



CPR DISPATCH ACADEMY

- THE SCIENCE OF CPR

- ROLE OF 9-1-1 PERSONNEL IN THE CHAIN OF SURVIVAL

- KEY ELEMENTS FOR SAVING LIVES

- SMALL GROUP TRAINING



Sarver Heart Center



***Telephone-Assisted CPR:
Maximizing Survival from
Sudden Cardiac Arrest in
Arizona***

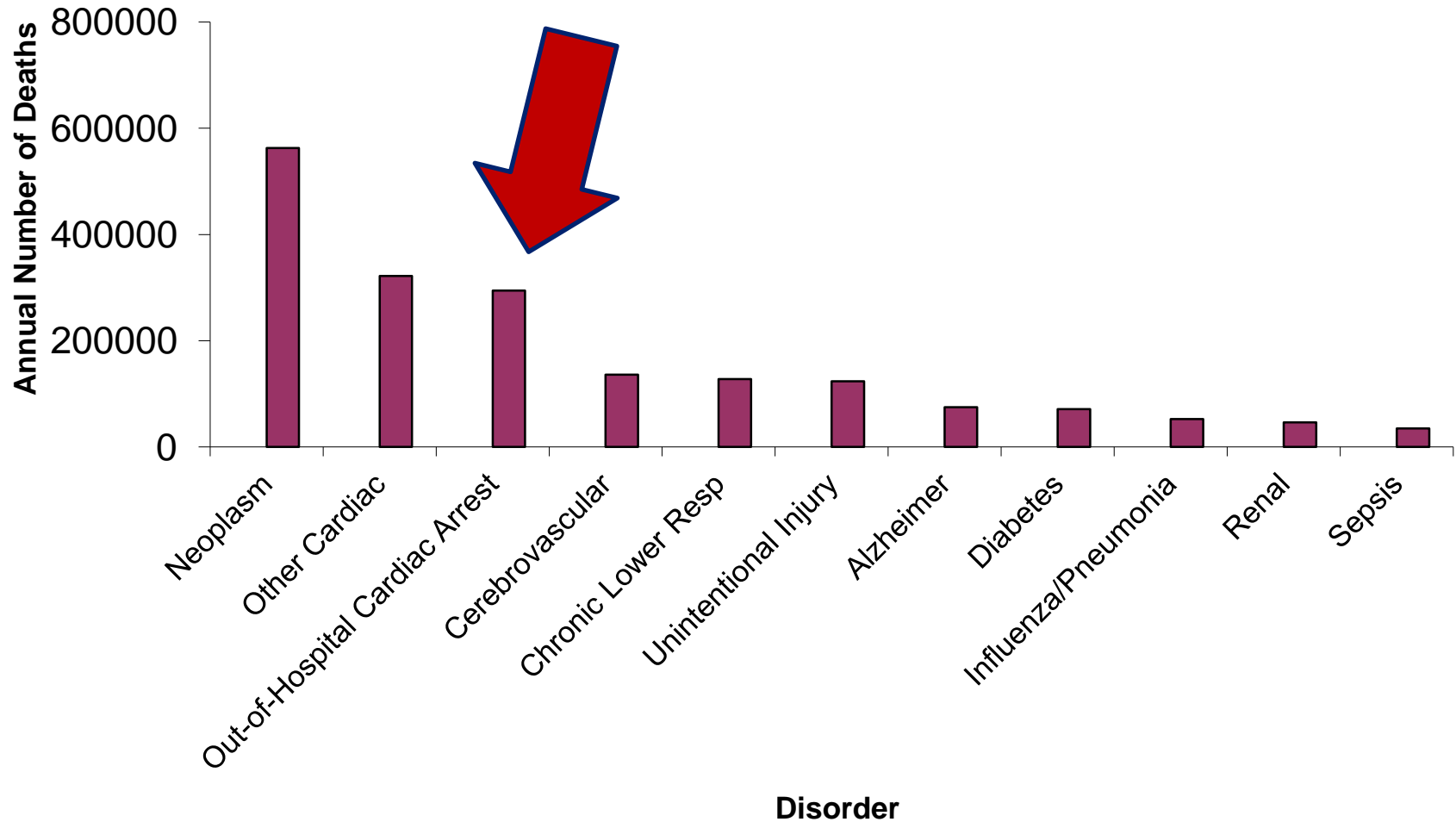


Goals

- Why is CPR so important?
- How can we assure survival is the “normal” outcome?
- How do we work together to make this a reality?

Leading Causes of Death in U.S in 2007

Extrapolated from <http://www.cdc.gov/nchs/fastats/lcod.htm> and
Nichol JAMA 2008





**Over 4 X
Cardinal's
Stadium**

Every Year

Out-of-Hospital Cardiac Arrest

is a

Major Public Health Problem!

OHCA is also a HUGE EMS Problem

- Critical EMS function
- Quantifiable EMS function
- Test of entire EMSS
- Surrogate marker for success of EMS
- **We can save lives!**

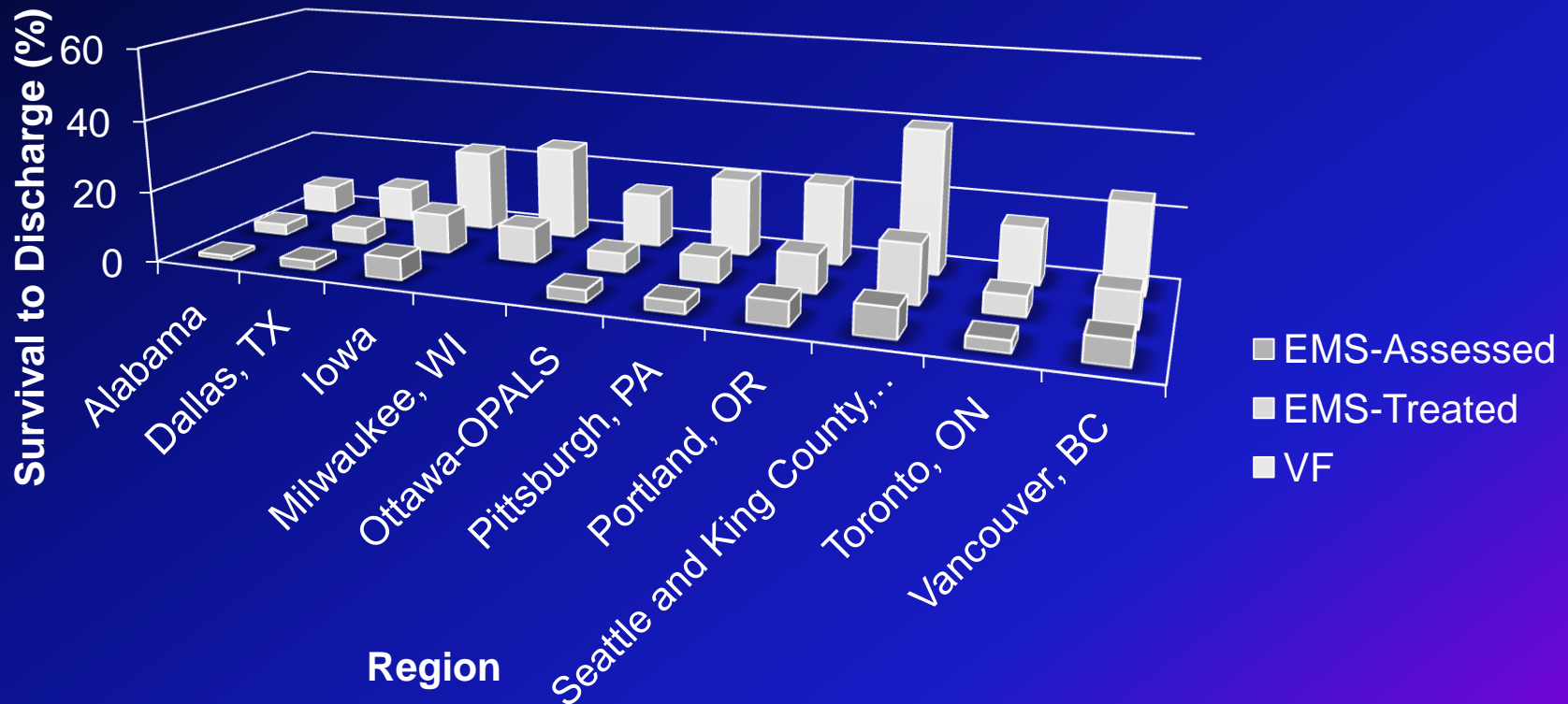




**So how do
we do?**

Enormous Regional Variations in Survival After OHCA

Nichol JAMA 2008

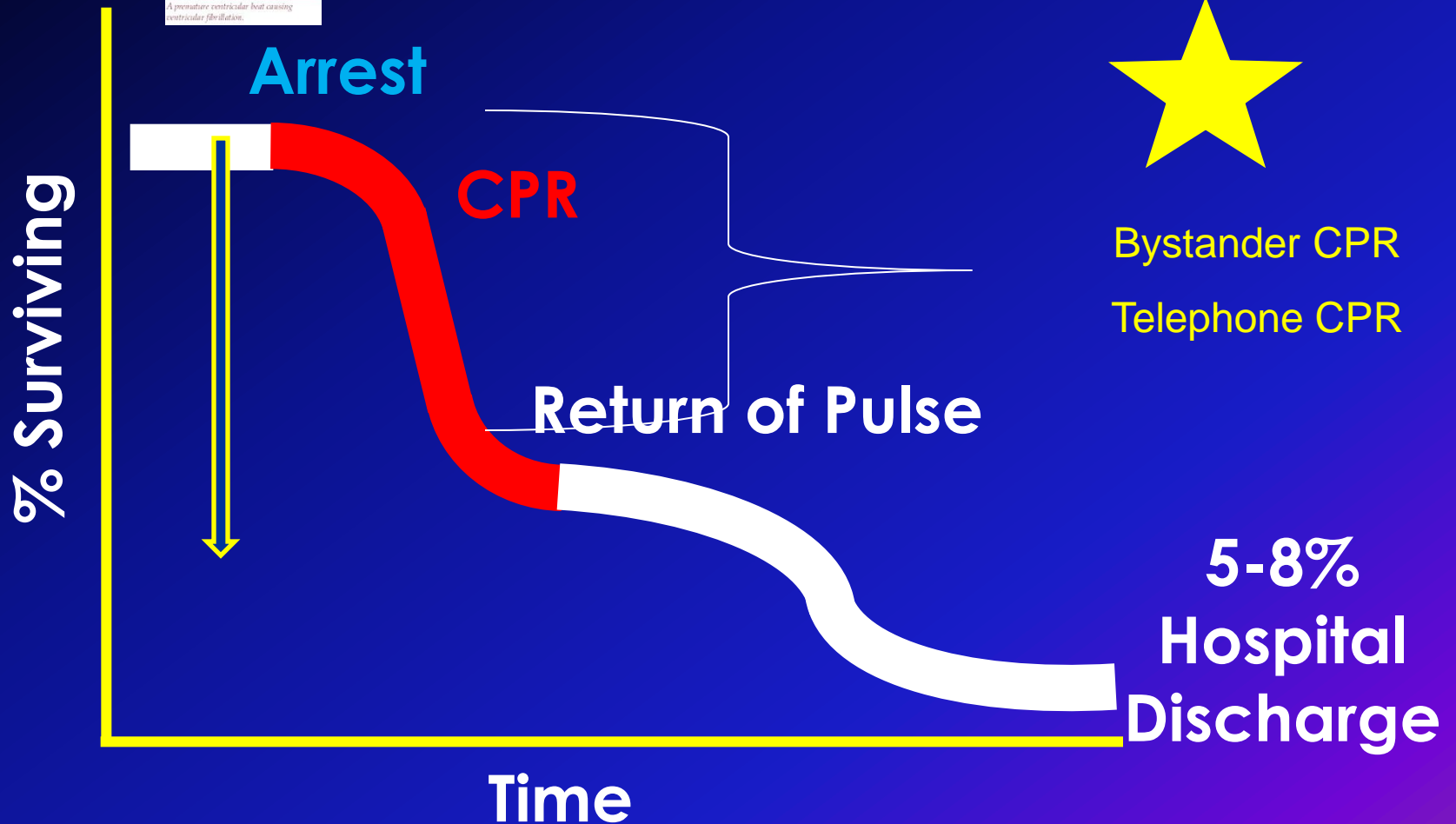
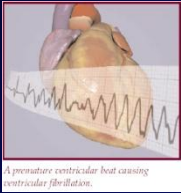


