





Vendor Support:

- Physio Control: Suzette Haile and Jeff Collette
- Southeaster Emergency Equip: Jackie Likens
- Cardiac Science: James Krege
- Resuscitation Specialists: Adam Dolbow
- RACE CARS

Planning Committee and Presenters

A red ECG (heart rate) line graphic that starts with several sharp peaks on the left, then levels out into a steady rhythm towards the right, ending with a final sharp peak. It is positioned at the top of the slide, partially overlapping the title.

- David Jacobs
 - Steve Vandeventer
 - Danny West
 - Dr Darrell Nelson
 - Brian Booe
 - RACE Team, Clark, Julie, Nick,
Kathy, Kathy
- 
- The background of the slide is a blurred photograph of a race car, likely a NASCAR vehicle, in motion. The car is white with red and yellow accents. The image is out of focus, emphasizing the text in the foreground.



RACING To SAVE Lives in NC

Regional **A**pproach to **C**ardiovascular **E**mergencies
Cardiac Arrest Resuscitation System

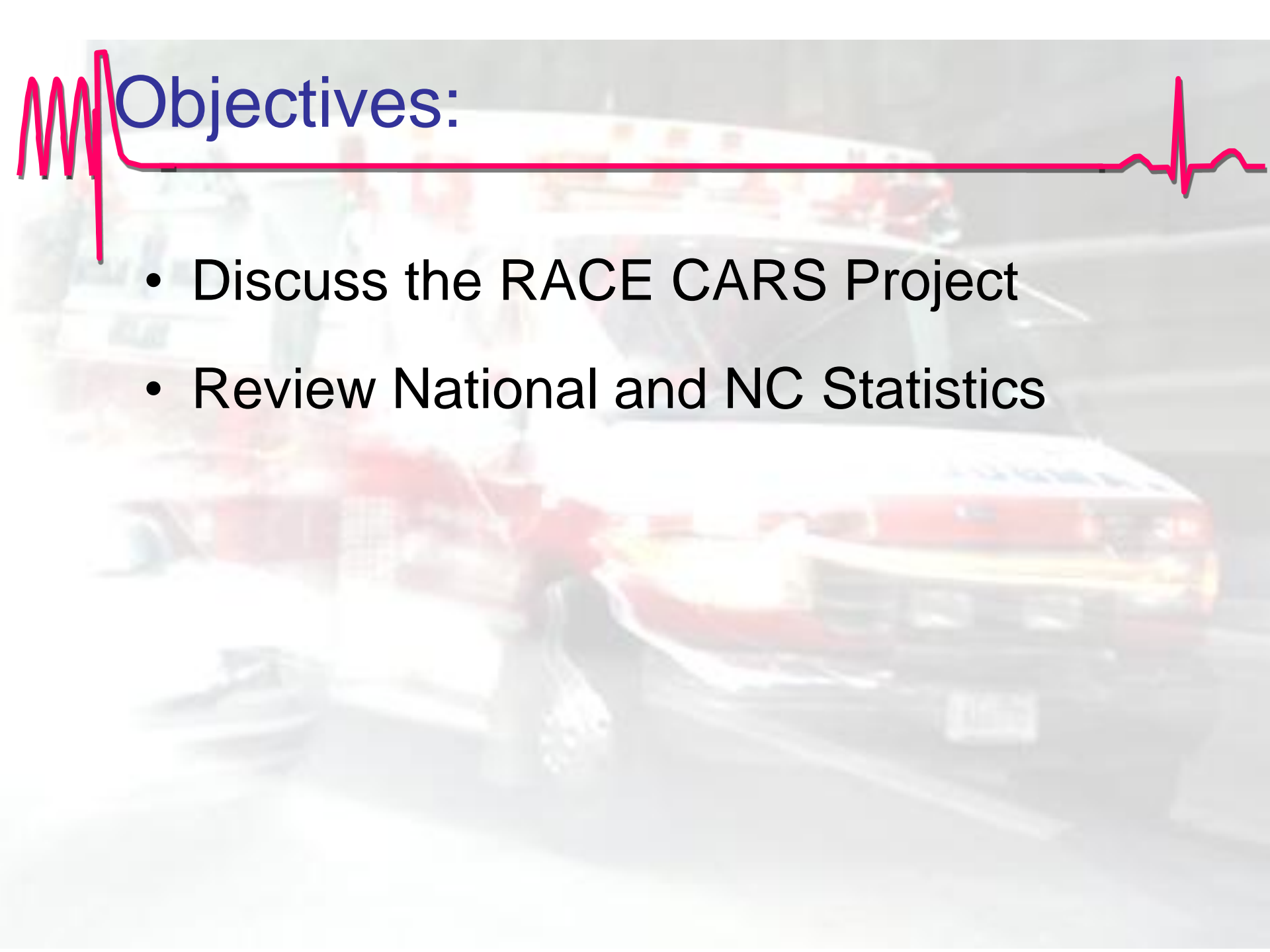
Lisa Monk MSN, RN, CPHQ
RACE CARS Director



