

# Survival from Sudden Cardiac Arrest (SCA) in San Diego

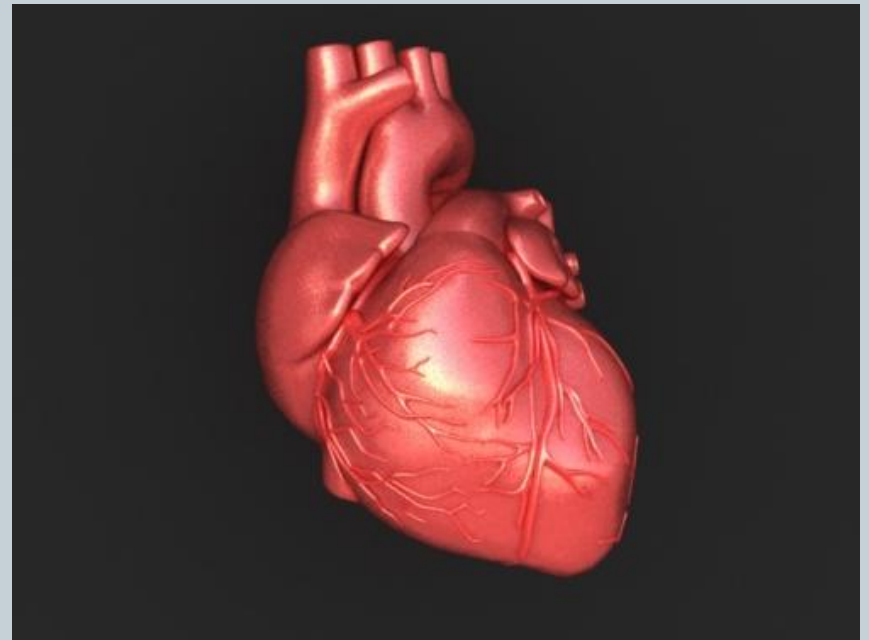


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EMS MEDICAL DIRECTOR**

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UCSD DEPARTMENT OF  
EMERGENCY MEDICINE**

# Heart Disease = #1 Killer

- 300,000 people suffer sudden out-of-hospital cardiac arrest (OOH-CA) in the United States annually