500% difference in survival

Micah's slide

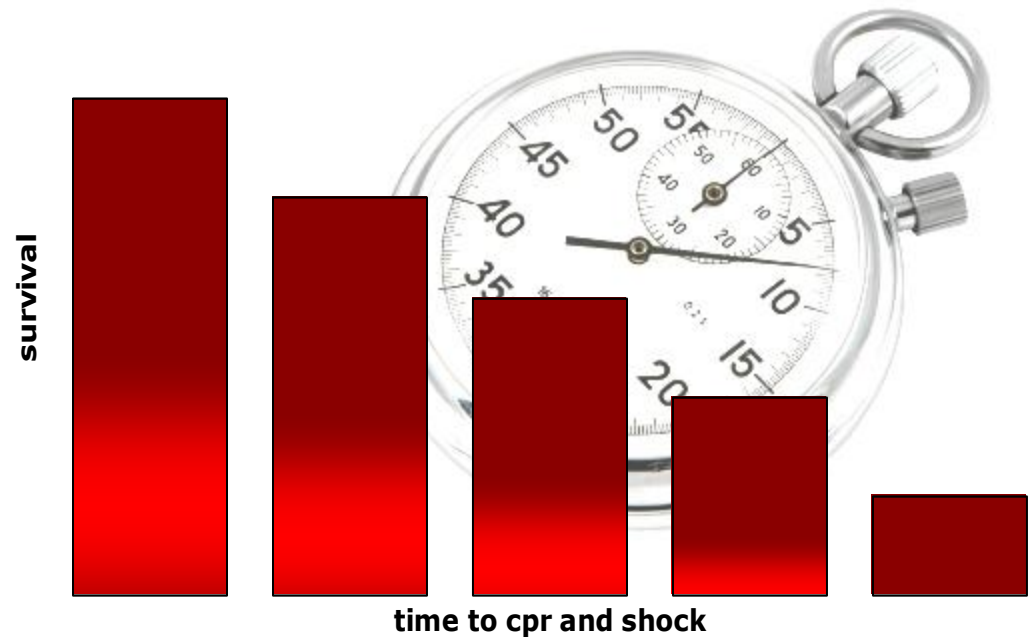
- Start with a fumbling call`
- Contrast with good call Seattle

The cardiac arrest problem

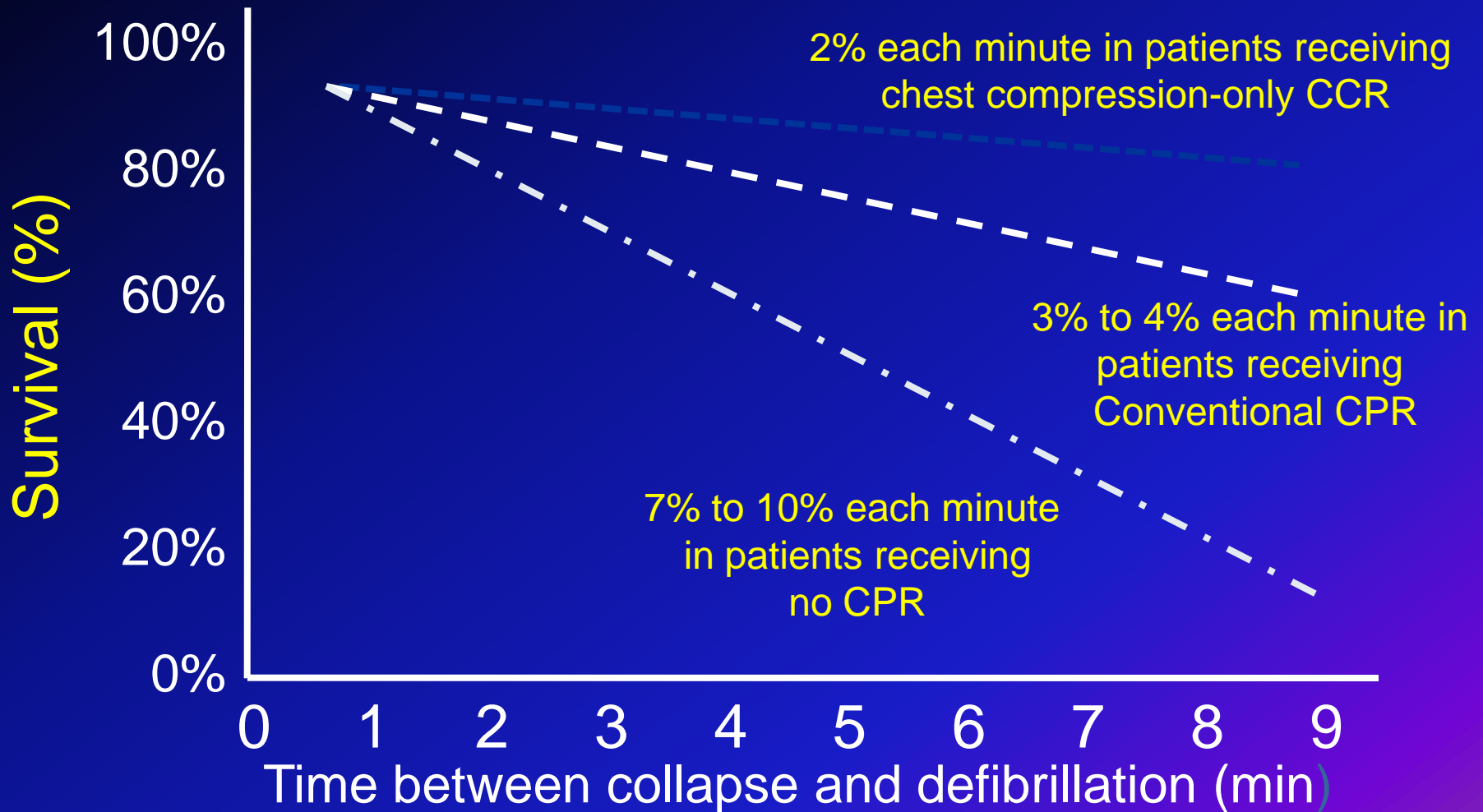


Time is Critical

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



Bystander CPR Improves Chance of Survival



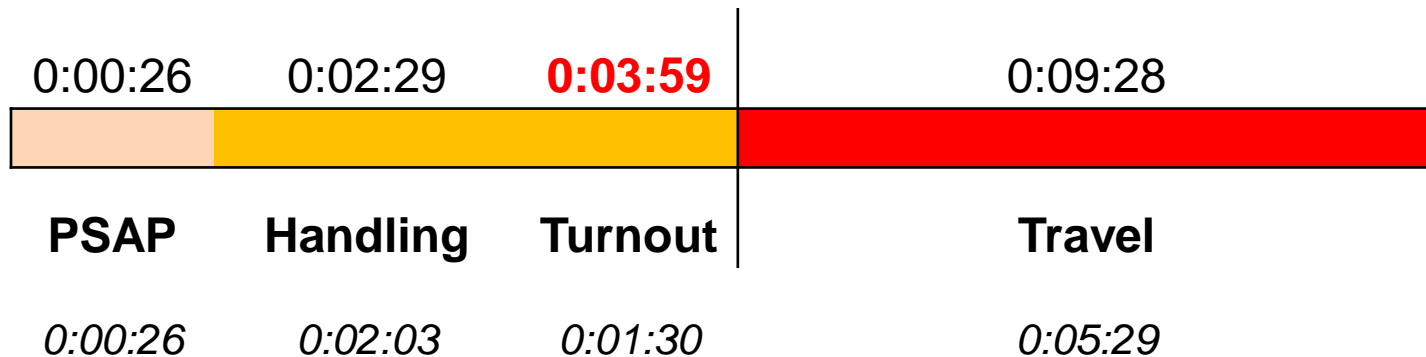
Response Times to Medical Calls *2010, in Glendale*

90% of Medical Responses:	NFPA <u>Goal</u>	GFD <u>Objective</u>	Actual <u>Time</u>
• Public Safety Answering Point	-	0:30	0:26
• Phoenix Call Handling	-	2:00	2:03
• Notify to En route (turnout)	1:00	1:40	1:30*
• En route to Arrive (travel)	<u>4:00</u>	<u>6:00</u>	<u>5:29*</u>
Total Response Time	5:00	10:10	9:28

**in Fire Department's ability to control*

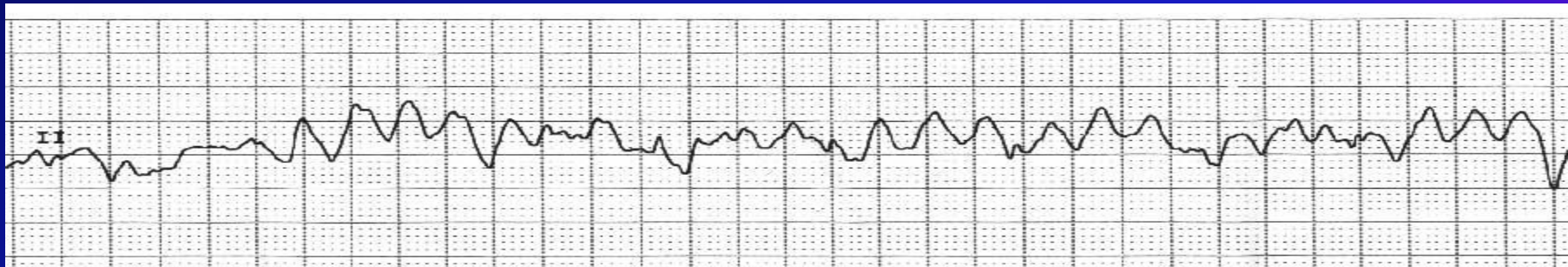
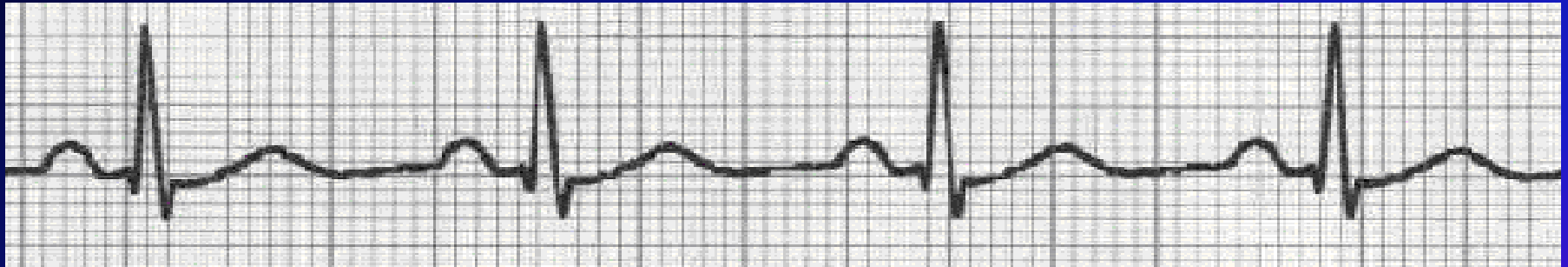
Cumulative Response Timeline 2010 in Glendale

With brain death occurring after only 4 minutes without CPR intervention, the patient is already dying when the engine leaves the station.



Sudden Cardiac Arrest

➤ What is it?

