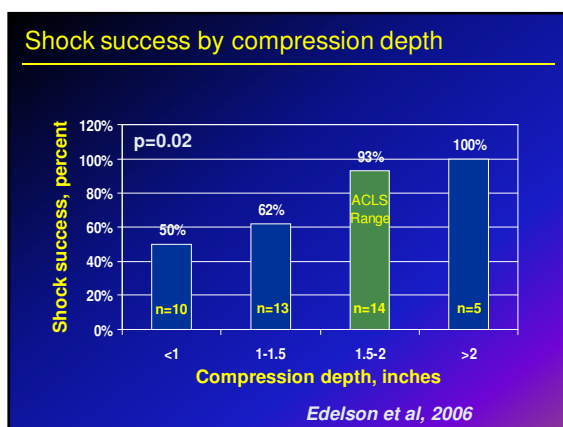
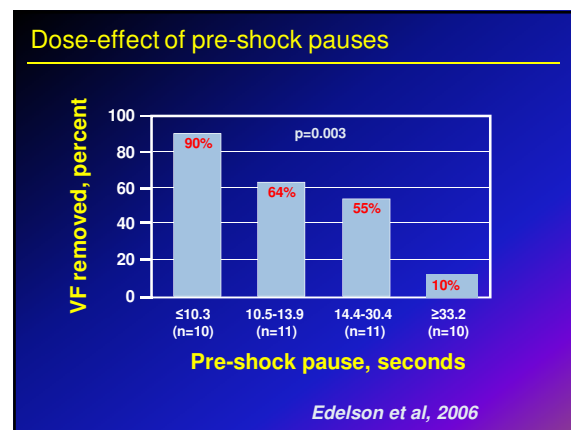
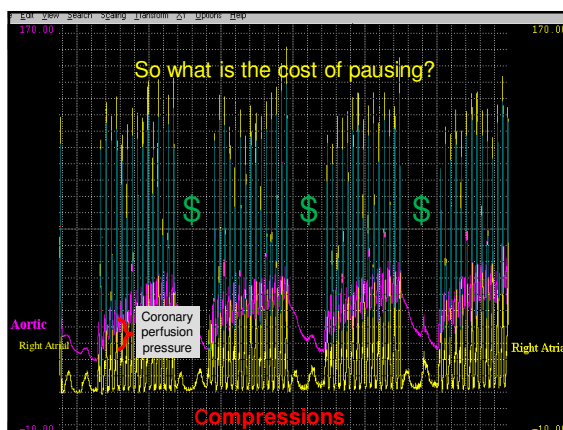
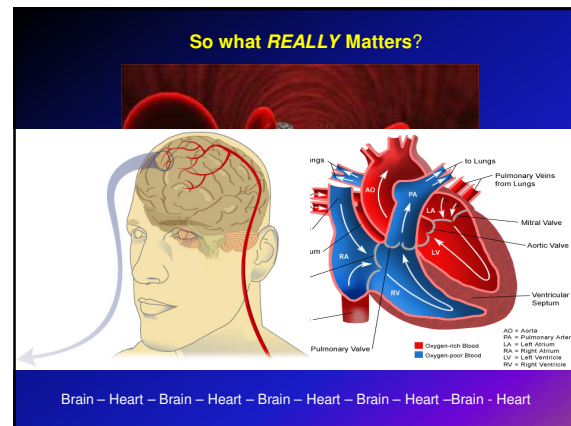
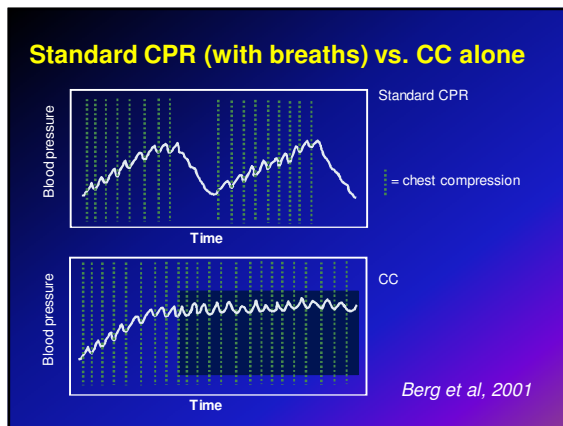
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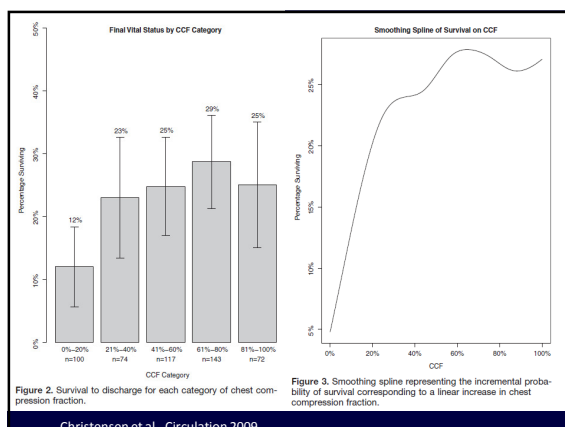
## KEY BLS CHANGES

- Recognition
- CAB (not ABC)
- Hands-only CPR
- CPR Quality
- Integrated Team Approach

Some of the Science Behind the Guidelines







### CPR Quality

- **Push Hard** (at least 2 inches)
- **Push Fast** (at least 100/min)
- Allow complete chest recoil
- Minimize interruptions
- Avoid Excessive Ventilation
  - 30:2 without advanced airway
  - 8-10/minute with advanced airway

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### Chest Compression Rate

- Change:
  - Compression rate at least 100 per minute.
    - 2005 recommendation: *about* 100/min
- Why?
  - Absolute number of compressions delivered per minute is linked to survival.
  - Actual compression rate is often well below 100/min.