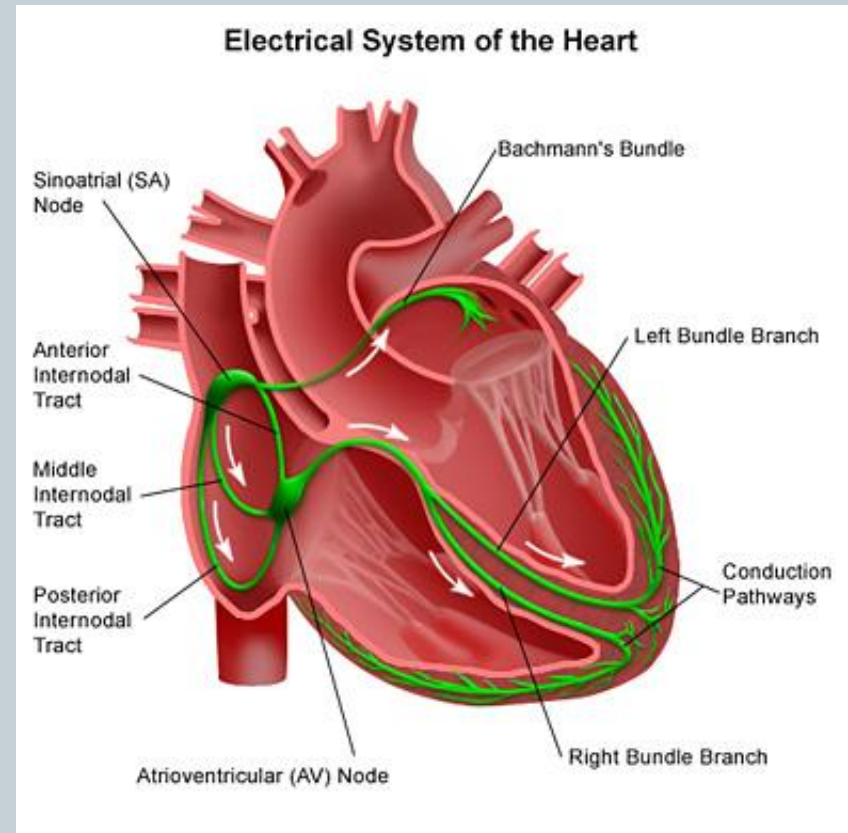
# Sudden Cardiac Arrest



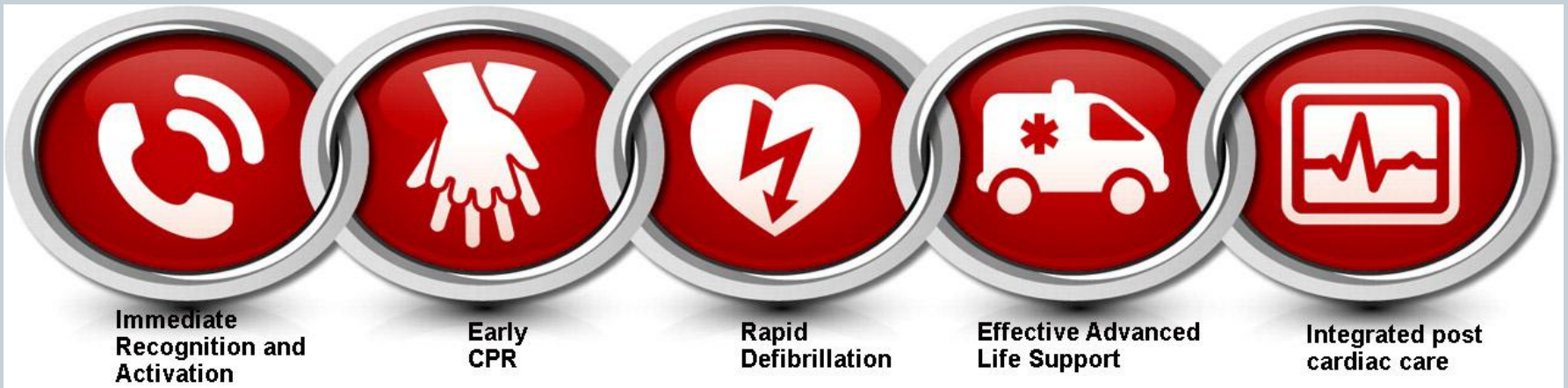
Normal sinus rhythm



Ventricular fibrillation



# Chain of Survival



## **Patient collapses**



**Arrival@ hospital**

**Drugs  
administered**

**Defibrillation  
performed**

**EMS encounters  
patient**

**EMS arrives  
@ scene**

**Telephone  
CPR instructions  
provided**

**Recognition of arrest**

**Call to 9-1-1**

**Call answered  
@ SDPD**

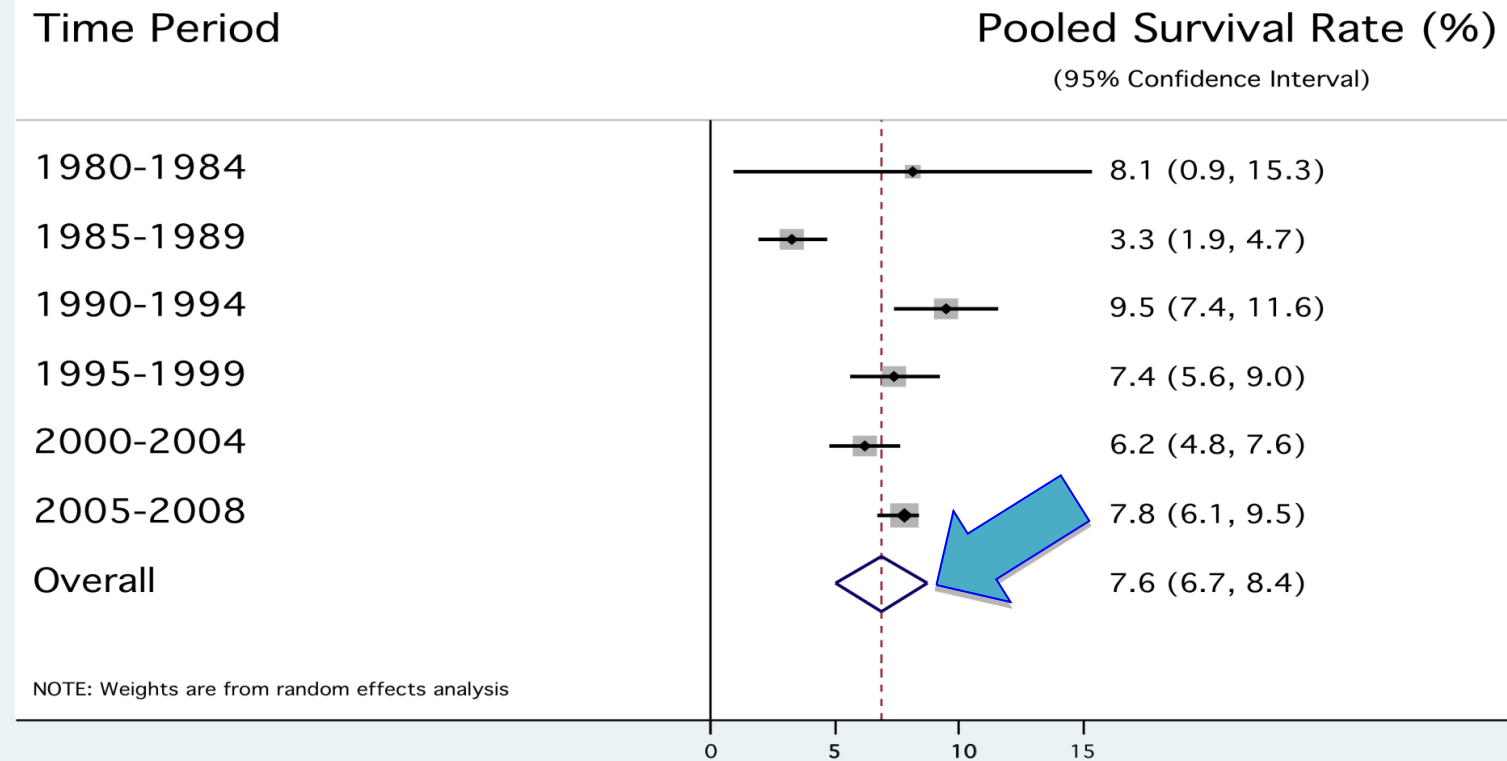
**Call transferred to  
Fire Communications Center**

# Background



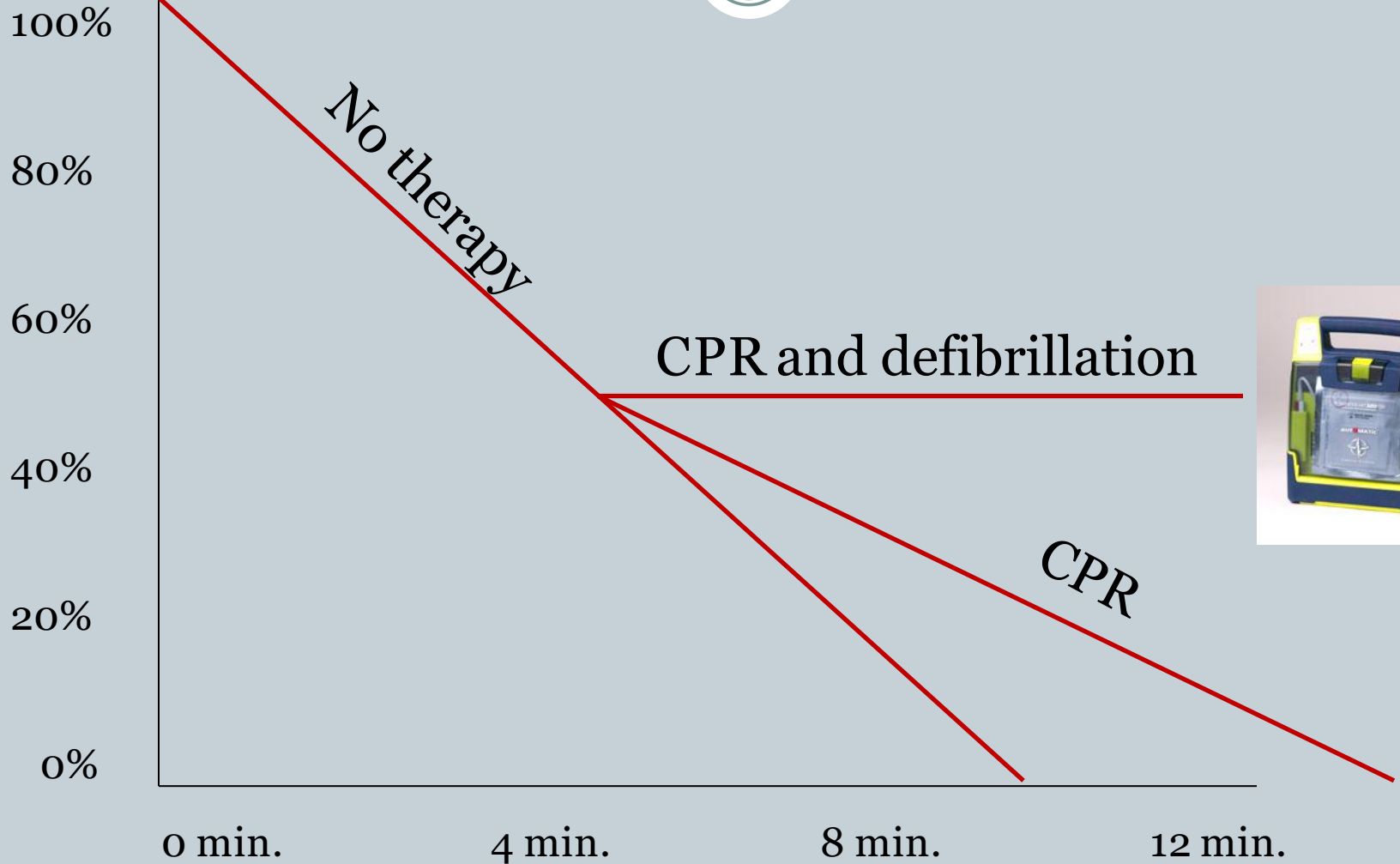
- Survival rates vary widely among locations but have been extremely low in most environments
- Bystander CPR results in a doubling or tripling of survival from OHCA, yet BCPR rates across the country remain unacceptably low (approx. 26%)