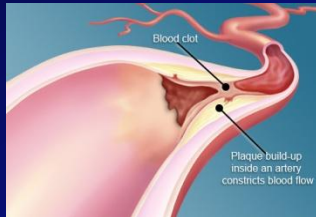


Sudden Cardiac Arrest

- Sudden loss of heart function
- Many due to ventricular fibrillation (abnormal heart rhythm)
- Commonly due to blocked heart artery

Some Causes of Cardiac Arrest

➤ Myocardial Infarction (Heart Attack)



➤ Arrhythmias (Can be Congenital)

➤ Respiratory arrest (ie., Asthma, FB)

➤ Drowning

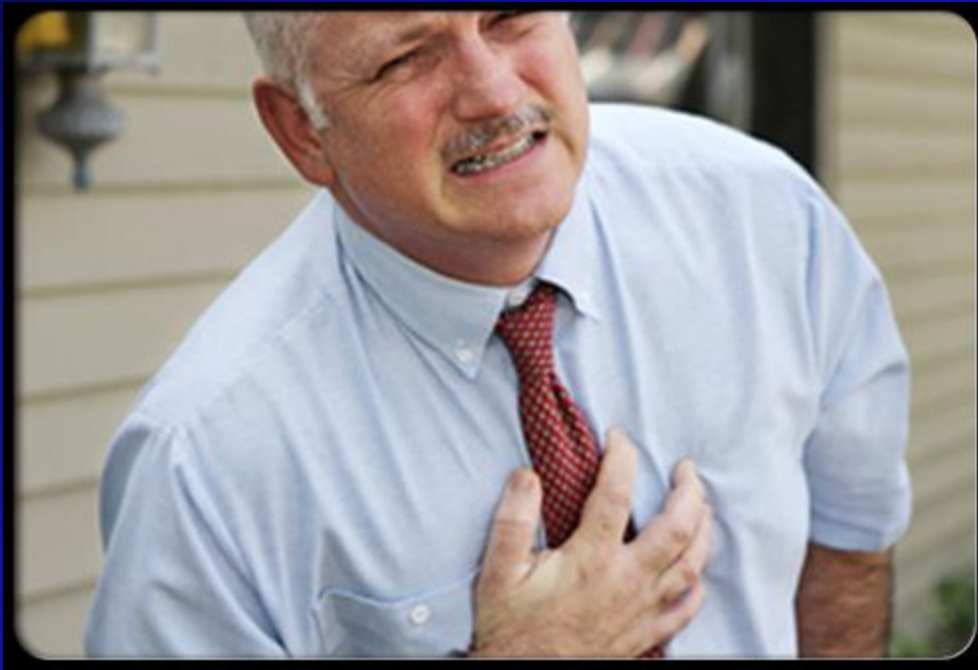
➤ Overdose

➤ Severe allergic reaction

➤ Other

Cardiac Arrest

- What does it *look* like?





Signs of Cardiac Arrest

- Sudden, unexpected collapse
- Unconsciousness, NO sign of life
- Abnormal breathing (gaspings) common
- Brief seizure - lack of oxygen to brain

Factors Contributing to Survival

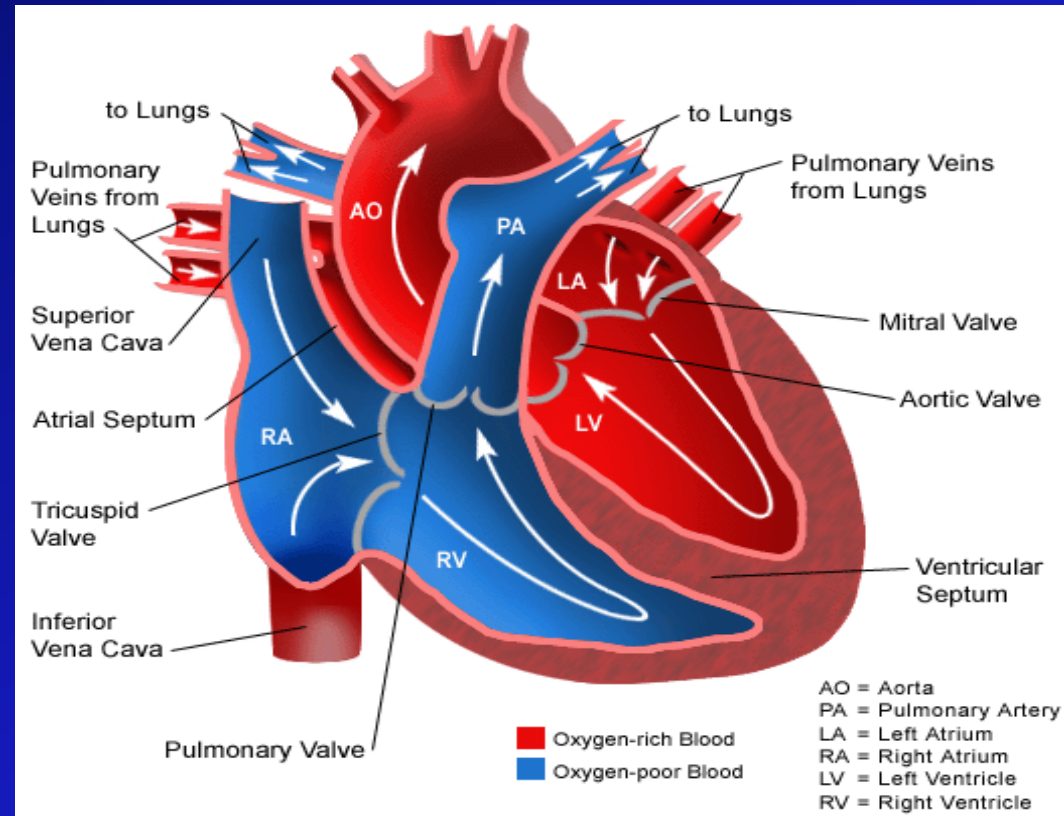
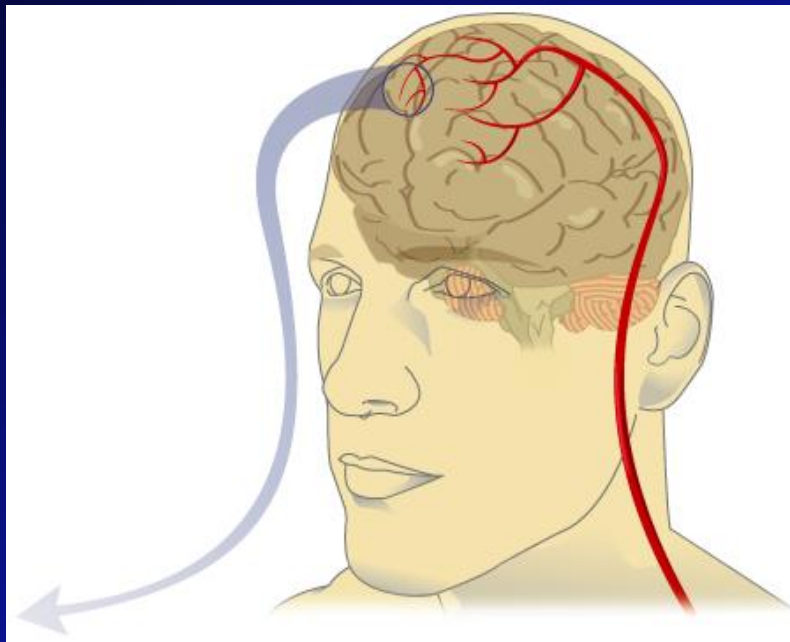


➤ Two Critical Elements to Survival:

1) Time from collapse to initiation of CPR

2) Time from collapse to application of AED

What REALLY Matters When Cardiac Arrest Strikes?



Brain – Heart – Brain – Heart – Brain – Heart – Brain – Heart – Brain - Heart

Video

- What we *need to maximize chance of survival?*

System of Care

Measurement

Public

EMS

Hospital





SHARE Program

Statewide OHCA Network

Municipal FDs
University Research
Public Health
Private Ambulance
Local Hospitals
Private Industry
Public Safety Officers
Public

Bureau of Emergency Medical Services & Trauma System Home

SHARE Home

About SHARE

Info for the Public

Info for Schools

Info for Businesses

Info for EMS Providers

Info for Dispatchers

Info for Cardiac Centers

Arizona Mission: Lifeline

Hands-Only CPR Video

Free Hands-Only CPR Class (non-certification)

Find AED Information

SHARE Published Papers

Training Resources

SHARE Contacts

Survivors

Useful Links

New CPR & SHARE in the News

En Español



SHARE Program
150 N. 18th Ave. Suite 540
Phoenix, AZ 85007
(602) 364-0580
(800) 200-8523
(602) 364-3568 Fax

Welcome to S.H.A.R.E. Save Hearts in Arizona Registry & Education



[CPR Dispatch Academy - Friday, Dec. 2, 2011. Tuition Free! Space Limited!](#)

[Read about EPIC, the Excellence in Prehospital Injury Care - Traumatic Brain Injury Project](#)

[Attention Students! Video Contest-Prizes!](#) DEADLINE EXTENDED!



Learn Hands-Only CPR. It's easy and it's safe. Be a lifesaver today!

[Hands-Only CPR Video](#)



Attend a free (non-certification) Hands-Only CPR training class.

[Hands-Only CPR Class](#)



Register your AED with SHARE, report AED use, and learn AED FAQs.

[Find AED Information](#)

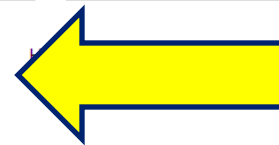


Learn more about cardiac arrest care. Check out our published papers.

[Published Papers](#)



0 7 5 2



751 lives saved and
[in be a lifesaver.](#)

SHARE Program

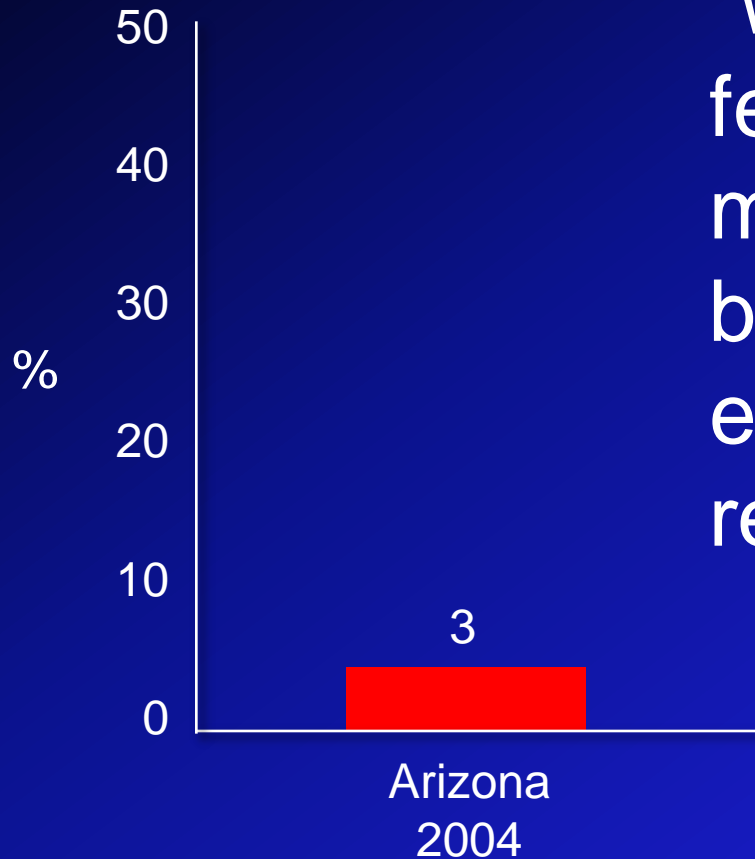
Would you know what to do if an adult suddenly collapses and is unresponsive? The Arizona Department of Health Services Bureau of Emergency Medical Services & Trauma System and the University of Arizona Sarver Heart Center want your answer to always be YES! That's why they have established the SHARE Program.

The SHARE Program promotes a comprehensive, standardized system of out-of-hospital cardiac arrest care throughout Arizona encompassing all "links" in the "chain of survival"—bystander response, emergency medical dispatcher CPR instruction, Emergency Medical Services provider resuscitation, and standardized care at hospitals. SHARE also seeks to support survivors of out-of-hospital cardiac arrest by providing them with helpful resources.

SHARE has partnered with many groups to collect and analyze data related to all aspects of out-of-hospital cardiac arrest care. We collect information on Hands-Only CPR training, Automated External Defibrillator (AED) uses, EMS response, and hospital treatments. Our partners include agencies and organizations within our state, as well as national groups such as the American Heart Association. Working together we promote evidence-based treatment and improve survival from out-of-hospital cardiac arrest.