Every Second Counts. Every Action Matters.



Cardiac Arrest Resuscitation System



Objectives:

- Discuss the RACE CARS Project
- Review National and NC Statistics

If we can't
save them,

RACE CARS



History STEMI Systems in NC:

“RACE moved beyond the cath lab and PCI hospitals to focus on EDs, EMS, hospital networks, and associated communication and transport systems.” Heart.org

“AHA’s Mission: Lifeline – A Call to Arms for Emergency Medicine” ACEP News Jan 2009

**RACE Pilot
1st STEMI
System**



2003

**RACE
65 hospitals/
Multiple EMS Agencies**

2005

**RACE - ER
Entire State**

2008

**RACE CARS Goal:
Improve OOHCA
survival by 50% by 2015**

**Mission Lifeline
RACECARS**

2010

2011 - 2015

“Racing Against the Clock: A North Carolina-based project becomes a model for discovery-to-balloon”

Richard R. Rogoski 2008

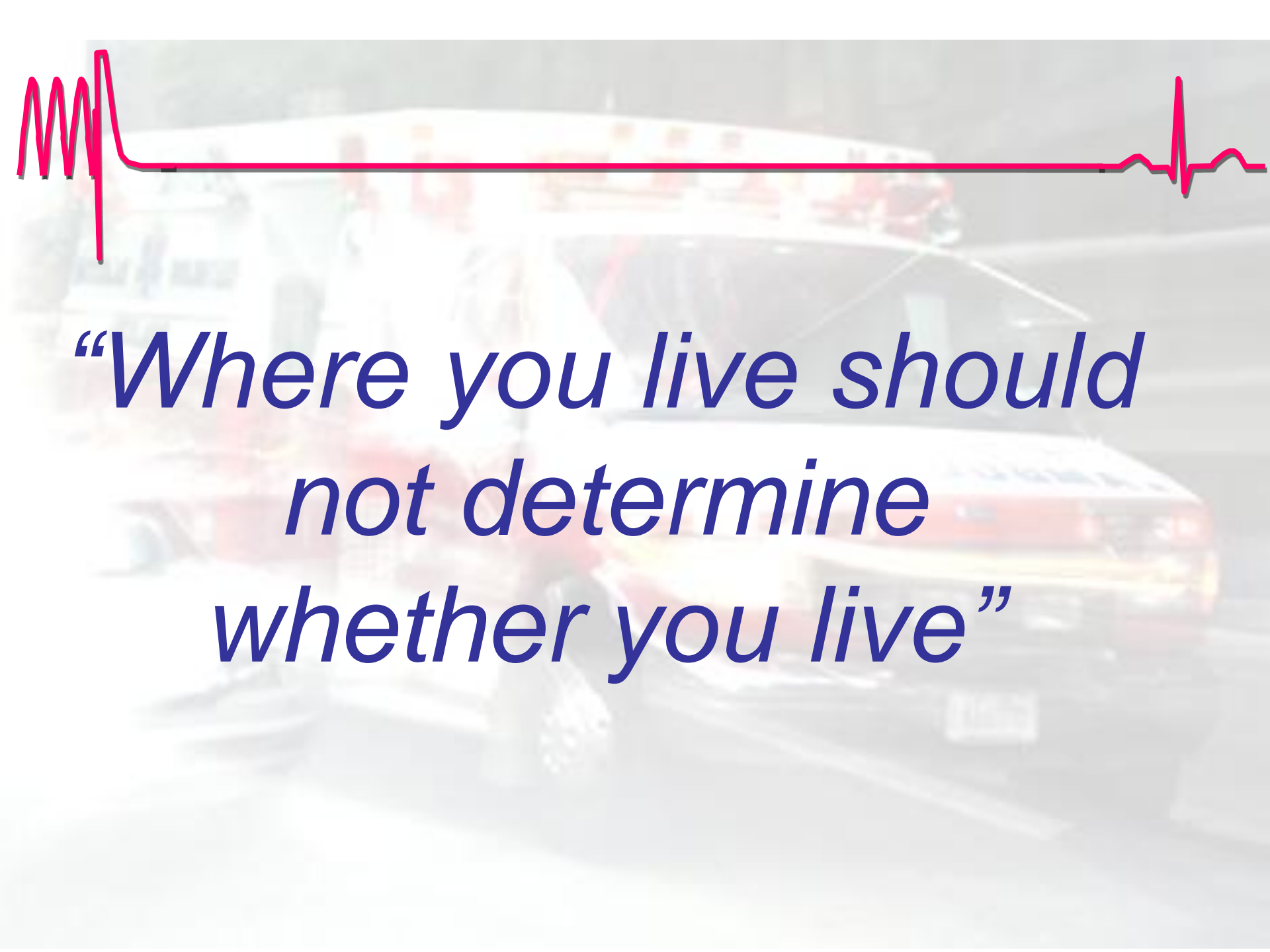
“RACE: A Herculean attempt to improve STEMI care”