# Temporal Trends in Survival from SCA





# Determinants of Survival from OOH-CA







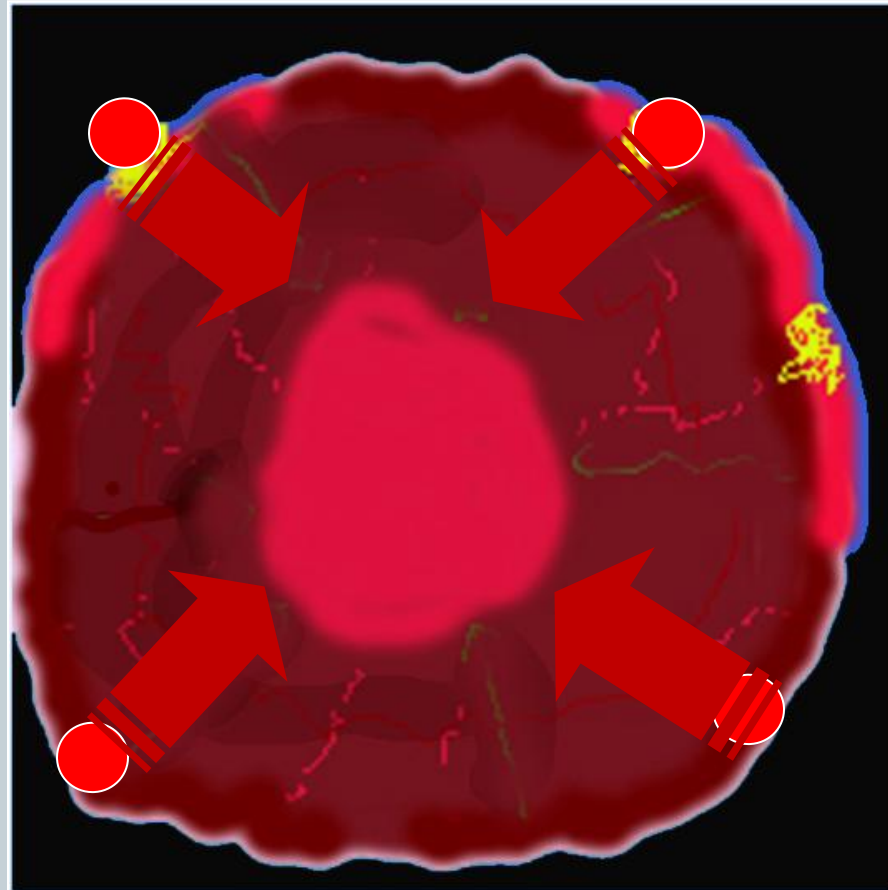
# Compression-only CPR



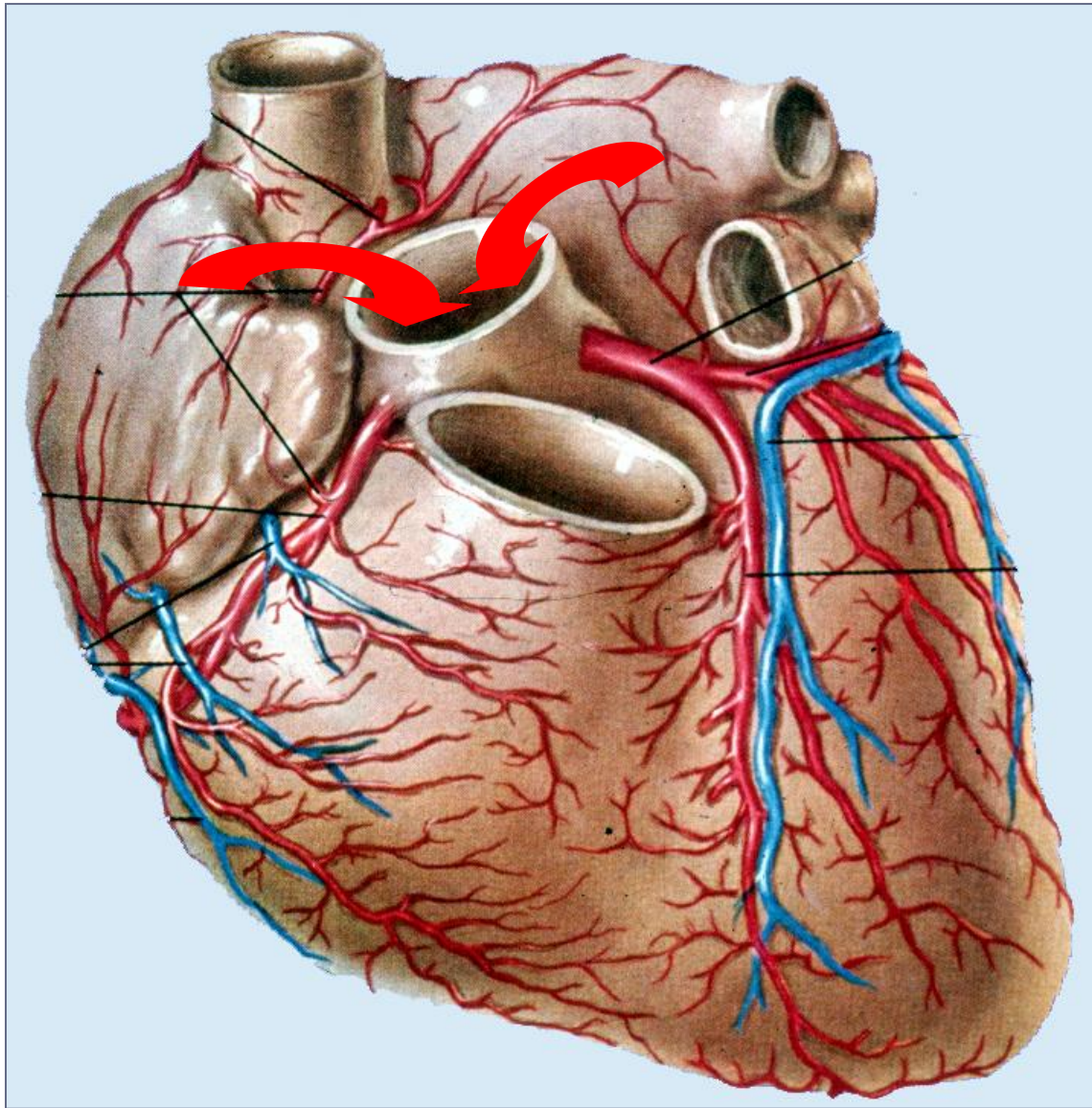
- In 2010, because of its simplicity and effectiveness, compression-only CPR became the official method to provide CPR to cardiac arrest victims

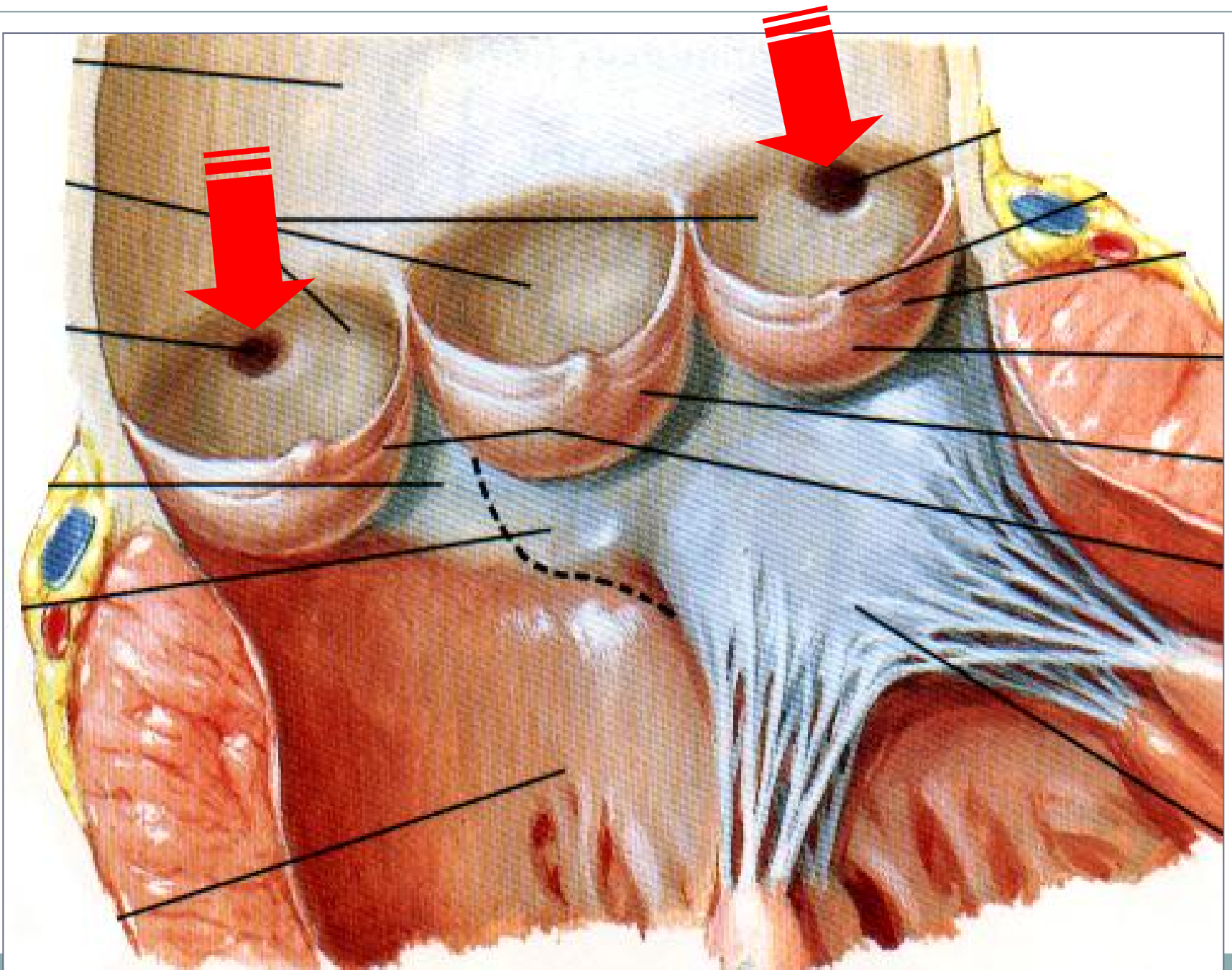


# Coronary Perfusion Pressure









# EMS sometimes too late



# Emergency Medical Dispatch Telephone CPR





# San Diego Project Heartbeat



# San Diego Project Heart Beat



# MidwayMass CPR Training December 2010

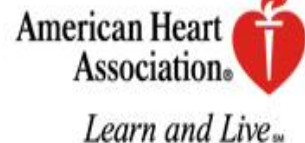
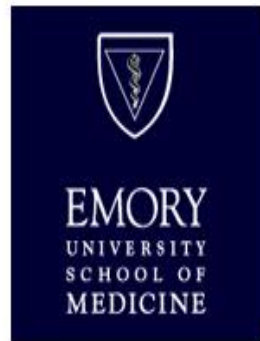




Welcome To:

# Cardiac Arrest Registry to Enhance Survival (CARES)

Sponsored by:



**Log In to myCares<sup>TM</sup>**

Username:

Password:

Did you forget your password?