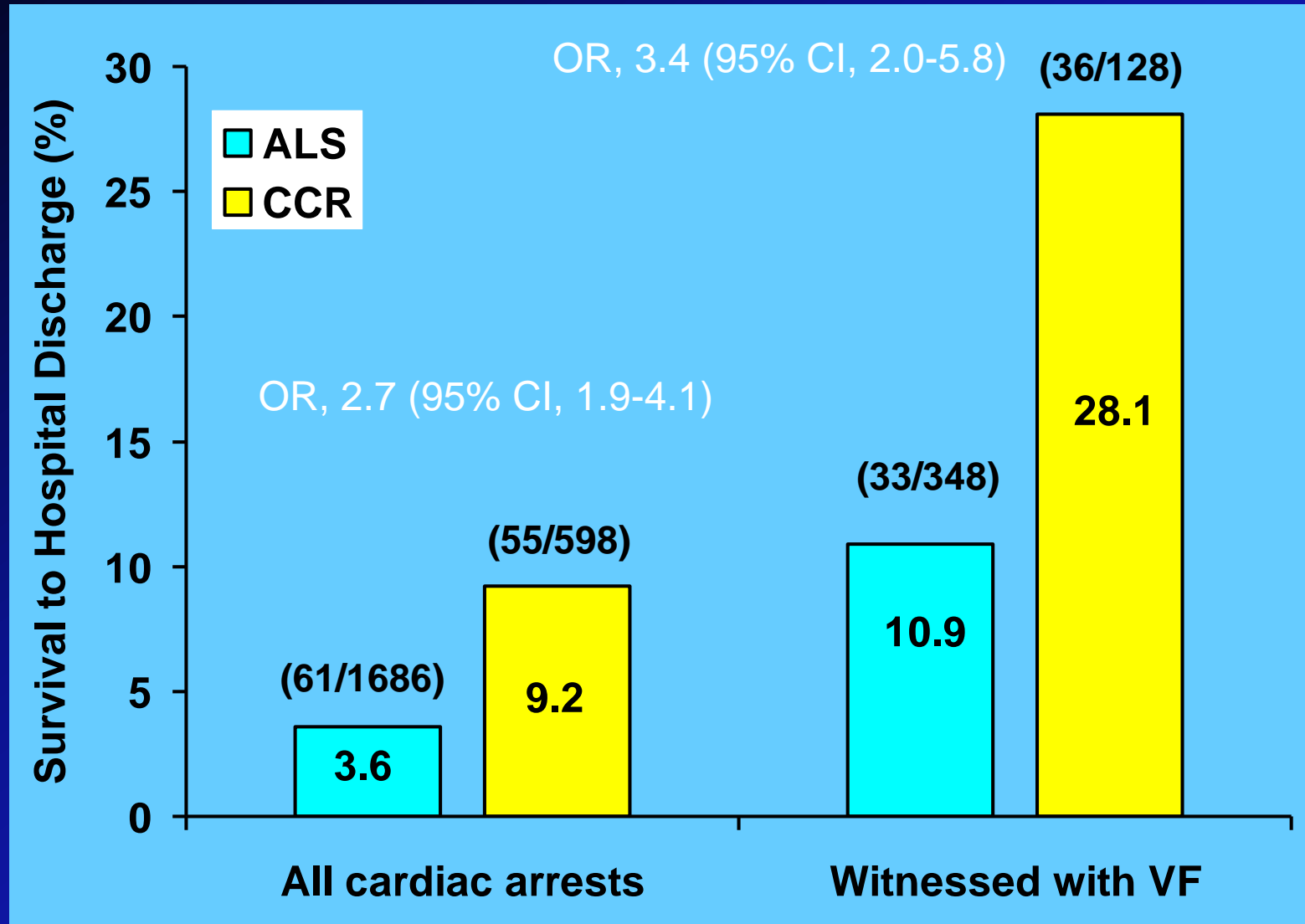
Note: Files indicated as PDF require Adobe [Acrobat Reader™](#) to view.

OHCA Survival in Arizona



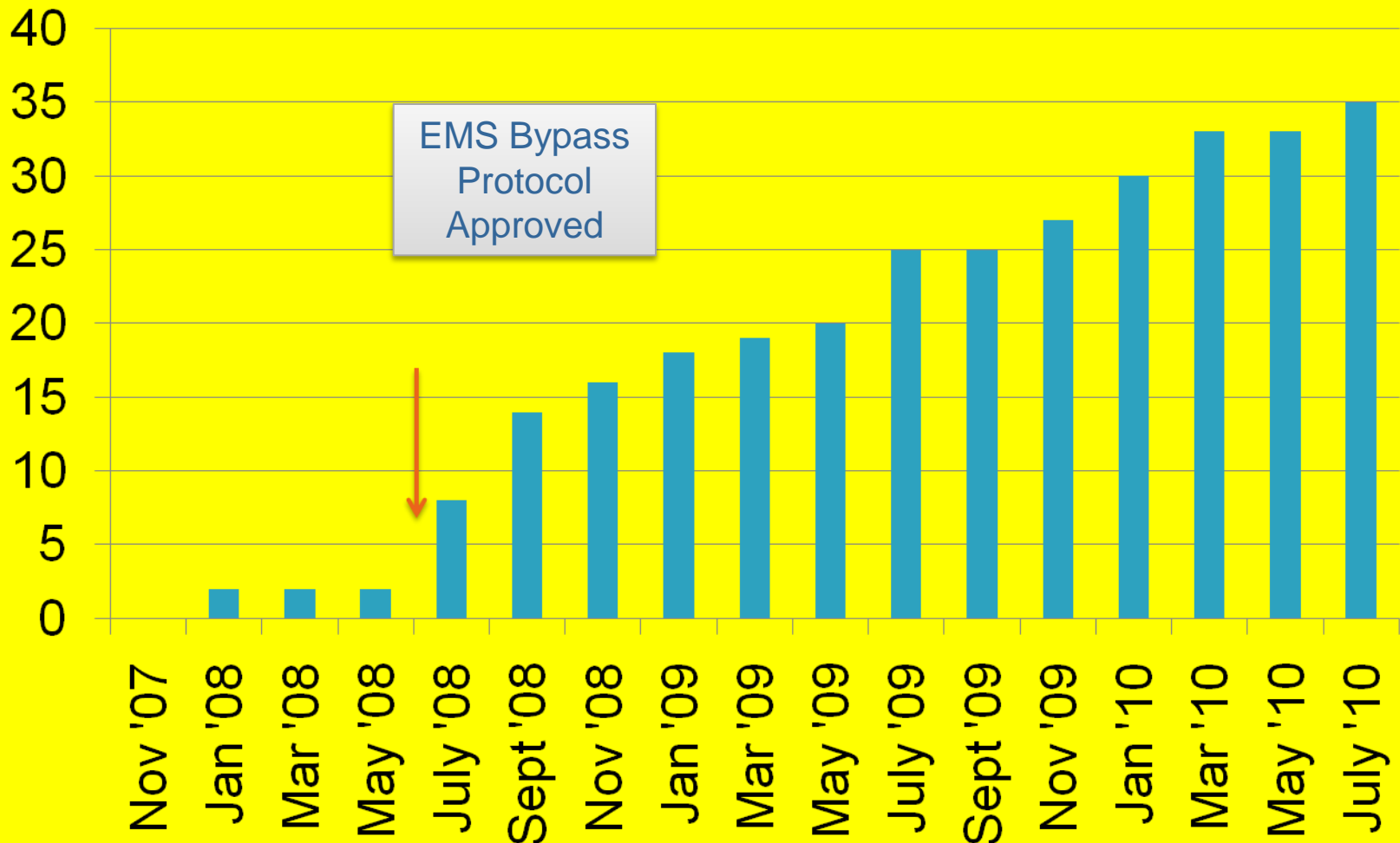
“With so few survivors, we felt compelled to make modifications to protocol based upon current evidence and track the results closely.”