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### Adult Chest Compression Depth

- Change:
  - Compress at least 2 inches
    - 2005 recommendation was 1½ to 2 inches.
- Why?
  - Compressions of at least 2 inches (5cm) are more effective than those of 1½ inches.
  - Rescuers often do not “push hard” enough.
  - Shallow compressions similar to interruptions.

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### Allow full chest recoil during CPR (Class IIa, LOE B)

	No Lean	10 %	20 %
MBF	0.40 ± 0.34*	0.24 ± 0.22	0.19 ± 0.12
CI	1.78 ± 0.77*	1.21 ± 0.61	0.95 ± 0.32

\*P<0.05, No Lean vs. 10% & 20%

Zuercher, CCM 2010

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## Elimination of "Look, Listen, and Feel" for Breathing



- Change:
  - Rescuer checks for response and "no breathing or **no normal breathing**" in adult before beginning CPR.
  - **After** delivery of 30 compressions, lone rescuer opens airway and delivers 2 breaths.
- Why?
  - Starting CPR with compressions minimizes delays.

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## Pulse Check



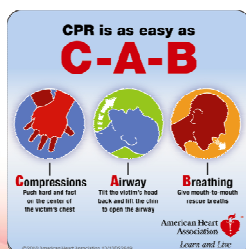
- Lay rescuers and healthcare providers have difficulty detecting a pulse.
- The lay rescuer should **not** check for a pulse and should assume that cardiac arrest is present if an adult suddenly collapses or an unresponsive victim is not breathing normally.
- If the rescuer does not definitely feel a pulse **within 10s**, they should start chest compressions (Class IIa, LOE C).

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## CPR Sequence



- Change:
  - From A-B-C to C-A-B
  - Initiate chest compressions before ventilations
- Why?
  - Goal: To reduce delay to CPR, sequence begins with skill that everyone can perform
  - Emphasize primary importance of chest compressions for professional rescuers



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## Why isn't Rescue Breathing Necessary for VF?



- Excellent initial SaO<sub>2</sub> during CPR
- O<sub>2</sub> reservoir: lungs
- Gaping ventilation
  - 39-55% of prehospital arrests
- Compression-induced ventilation

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## Bystander Hands-only CPR



- "Laypersons should be encouraged to provide chest compressions (either hands-only or conventional CPR) to all cardiac arrest victims"
- Outcomes as good with bystander hands-only CPR vs CC+RB CPR
  - SOS-KANTO Lancet 2007 Iwami Circ 2007 Bohm Circ 2007
- Higher survival rate with lay bystander hands-only CPR vs CC+RB CPR
  - Bobrow JAMA 2010

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## Our **BIG** Problem Bystander CPR Rates

- 32% New York (Gallagher, 1995)
- 21% Detroit (Swor, 1995)
- 15% Ontario, Canada (Stiell, 2004)
- 28% SOS KANTO (Nagao, 2007)
- 27% Osaka, Japan (Iwami, 2007)
- 25% Singapore (Ong, 2008)
- 25% CARES Registry (McNally, 2009)
- 25% Arizona SHARE (Vadeboncoeur, 2007)





## 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).

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CPR is not harmful.

Inaction is harmful.

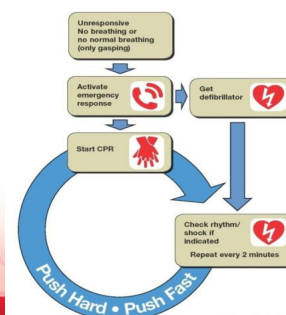
CPR can be **lifesaving**.

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## Universal Algorithm for Adult CPR

Traditional algorithm updated

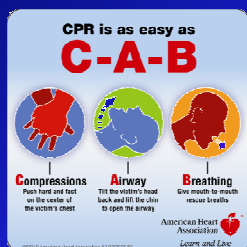
Graphics emphasize importance of uninterrupted chest compressions

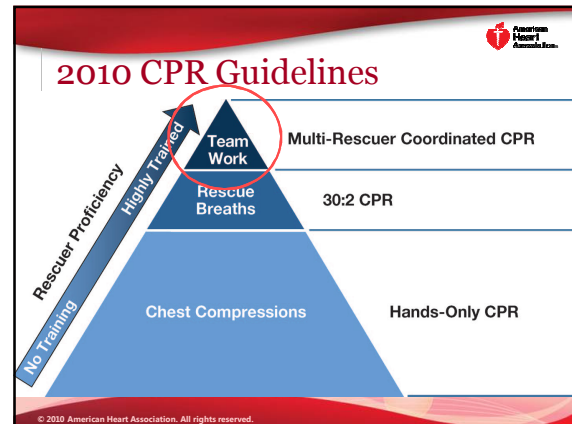


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## CPR流程

- 改变:
  - 从A-B-C到C-A-B
  - 通气前开始胸外按压
- 原因?
  - 在存活率方面, 无明显优势
  - 胸外按压是最容易实施的技术, 所以以这个技术开始进行复苏时会减少阻碍





## Team Resuscitation

- Change:
  - Increased focus on using a team approach during resuscitations
- Why:
  - Many CPR interventions performed simultaneously
  - Collaborative work minimizes interruption in compressions
  - Clear communication minimizes errors

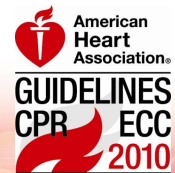


## More Information

To view a copy of this presentation please go to [www.heart.org/cprscience](http://www.heart.org/cprscience).

To learn more about upcoming products and information related to CPR and ECC visit [www.heart.org/cpr](http://www.heart.org/cpr).

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[www.azshare.gov](http://www.azshare.gov)

Thank you!