[More information on Cares](#)

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[Frequently Asked Questions](#)

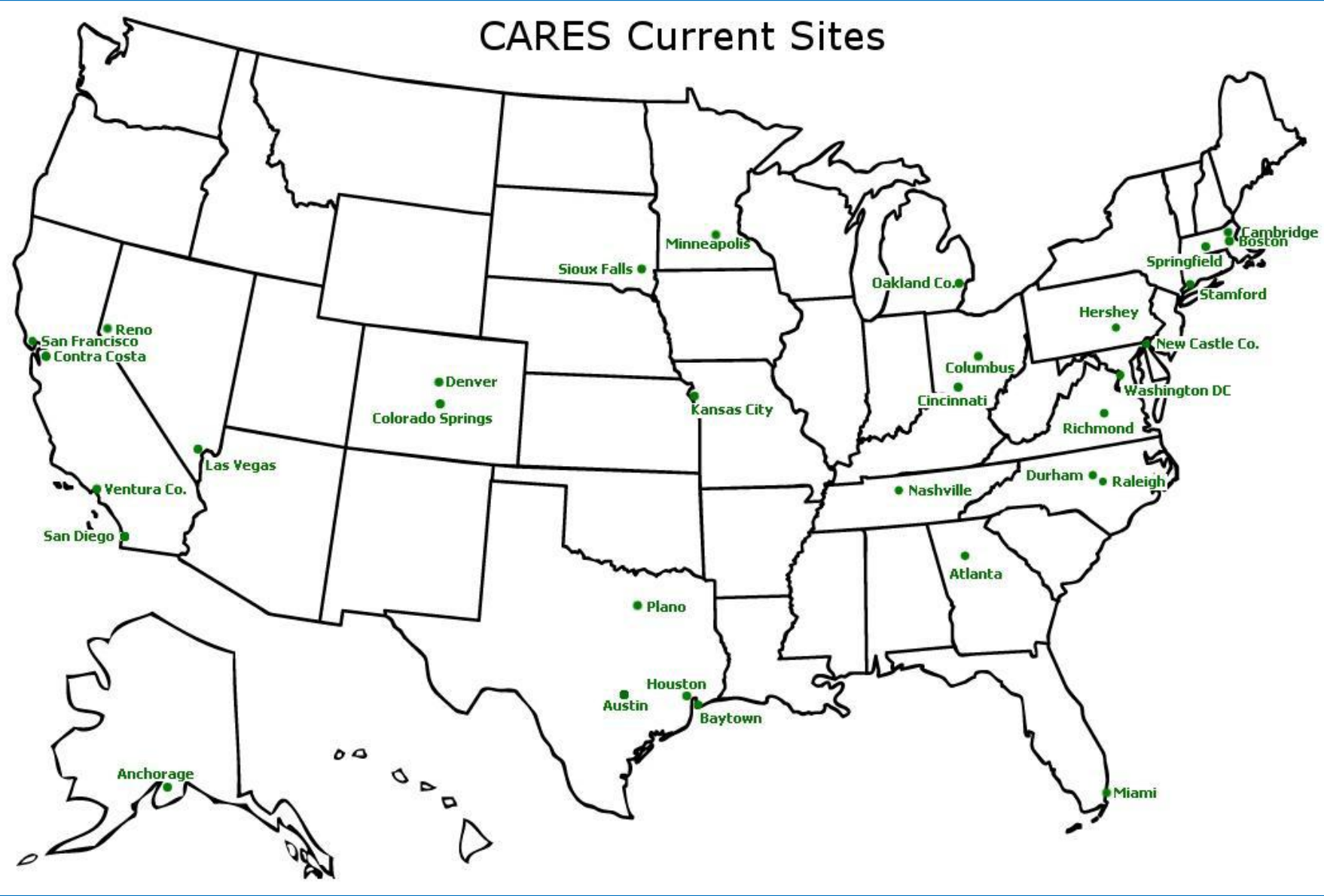
[Current Cares Participants](#)

## CARES

The Cardiac Arrest Registry to Enhance Survival (CARES) was initiated in October 2004 as a cooperative agreement between the Center for Disease Control and Prevention (CDC) and the Department of Emergency Medicine at Emory University School of Medicine to identify incidents of prehospital cardiac arrest. The CARES Program is designed to consolidate all essential data