Minimally Interrupted Cardiac Resuscitation

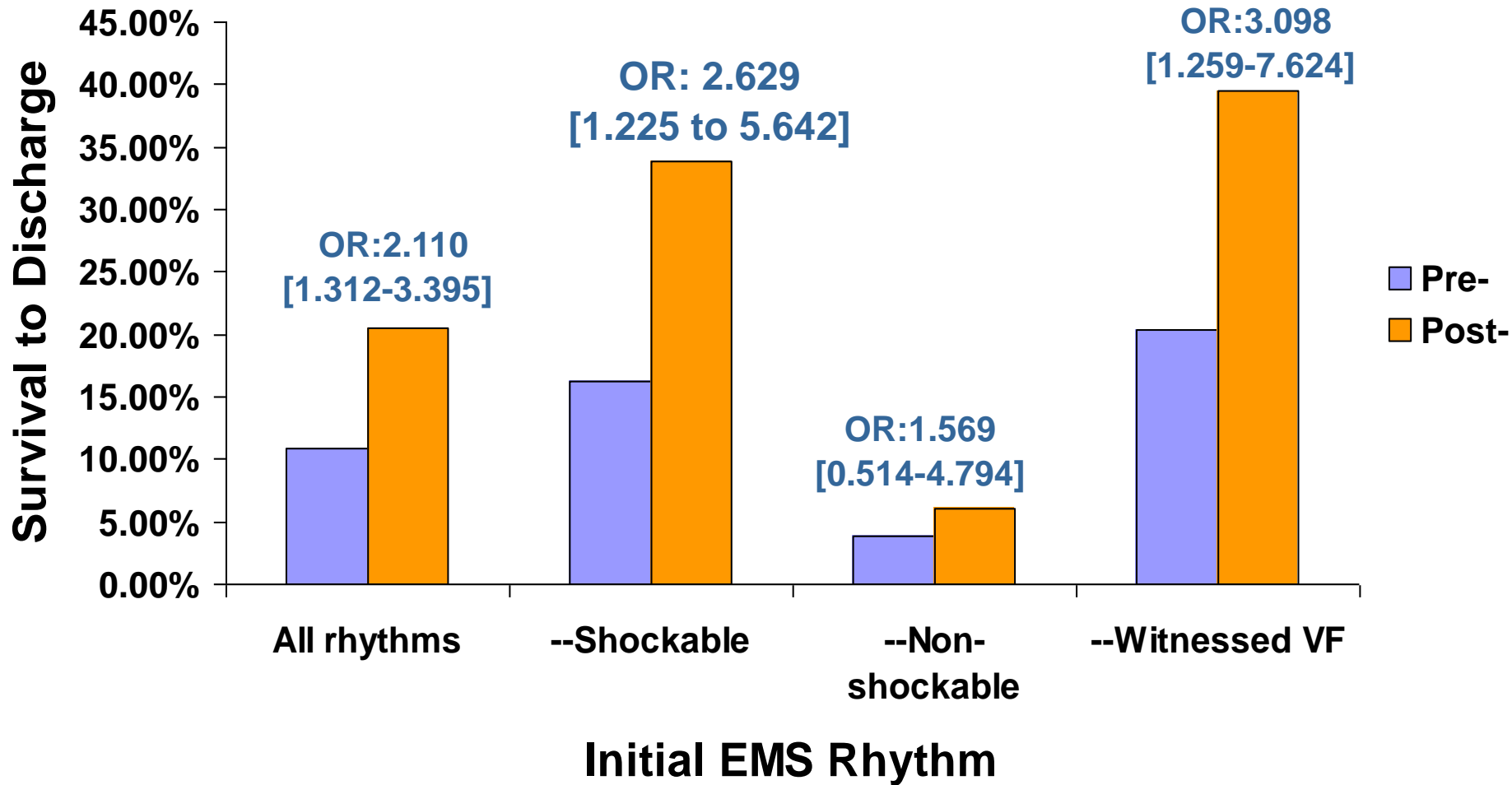


Cardiac Receiving Center Enrollment

Number of Hospitals

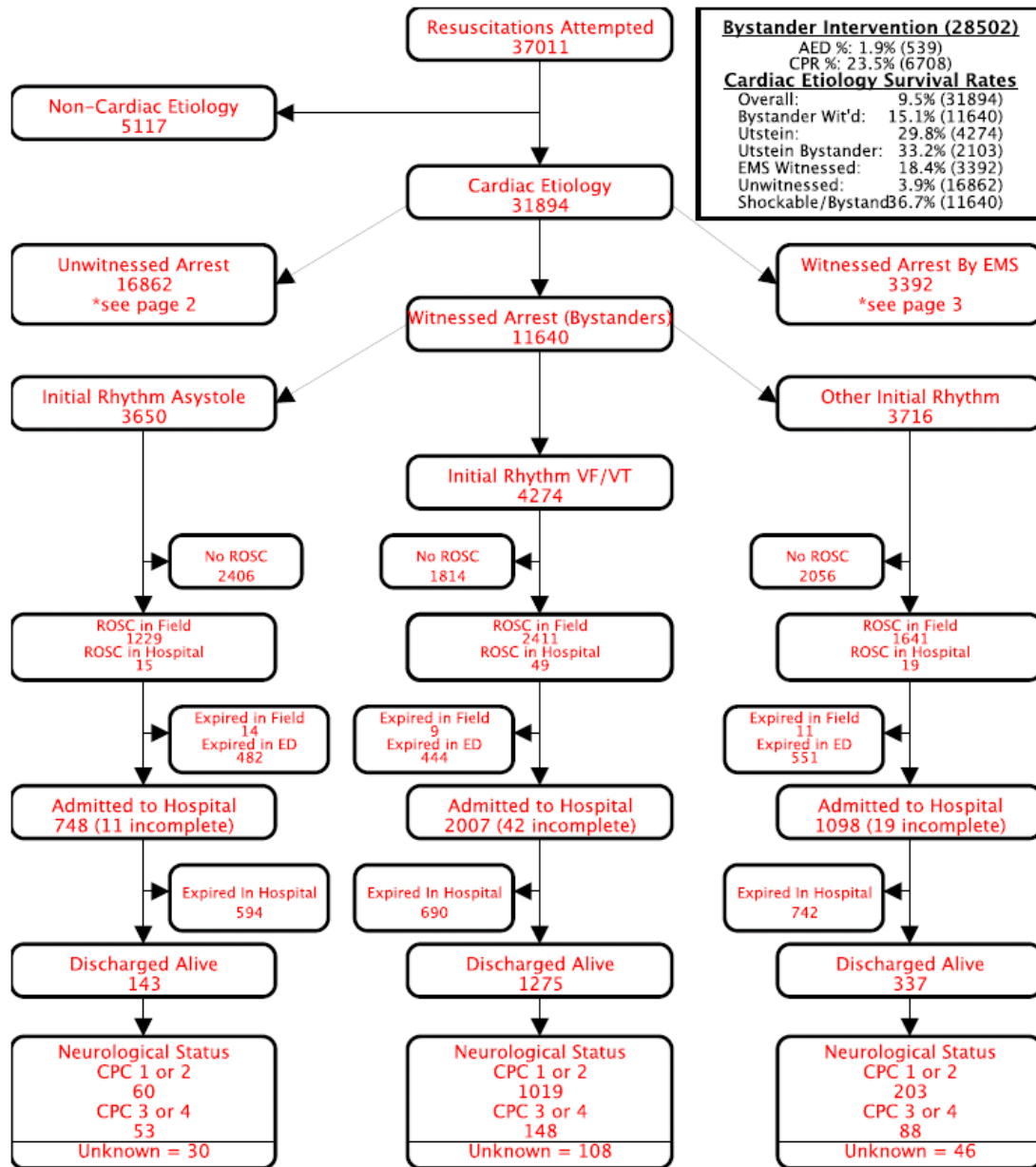


Results



Utstein Survival Report

Agency Group: National | Service Date: From 10/1/05 Through 12/31/10



Great Importance of Bystander CPR

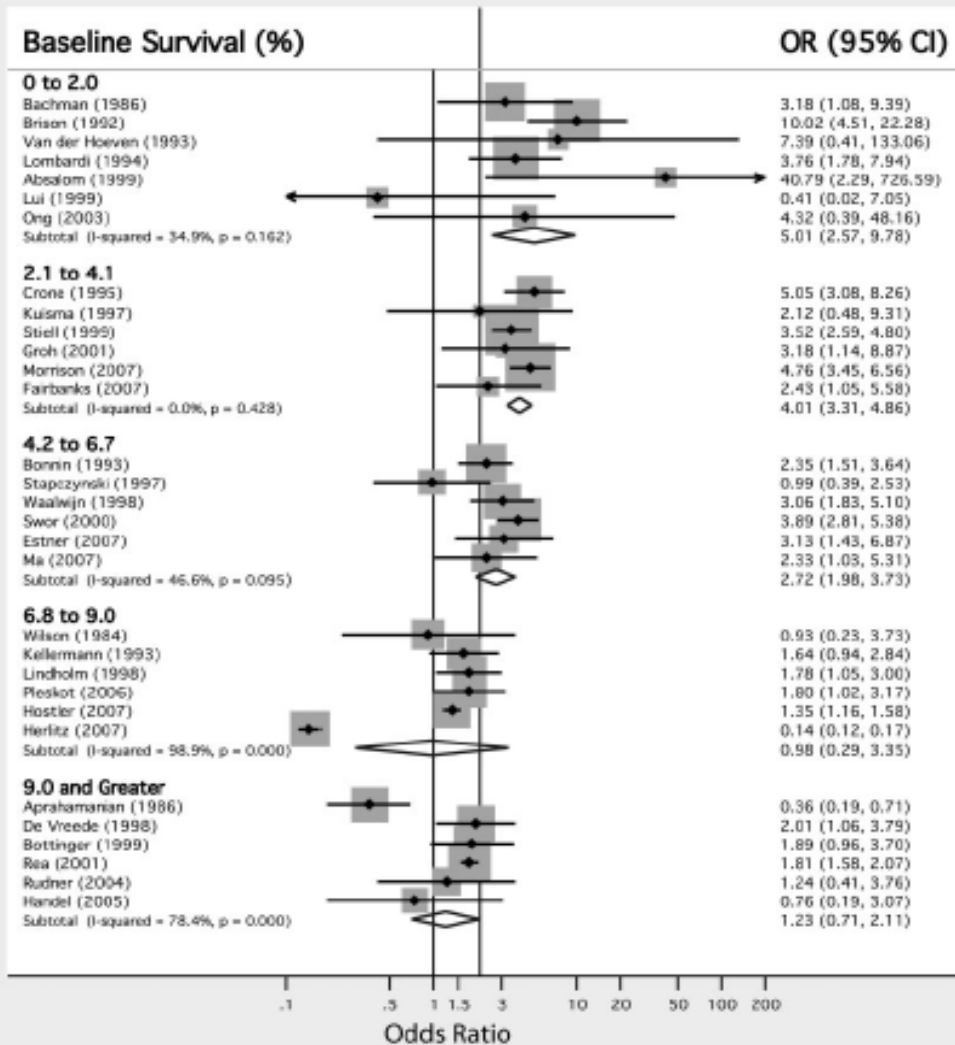


Figure 5. Forest plot of studies reporting bystander CPR stratified by baseline survival.

The OR for Bystander CPR was **2.44** (95% CI, 1.69-3.19)

(Sasson et al. *Circulation: Cardiovascular Quality and Outcomes* Nov. 2009.)

Wang

Should we institute Dispatcher Assisted CPR?

Bystander CPR Rates

- 32% New York (Gallagher, 1995)
- 21% Detroit (Swor, 1995)
- 15% Ontario, Canada (Stiell, 2004)
- 19% Europe, (Wenzel, 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)

Obstacles to Bystander CPR

- Panic
- Fear of causing harm
- False Teeth
- Cant get person to the floor
- Reluctant bystander
- Aversion to MTM breathing
- Fear of infection
- Can you think of any others?



LEMONADE

Lend A Heart A Hand
Hands-Only CPR
Minutes

Lend A Heart A Hand
Hands-Only CPR
Minutes

Guardian
Medical Transport

ASU
Instructor
ABSA/NSA

P  **Bus Stop**
792-9222

**New CPR
developed
here.**



THE UNIVERSITY
OF ARIZONA

35



CLEAR CHANNEL

Be a Lifesaver.

Learn Continuous
Chest Compression CPR.

THE UNIVERSITY OF
ARIZONA
SARVER HEART CENTER

626-4083

UMC
UNIVERSITY MEDICAL CENTER

002912



Brief PSAs with Governor and Celebs

YouTube - Steve Nash SHARE 30 sec PSA - Windows Internet Explorer

http://www.youtube.com/watch?v=c8hVH2pAI_0&playnext=1&list=PL850060AB9B629851

File Edit View Favorites Tools Help

YouTube - Steve Nash SHARE 30 sec PSA

YouTube steve nash cpr Search Browse Upload Create Account Sign In

Steve Nash SHARE 30 sec PSA

AZDHS 147 videos Subscribe

Steve Nash, Phoenix Suns

0:03 / 0:34 360p 169 views

Like Add to Share Embed

AZDHS Apr 21, 2008 0 likes 0 dislikes
ADHS REMSTS SHARE Program PSA

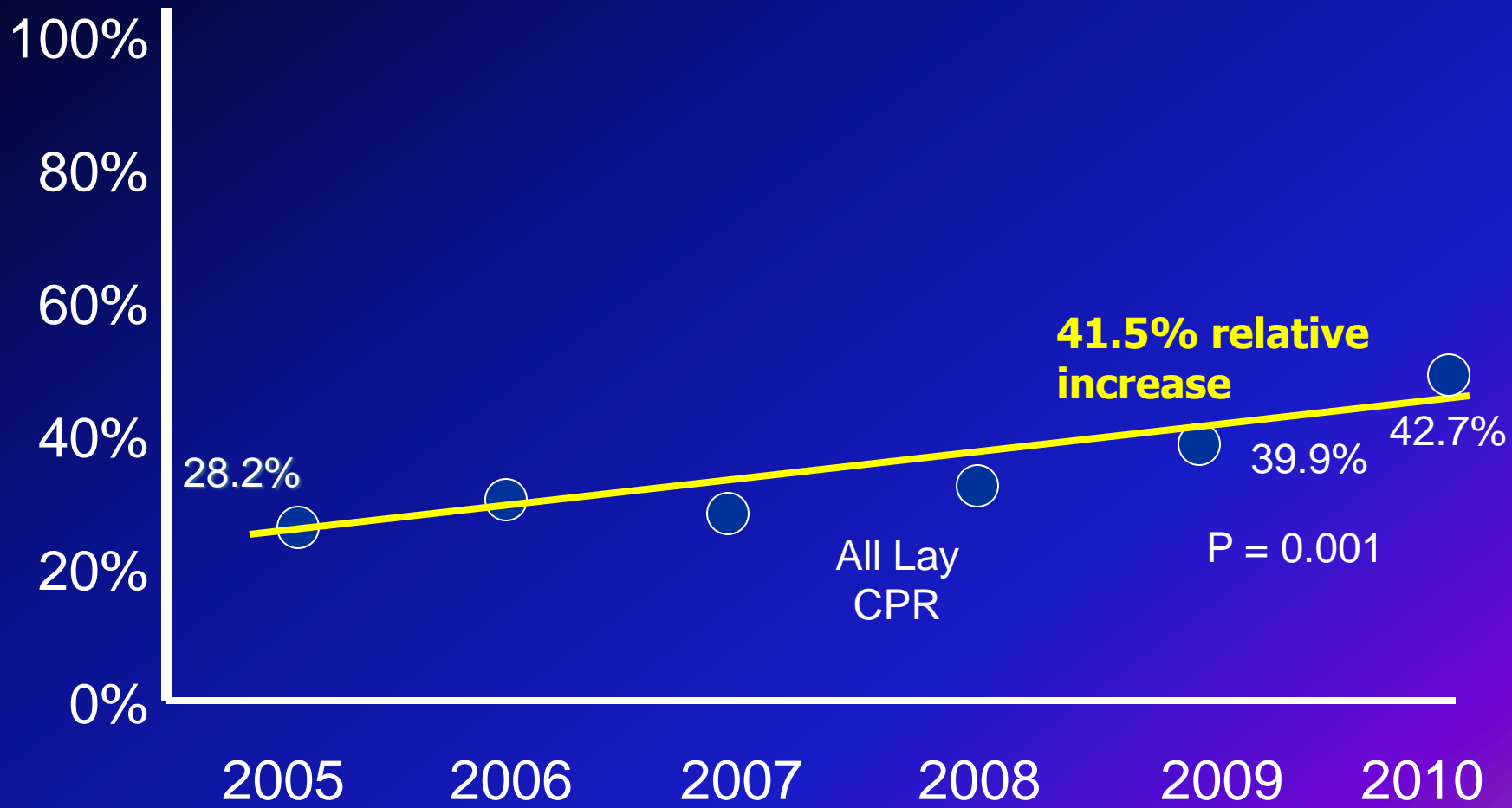
Suggestions

- Become SHARE Aware, Part 2 (Spanish) by AZDHS 184 views
- Become SHARE Aware, Part 1 by AZDHS 1,729 views
- Steve Nash SHARE 60 sec PSA (Spanish) by AZDHS 301 views
- Continuous Chest Compression CPR - Mayo by AZDHS 4,456,316 views
- Steve Nash playing behind my building in Tribec... by NYFashion1 1,559 views
- ESPN 30 for 30: Into the Wind by Steve Nash & E... Turn autoplay off