Nov 12, 2007 Lisa Nainggolan



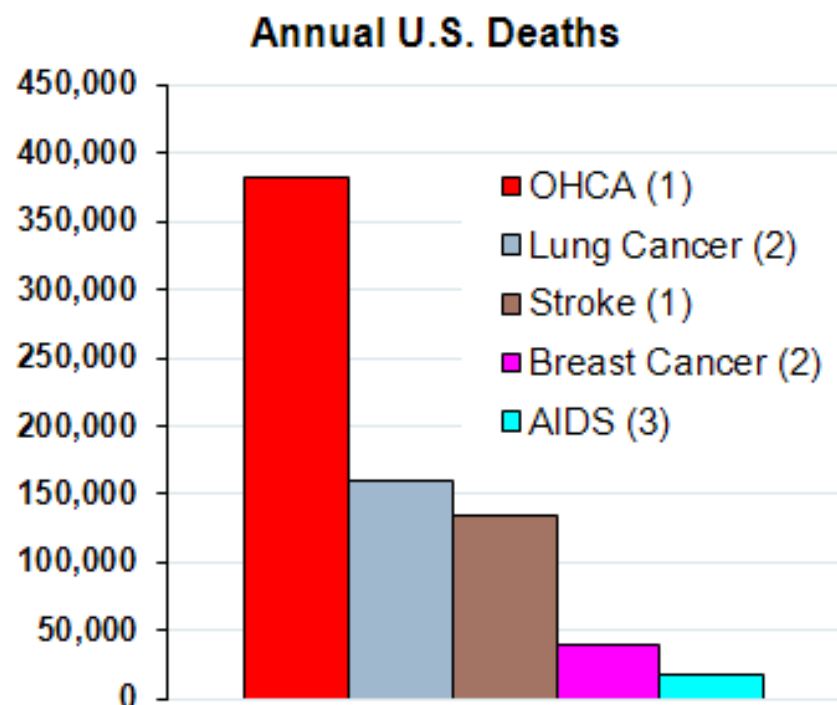
“North Carolina’s RACE program cuts door-in door-out times for STEMI patients”

Jun 28, 2011 Reed Miller



*“Where you live should
not determine
whether you live”*

Out-of-Hospital Cardiac Arrest: Overlooked Cause of Death



- ▶ Wide variance in local, regional, economic and ethnic survival rates
- ▶ Current data collection sporadic, minimizing motives for systemic improvement

(1) American Heart Association Heart Disease and Stroke Statistics – 2012 Update.