# CARES Current Sites

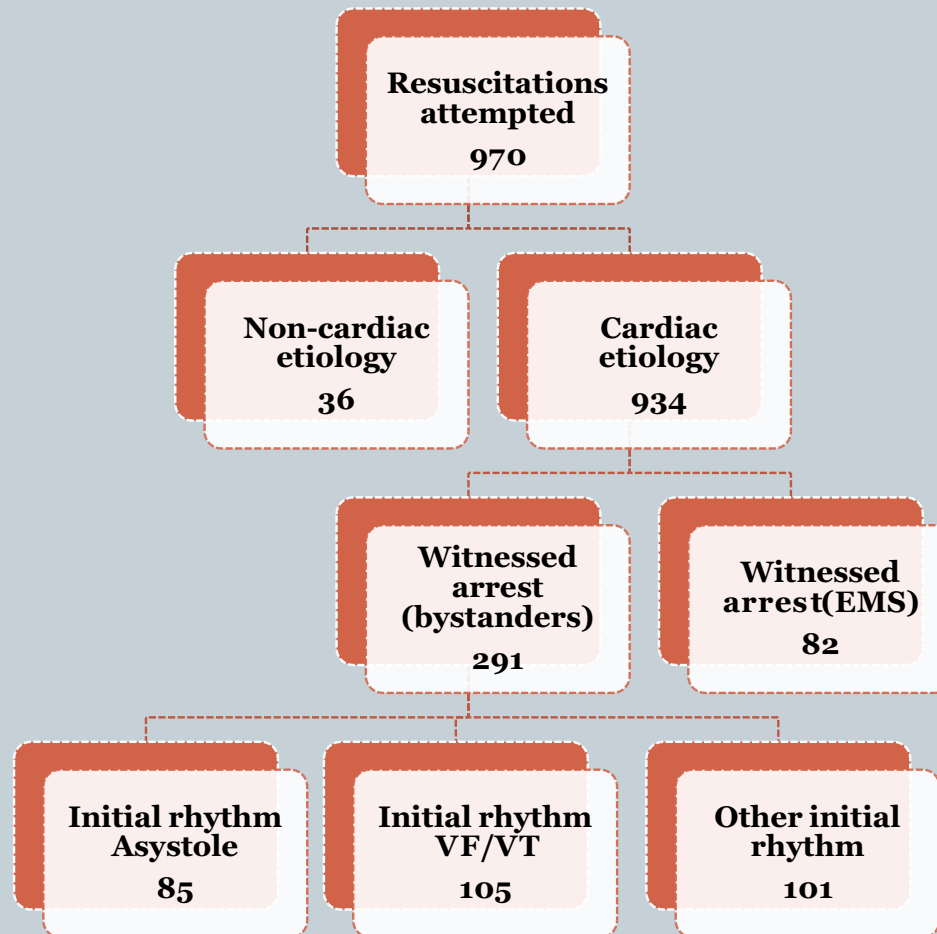


# Cardiac Arrest Registry to Enhance Survival (CARES)



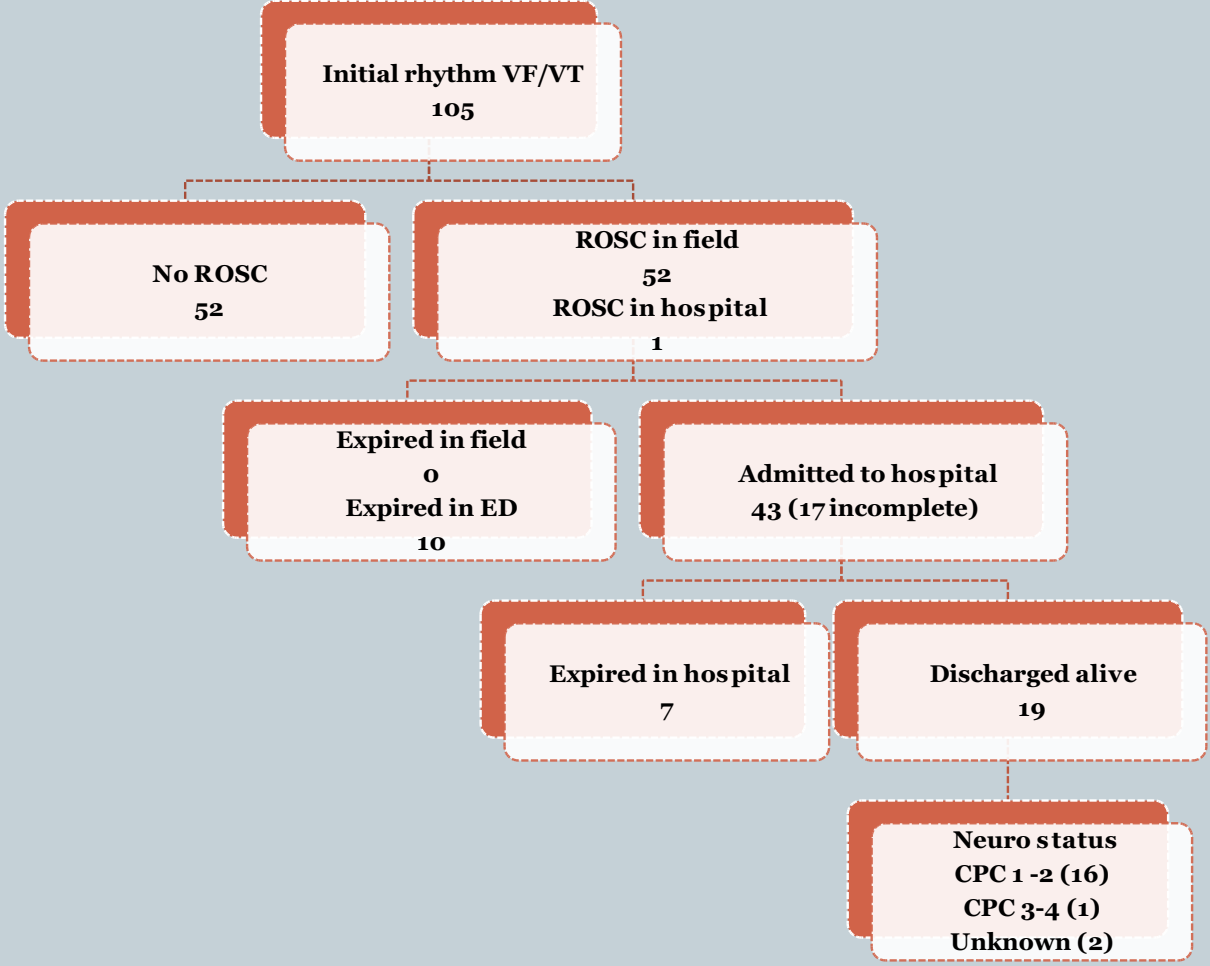
**UTSTEIN SURVIVAL REPORT  
CITY OF SAN DIEGO V. NATION  
JULY 1, 2009 – JANUARY 31, 2011**