Bureau of Emergency Medical Services SHARE Program (17) Options

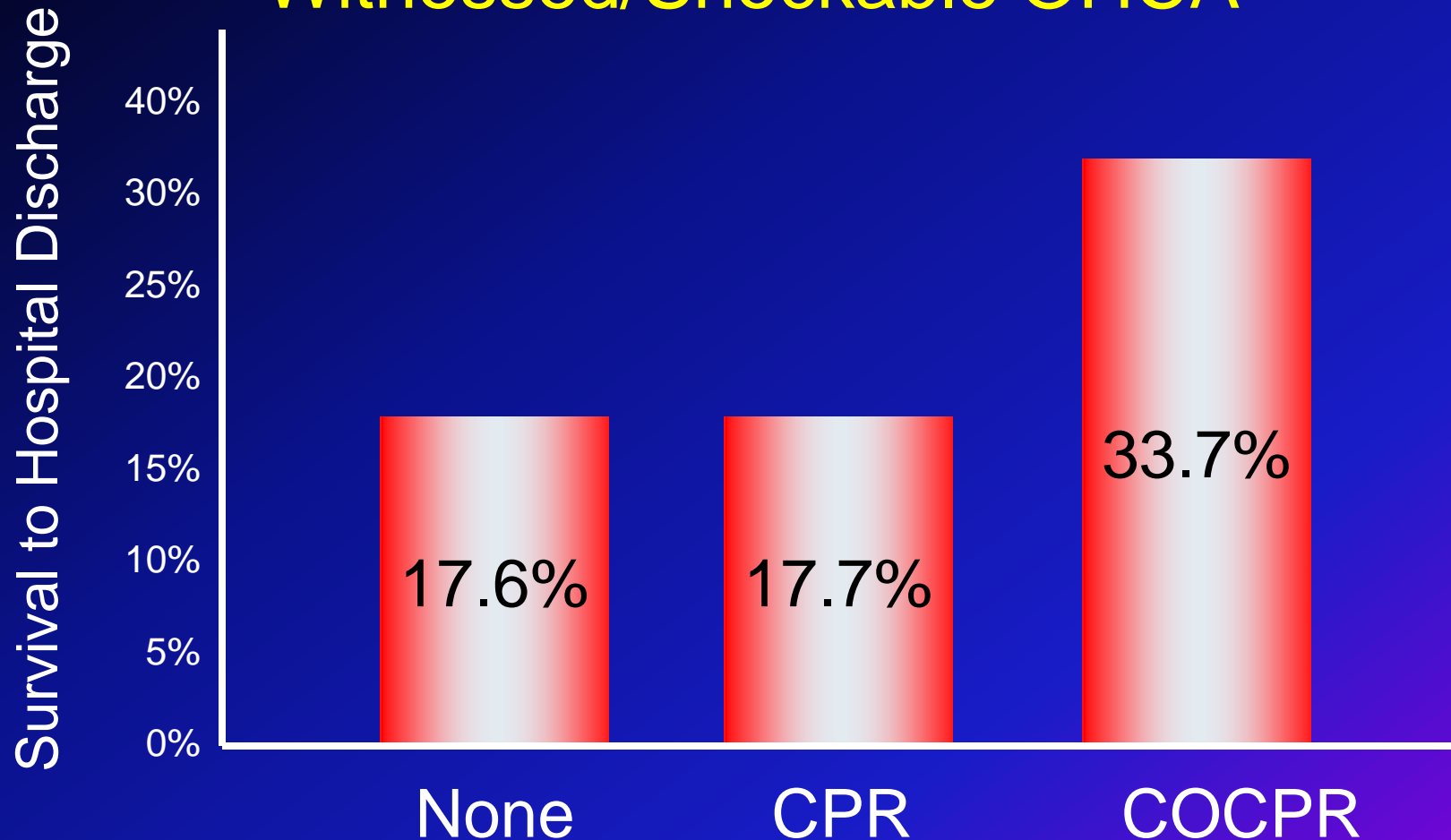
start tr_HeartRescue_ACE... USAToday 2010 CPR Across America -... YouTube - Steve Nas... Internet 100% 6:59 PM

Bystander CPR: Incidence and Type



Bystander CPR for OHCA in Arizona (2005 to 2010)

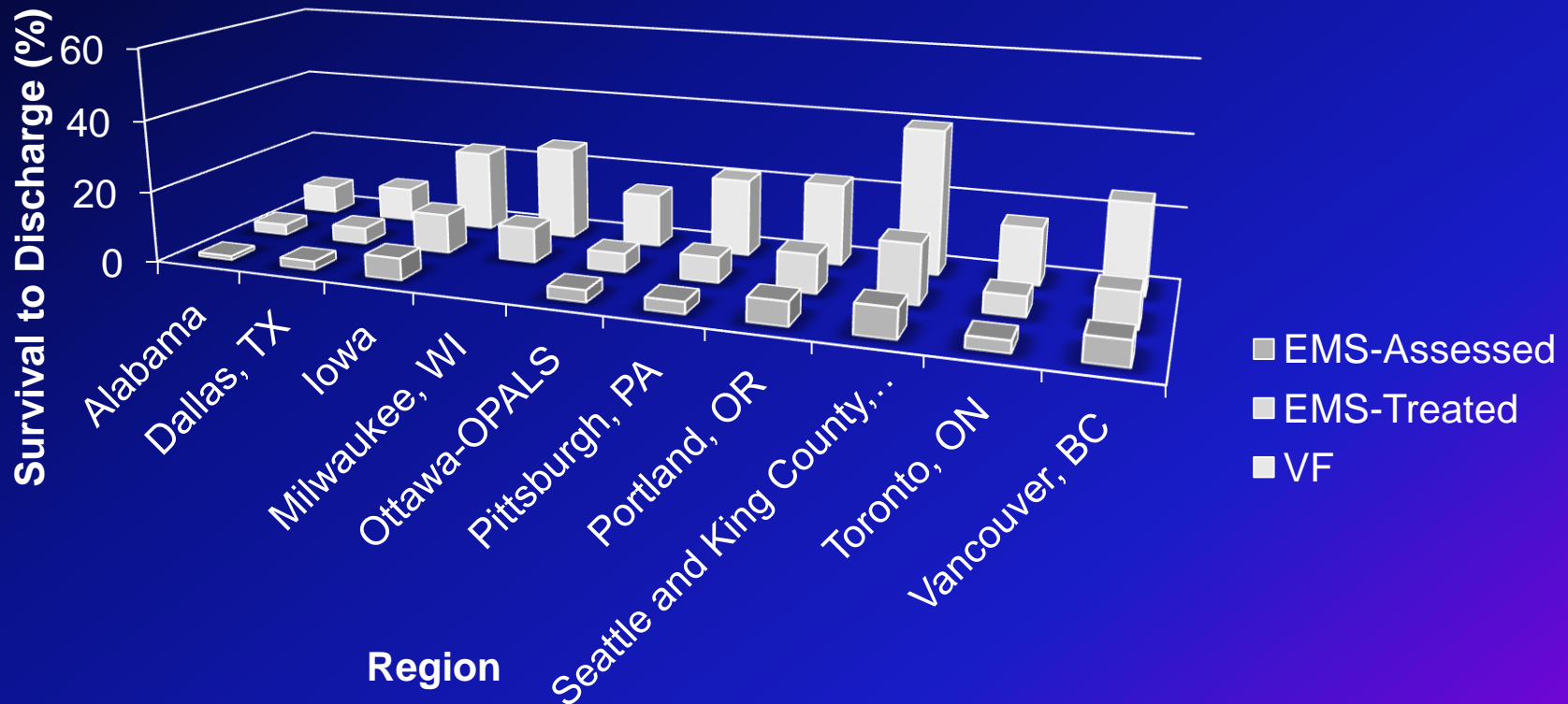
Witnessed/Shockable OHCA



Bobrow, Spate, Ewy et al. submitted JAMA 2010

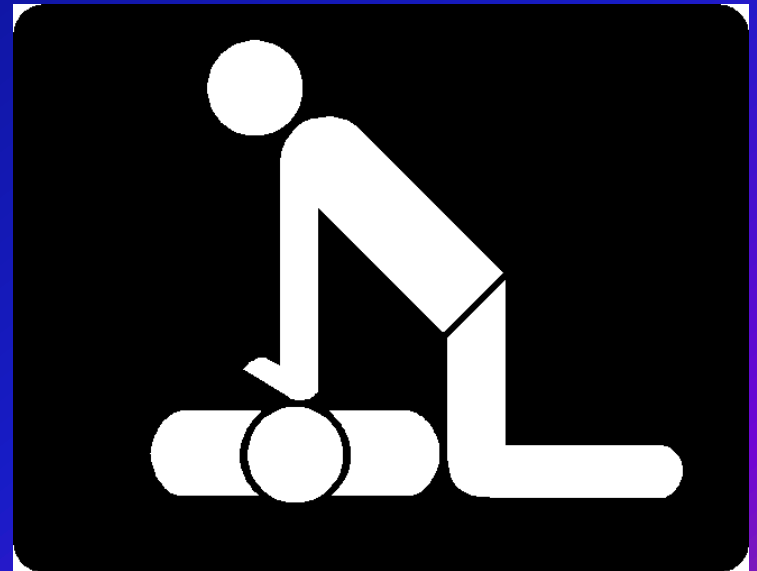
Enormous Regional Variations in Survival After OHCA

Nichol JAMA 2008



500% difference in survival

What is the Secret Sauce?



7265 OHCA's
55.9% received BCPR
25.7% received DA-CPR
30.2% received BCP without DA

Clinical Investigation and Reports

Dispatcher-Assisted Cardiopulmonary Resuscitation and Survival in Cardiac Arrest

Thomas D. Rea, MD, MPH; Mickey S. Eisenberg, MD, PhD; Linda L. Culley, BA; Linda Becker, MA

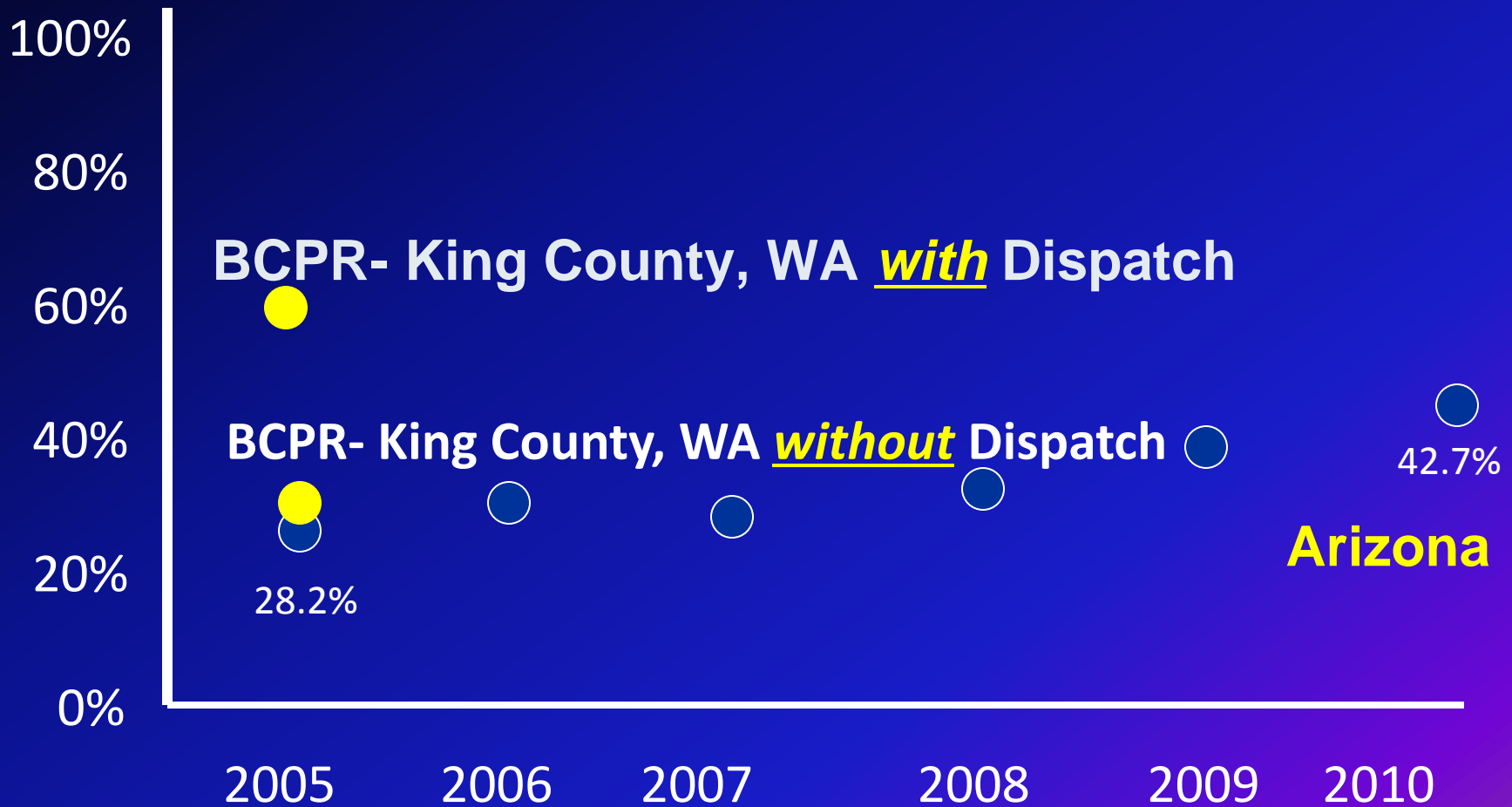
Background—Early cardiopulmonary resuscitation (CPR) improves survival in out-of-hospital cardiac arrest, and dispatcher-delivered instruction in CPR can increase the proportion of arrest victims who receive bystander CPR before emergency medical service (EMS) arrival. However, little is known about the survival effectiveness of dispatcher-delivered telephone CPR instruction.