# SCA: July 1, 2009 – January 31, 2011

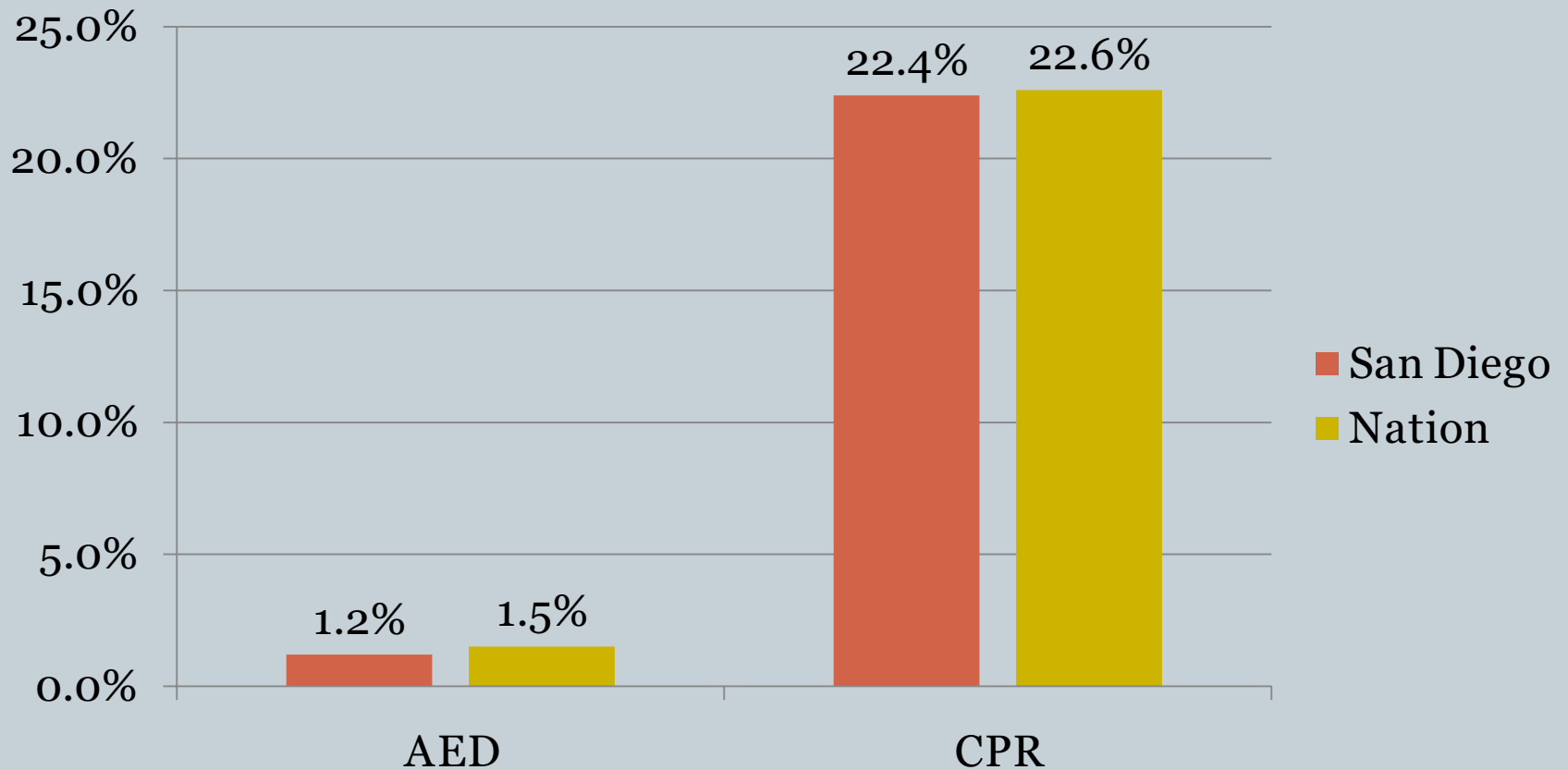




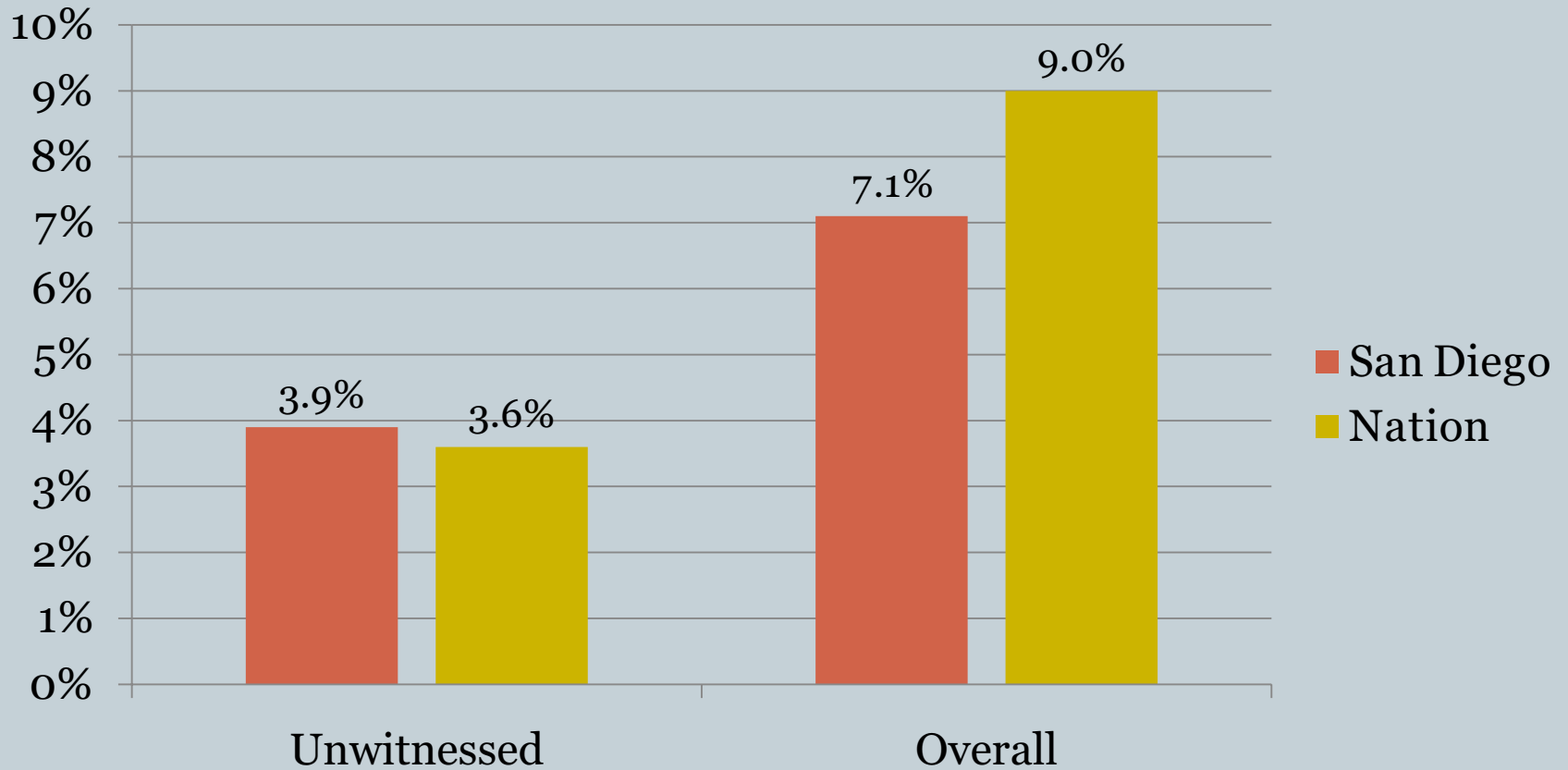
# SCA: July 1, 2009 – January 31, 2011



# Bystander Interventions



# Cardiac Etiology Survival Rates



# Cardiac Arrest Survival



# Using GIS To Identify High-Risk Neighborhoods for Cardiac Arrest



**JOHN SERRA, MD**

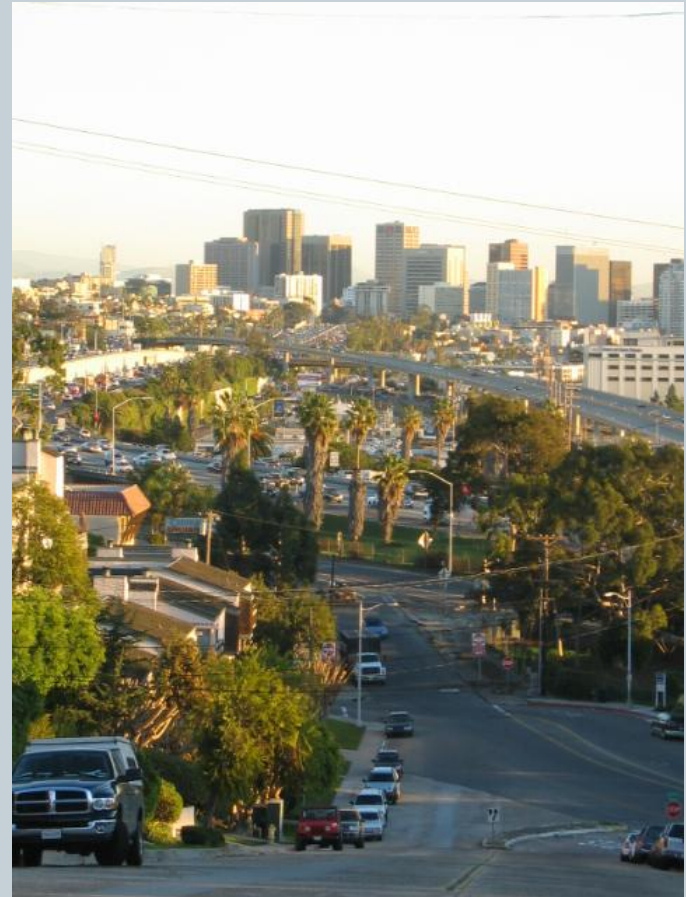
**EMS FELLOW**

**UCSD DEPT. OF EMERGENCY MEDICINE**

# Traditional Approach to Impact of CPR



- Calculates benefit of CPR on individuals
- Does not take into account the impact of neighborhoods on outcome of OOH-CA



# Neighborhoods Matter

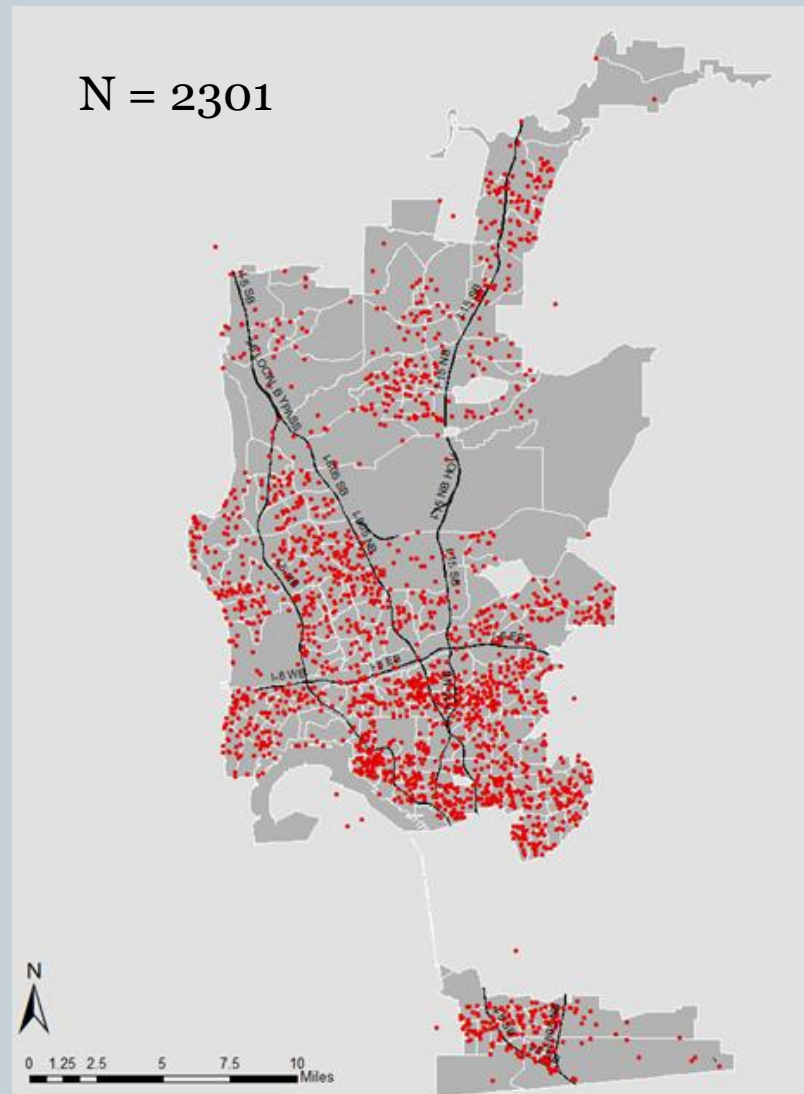


- Certain neighborhoods have 2-3 times the incidence of OOH-CA year after year<sup>1</sup>
  - and 1/5 the rate of bystander CPR
- Such “high-risk” areas are targets for focused intervention
  - Culturally focused training
  - PAD programs

<sup>1</sup>Sasson *et. al.* *Annals of Internal Medicine* 2010

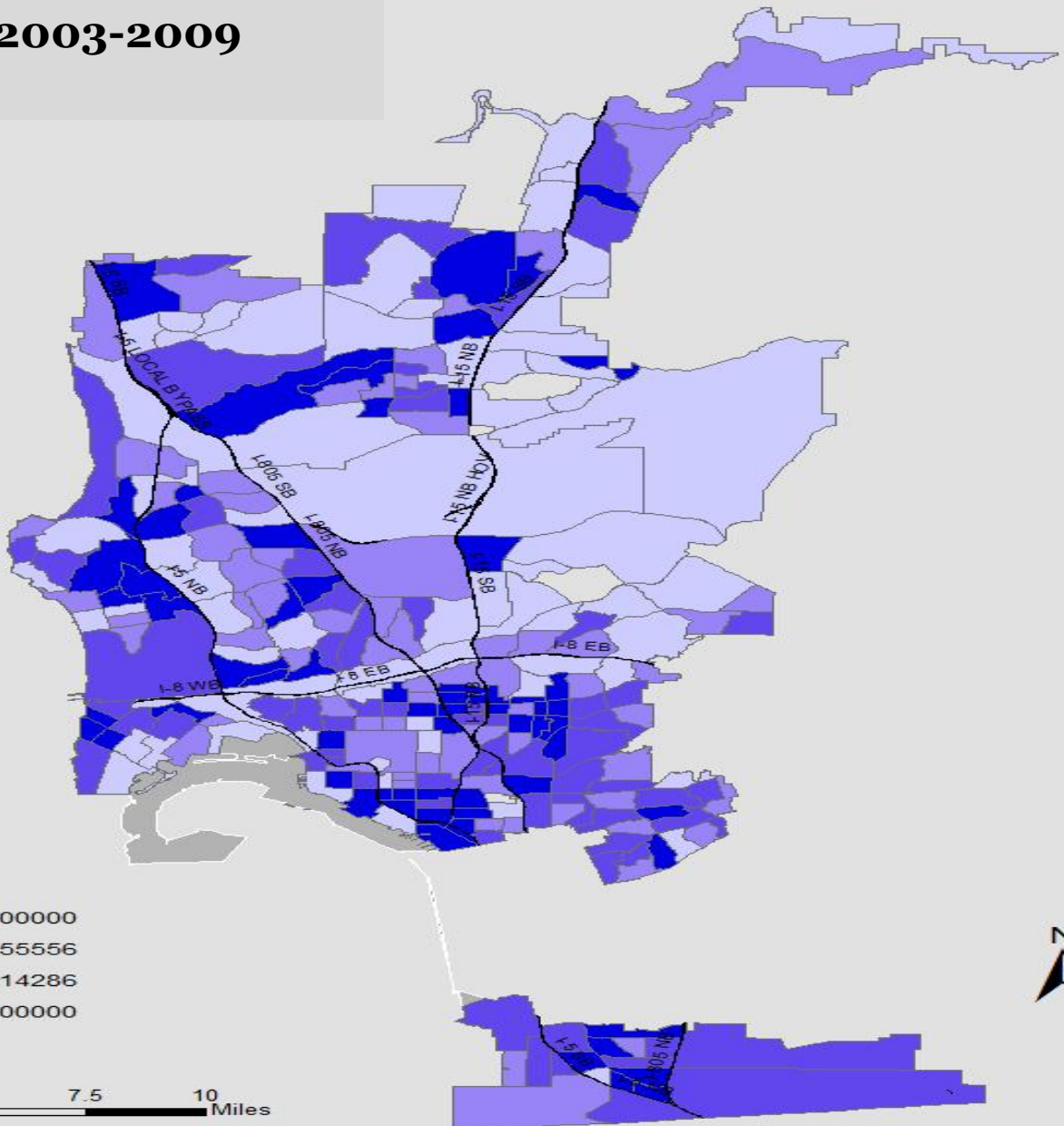


# Sudden Cardiac Arrests 2003-2009





# San Diego 2003-2009 CPR Rates



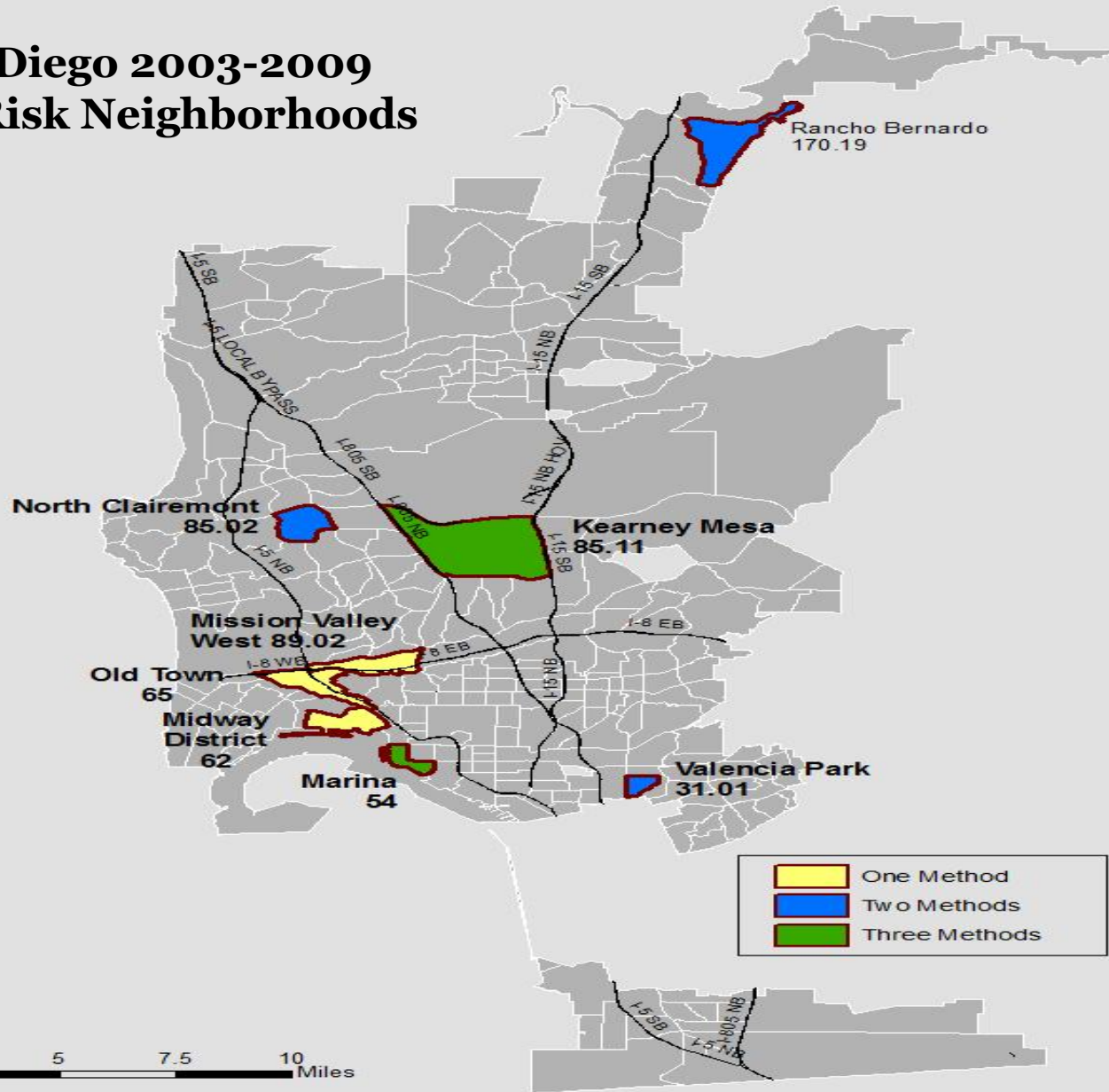
### Bystander CPR Rates

- 0.001000 - 0.400000
- 0.400001 - 0.555556
- 0.555557 - 0.714286
- 0.714287 - 1.000000
- No Data