Methods and Results—We evaluated a population-based cohort of EMS-attended adult cardiac arrests (n=7265) from 1983 through 2000 in King County, Washington, to assess the association between survival to hospital discharge and 3 distinct CPR groups: no bystander CPR before EMS arrival (no bystander CPR), bystander CPR before EMS arrival requiring dispatcher instruction (dispatcher-assisted bystander CPR), and bystander CPR before EMS arrival not requiring dispatcher instruction (bystander CPR without dispatcher assistance). In this cohort, 44.1% received no bystander CPR before EMS arrival, 25.7% received dispatcher-assisted bystander CPR, and 30.2% received bystander CPR without dispatcher assistance. Overall survival was 15.3%. Using no bystander CPR as the reference group, the multivariate adjusted odds ratio of survival was 1.45 (95% confidence interval [CI], 1.21, 1.73) for dispatcher-assisted bystander CPR and 1.69 (95% CI, 1.42, 2.01) for bystander CPR without dispatcher assistance.

Conclusion—Dispatcher-assisted bystander CPR seems to increase survival in cardiac arrest. (*Circulation*. 2001;104:2513-2516.)

Key Words: heart arrest ■ cardiopulmonary resuscitation ■ arrhythmia ■ resuscitation ■ death, sudden

Bystander CPR



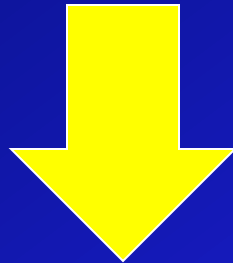
Dispatcher-Assisted Telephone CPR

- Starting CPR within minutes after collapse is **critical**
- *Therefore, dispatcher-assisted CPR **must** be provided*
- “EMS dispatch has an **enormous opportunity** to provide lifesaving CPR instructions to the public”

Dispatch Assisted CPR



More Bystander CPR



More Survivors

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).

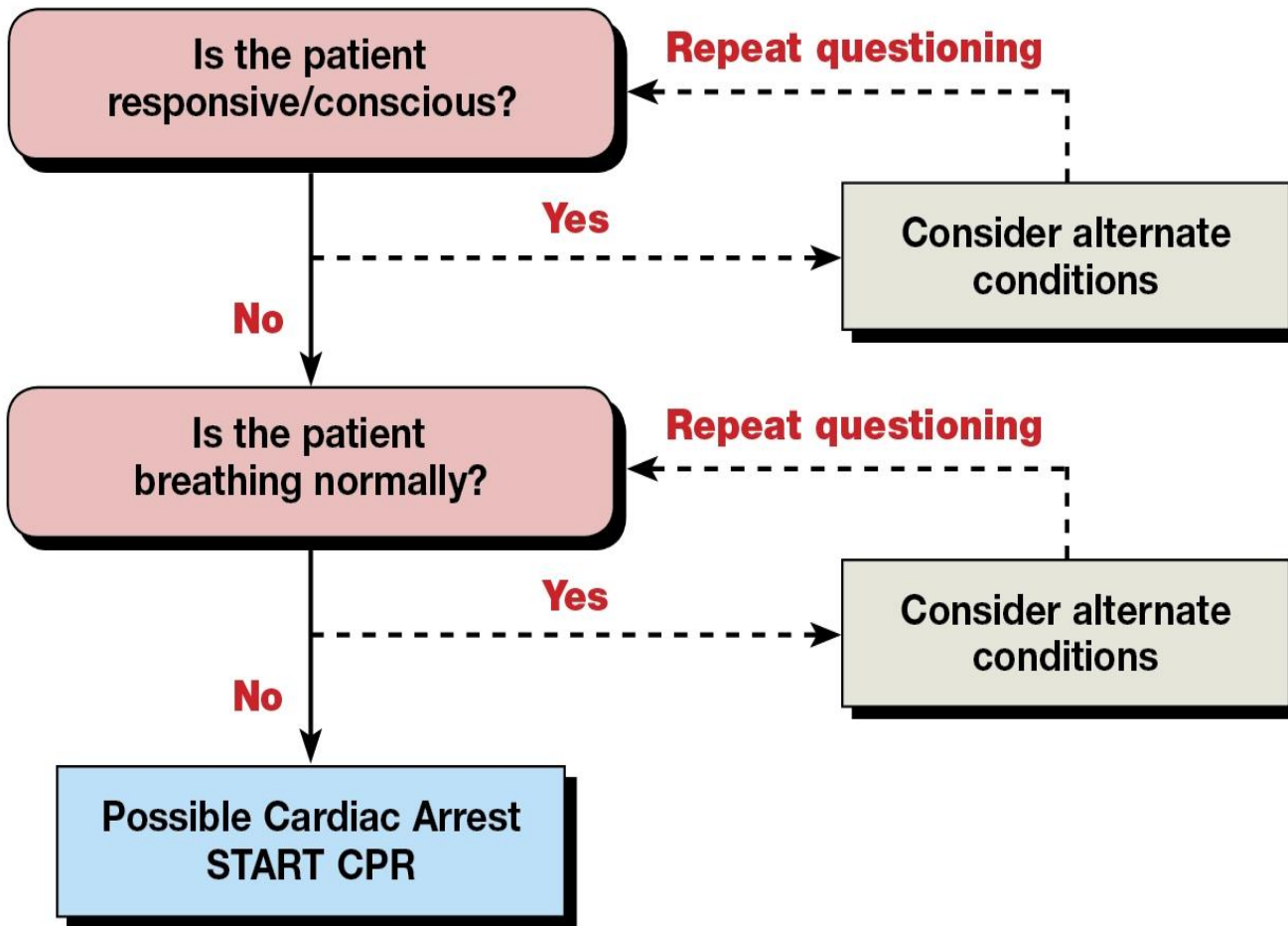
2010 AHA Guidelines

“Just-in-time education in the form of telephone CPR instructions, referred to as CPR prearrival instructions, can provide callers with step-by-step instructions on how to perform CPR. Unfortunately, prearrival instructions are not available to all callers who access the 9-1-1.”

The Key Points to Dispatch-Assisted CPR

- Identify cardiac arrest **early** in the call
- Don't be afraid to **start** CPR (little risk of harm)
- Be **assertive** – “were going to do CPR, I'll help you”
- Be **confident** with instructions
- Effective CPR coaching to caller – rate, depth, continue

2-Question Approach

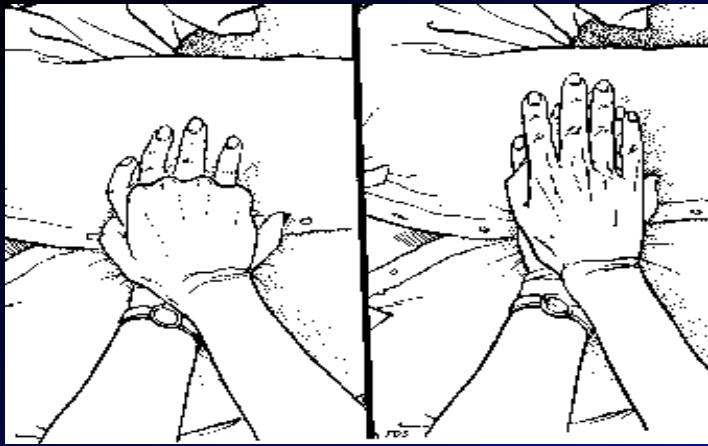


Breathing

How to ask the question:

- *If unsure about breathing normally, interrogate further:*
 - Does the patient's chest rise & fall normally?
 - Describe the patient's breathing
 - Listen for sounds & frequency of breaths
 - Place phone next to victim

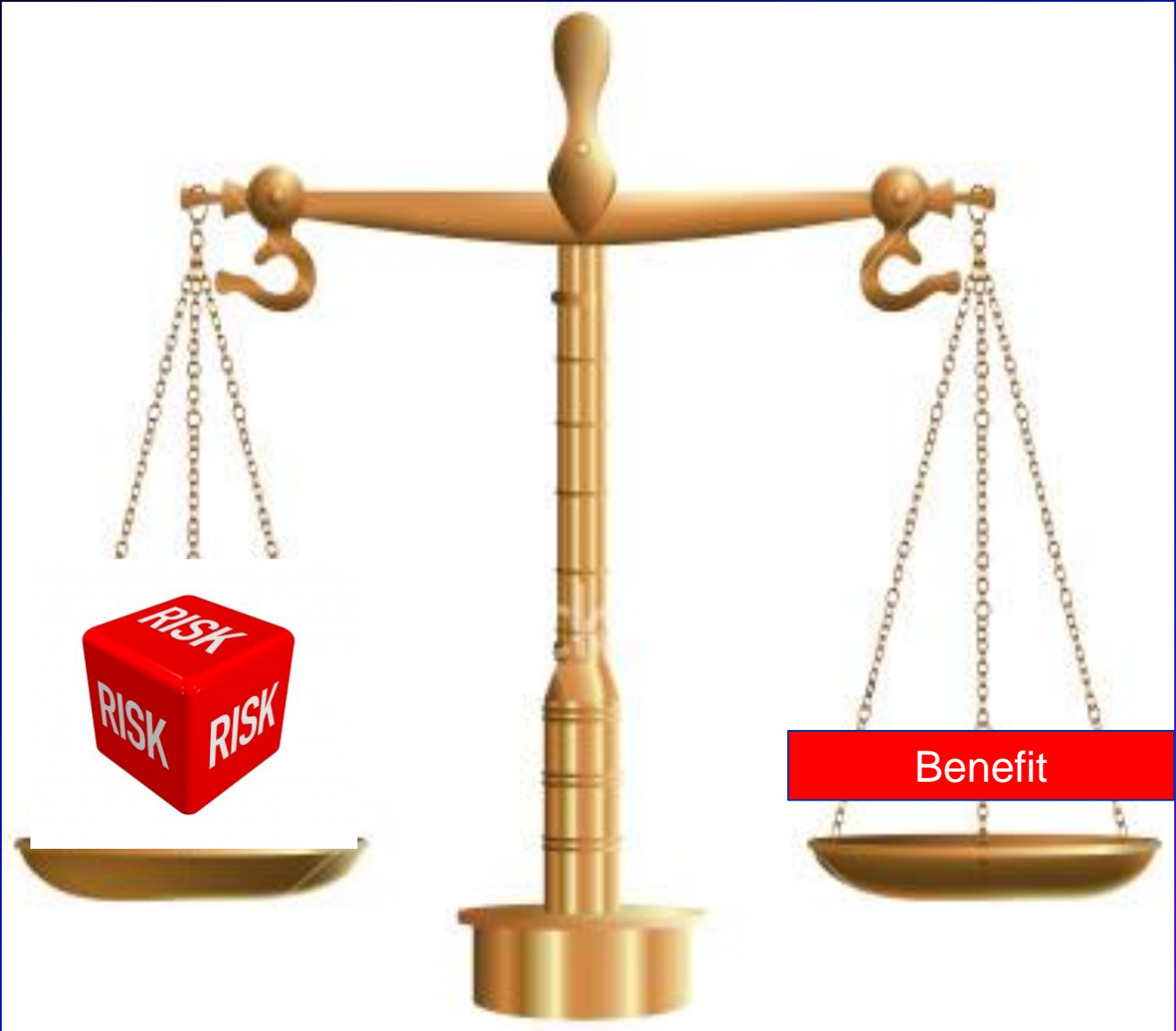
How do I Instruct Hands-Only CPR?



**Get the victim on the floor

- **Kneel** beside him/her
- Place **one hand on top** of the **other**
- **Lock** your **elbows**
- Aim for the **middle** of the **chest**
- **Push hard** and **fast**
 - **At least 100 compressions per minute**
 - Need to push at least 2 inches each compression & let chest rise
 - No stopping, switch rescuers if you think they are tiring

CPR or No CPR?