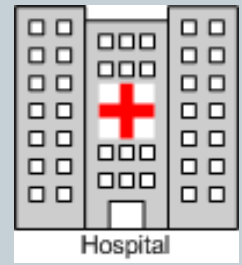
0 1.25 2.5 5 7.5 10 Miles



# San Diego 2003-2009 High Risk Neighborhoods



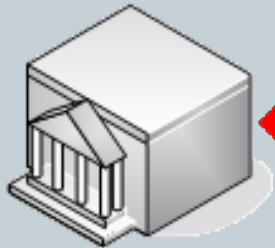
# San Diego Beacon Community



Hospitals



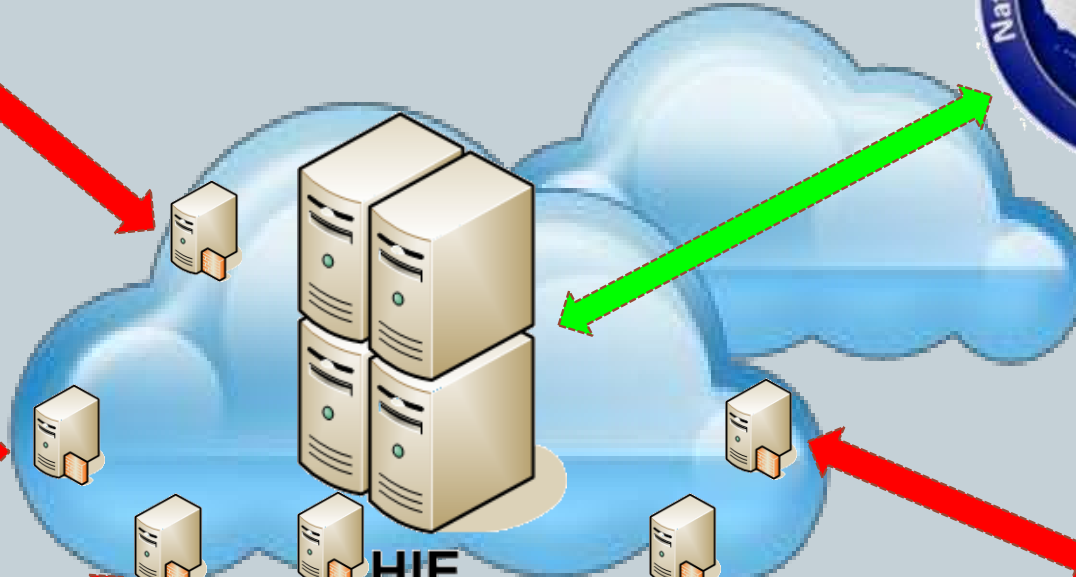
NHIN



Public Health



EMS



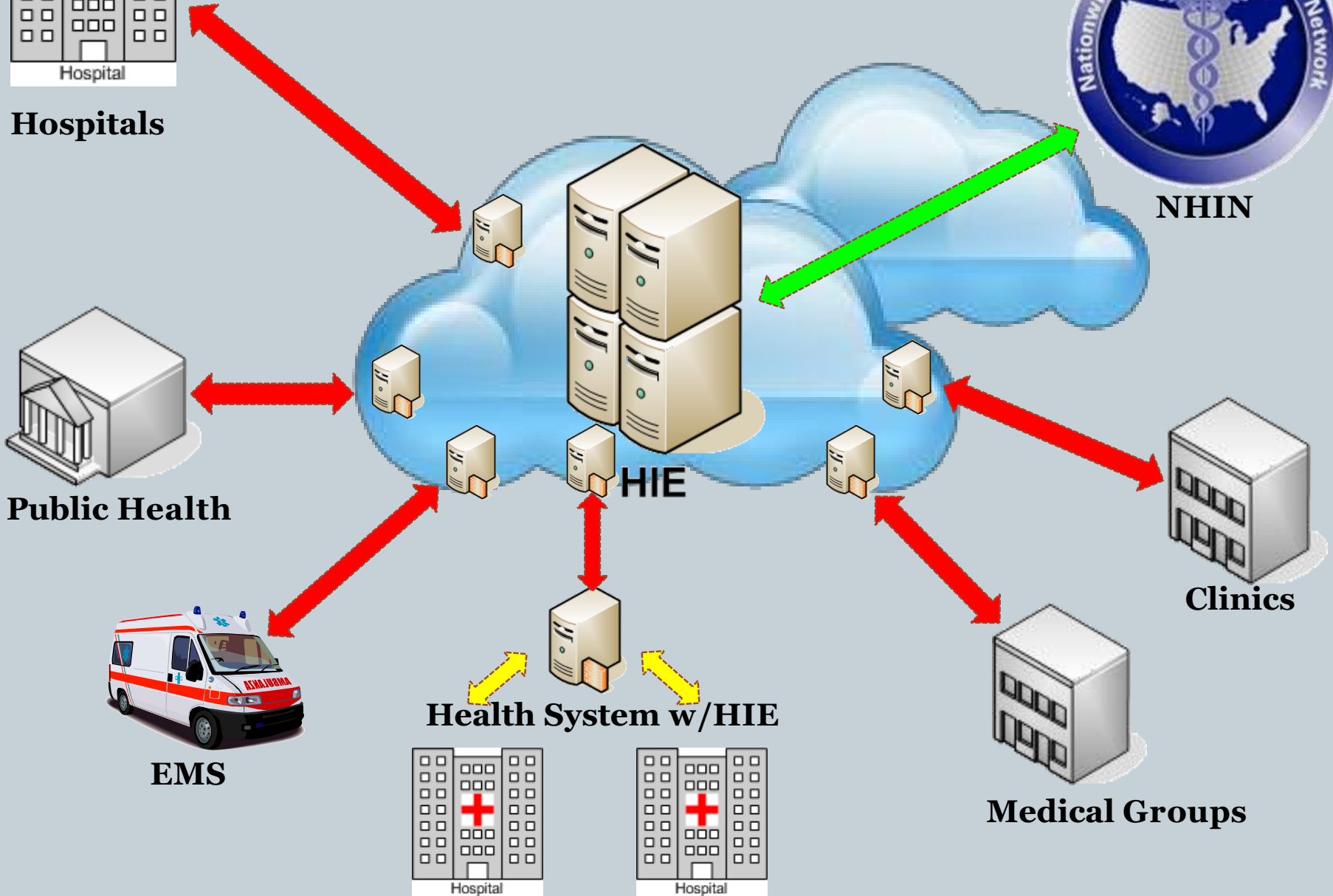
Clinics



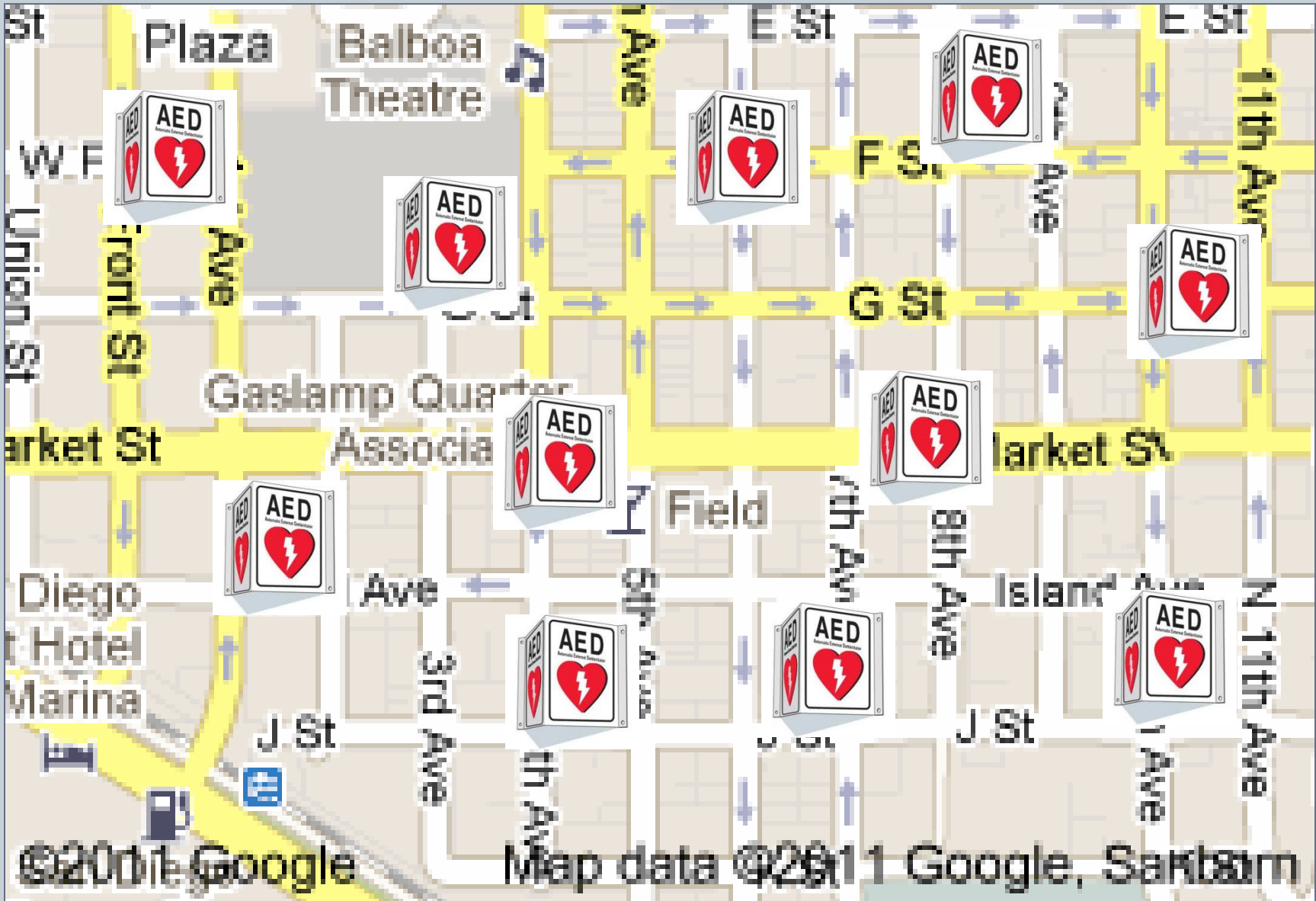
Medical Groups



Health System w/HIE









**CPR**  
saved my life.  
50 SURVIVAL STORIES

500 people attended the CPR Survivors Banquet held at Sea World in San Diego – Dec. 9, 2010 during the Citizen CPR Foundation Emergency Cardiac Care Update (ECCU) Conference.

This year marks the 50<sup>th</sup> Anniversary of the “discovery” of CPR



# Proof of the Pudding



# San Diego America's Safest City