Dispatcher-Assisted Cardiopulmonary Resuscitation Risks for Patients Not in Cardiac Arrest

Lindsay White, MPH; Joseph Rogers, MS; Megan Bloomingdale; Carol Fahrenbruch, MSPH;
Linda Culley, BA; Cleo Subido, RPL; Mickey Eisenberg, MD, PhD; Thomas Rea, MD, MPH

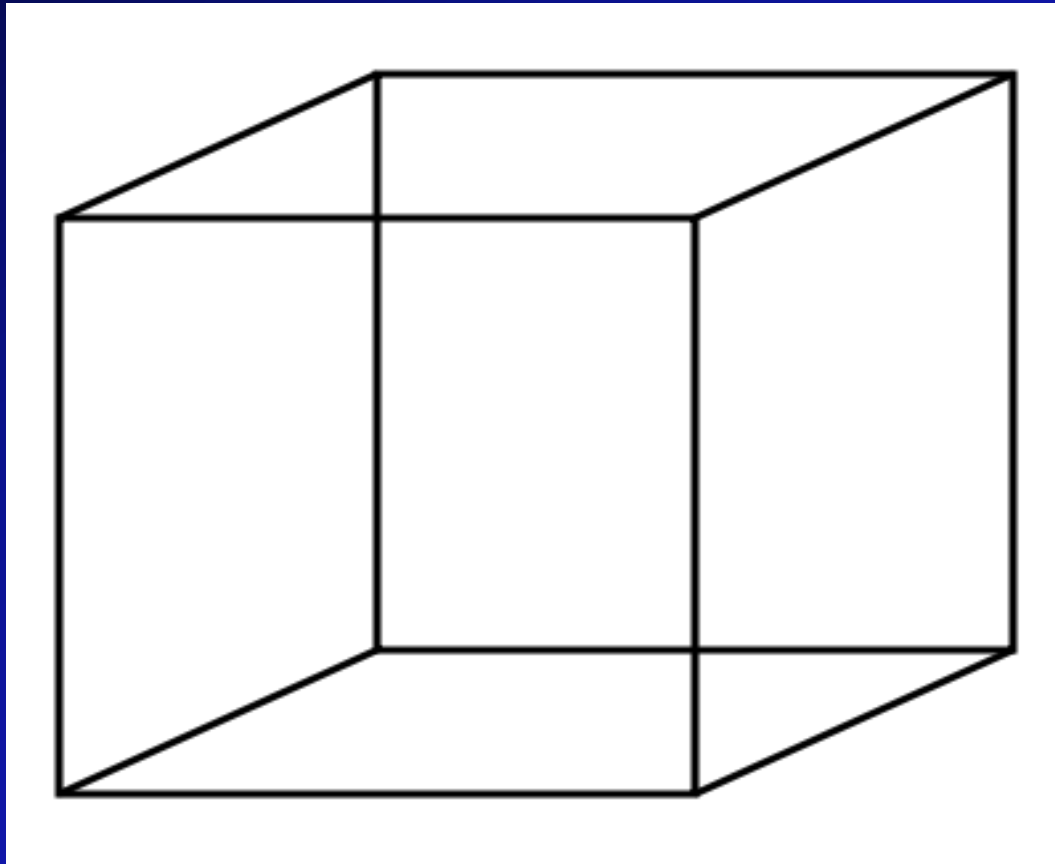
Background—Dispatcher-assisted cardiopulmonary resuscitation (CPR) instructions can increase bystander CPR and thereby increase the rate of survival from cardiac arrest. The risk of bystander CPR for patients not in arrest is uncertain and has implications for how assertive dispatch is in instructing CPR. We determined the frequency of dispatcher-assisted CPR for patients not in arrest and the frequency and severity of injury related to chest compressions.

Methods and Results—The investigation was a prospective cohort study of adult patients not in cardiac arrest for whom dispatchers provided CPR instructions in King County, Washington, between June 1, 2004, and January 31, 2007. The study focused on those who received chest compressions. Information was collected through review of the audio and written dispatch report, written emergency medical services report, hospital record, and telephone survey. Of the 1700 patients for whom dispatcher CPR instructions were initiated, 55% (938 of 1700) were in arrest, 45% (762 of 1700) were not in arrest, and 18% (313 of 1700) were not in arrest and received bystander chest compressions. Of the 247 not in arrest who received chest compressions and had complete outcome ascertainment, 12% (29 of 247) experienced discomfort, and 2% (6 of 247) sustained injuries likely or possibly caused by bystander CPR. Only 2% (5 of 247) suffered a fracture, and no patients suffered visceral organ injury.

Conclusions—In this prospective study, the frequency of serious injury related to dispatcher-assisted bystander CPR among nonarrest patients was low. When coupled with the established benefits of bystander CPR among those with arrest, these results support an assertive program of dispatcher-assisted CPR. (*Circulation*. 2010;121:91-97.)

Key Words: cardiopulmonary resuscitation ■ complications ■ dispatcher ■ epidemiology ■ morbidity

Paradigm Shift



DA-CPR Program Goal

1. All 911 callers in Arizona aiding a cardiac arrest victim receive clear, immediate type appropriate CPR instructions.
2. This intervention is accurately measured, benchmarked and becomes the culture of the your Dispatch Center and then across dispatch centers in Arizona.

Program Goal

- To facilitate change in 9-1-1 dispatch centers in Arizona and develop a culture of measurement and continuous quality improvement of this critical intervention.

Measurement and Evaluation

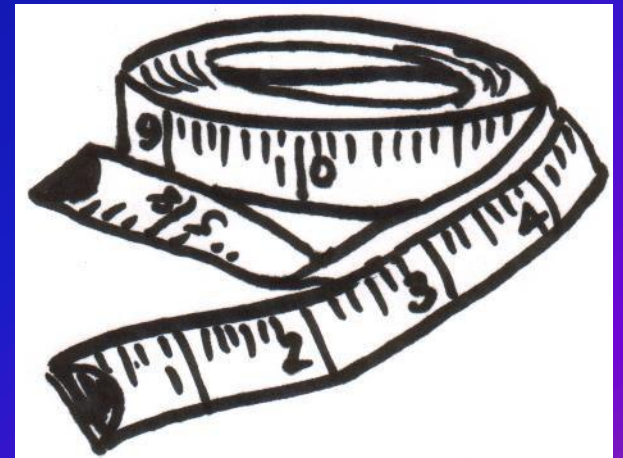
DA-CPR will be measured by:

1. -Tracking 9-1-1 centers trained
2. - Tracking 9-1-1 call takers trained
3. - Tracking DA-CPR at 9-1-1 centers
4. - Audit of 9-1-1 calls with feedback to centers
5. - Continuing to measure bystander CPR rates
6. - Continuing to measure survival rates

You cannot improve what you can't measure!

Resuscitation systems should institute CQI processes to track the incidence and outcomes from cardiac arrest.

– 2010 ECC & CPR Guidelines



Measurement is Key

- Cardiac Arrest Identified?
- Appropriate Instructions Given
- Time to Cardiac Arrest ID
- Time to First Chest Compression

What we will do

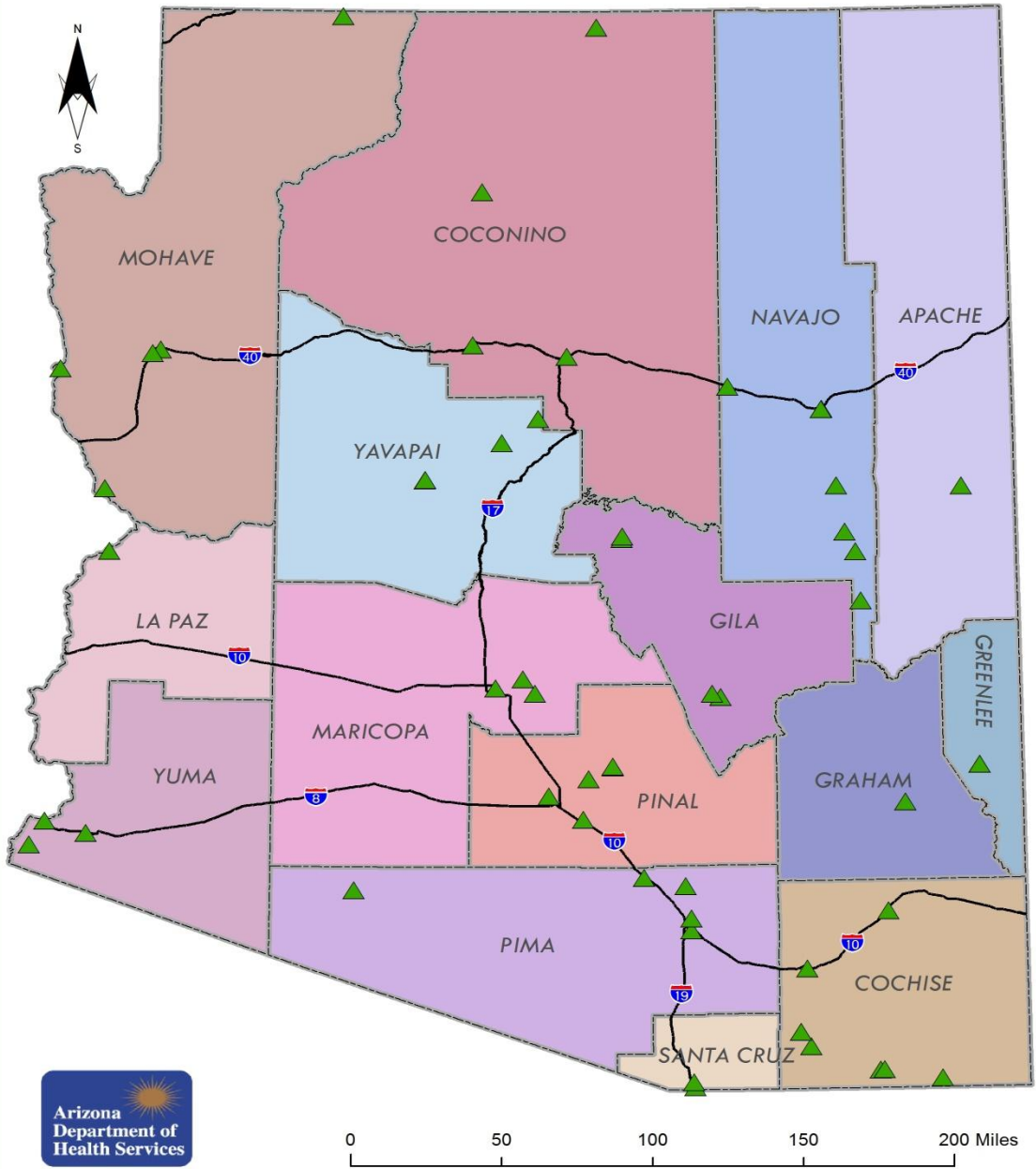
Update all dispatchers with new Guidelines

- Online pre-training
 - This video, protocols, reference material
- Live training with simulated calls
- Online post-training resources
- Ongoing refresher training

Establish on-going QI process

- review all CPR calls
- provide regular feedback for dispatchers
- measure frequency, quality, and time intervals for CPR instruction process
- measure impact on bystander CPR rates and survival

PUBLIC-SAFETY ANSWERING POINTS OF ARIZONA



We Can Do It!



J. M. Flaherty



WAR PRODUCTION CO-ORDINATING COMMITTEE

PRINTED IN U.S.A.

CPR DISPATCH ACADEMY

Friday, December 2, 2011



SESSIONS INCLUDE

- THE SCIENCE OF CPR
- ROLE OF 9-1-1 PERSONNEL IN THE CHAIN OF SURVIVAL
- KEY ELEMENTS FOR SAVING LIVES
- SMALL GROUP TRAINING

- WHO: Emergency dispatchers and 9-1-1 call takers
- WHAT: A dynamic, hands-on workshop exploring telephone-assisted CPR, a tool to TRIPLE the odds of survival for victims of sudden cardiac arrest.
Good for EMT CE credits
- WHEN: 0800-1600 Friday, December 2, 2011
(Lunch provided)
- WHERE: The Arizona State Laboratory
250 N. 17th Avenue, Phoenix, AZ 85007

SPACE IS LIMITED!
TUITION IS FREE!



Visit dispatchacademy.eventbrite.com
to register

Thank you



On Behalf of the SHARE Team
www.azshare.gov

Acknowledgement

We are sincerely grateful for the dedication and the sacrifices that the paramedics & firefighters make daily in the line of duty