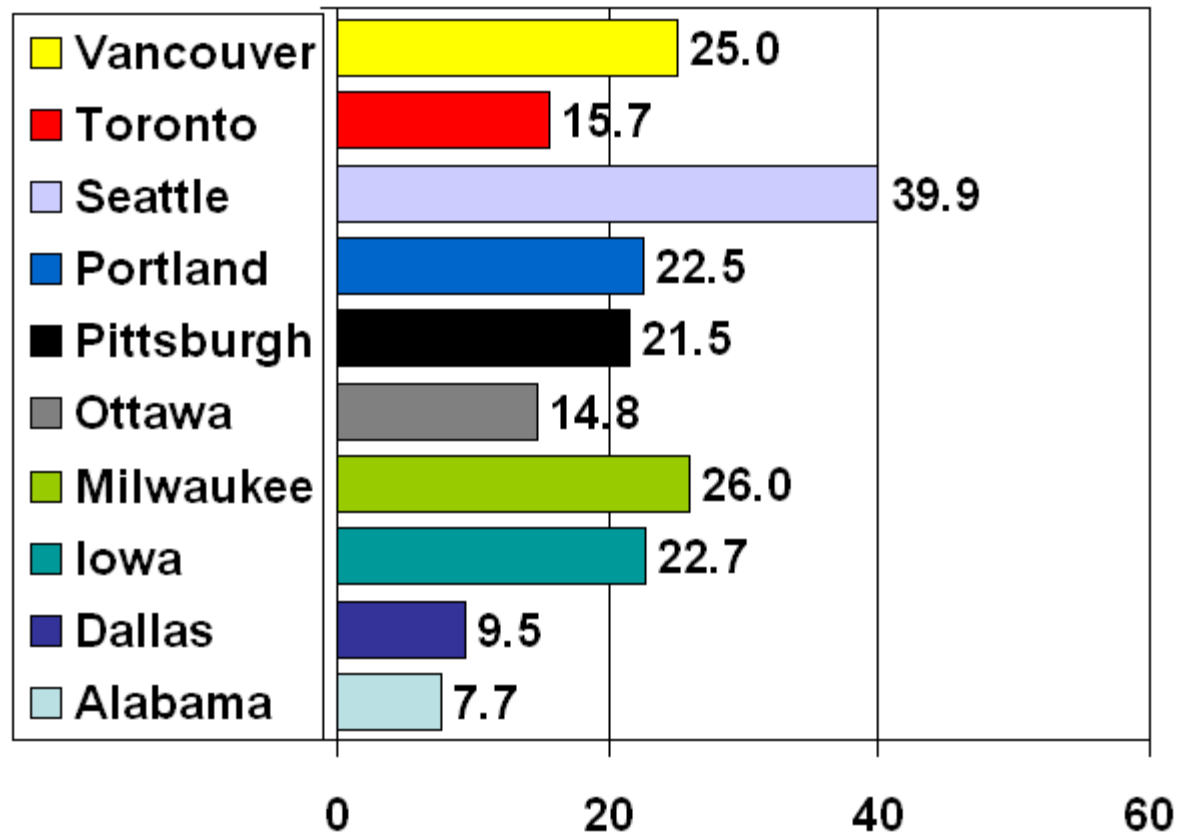
(2) Cancer.org - 2012.

(3) U.S. HIV & AIDS Statistic Summary. Avert.org.

Variation in survival VF arrest

Resuscitations Outcomes Consortium

Survival to discharge





Cardiac arrest in North Carolina:

~ 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%



Cardiac arrest in North Carolina

From the CARES Registry:

Bystander CPR 23%

AED Use 1.3%

Public CPR training 3% / year

32% Survival Rate

(Utstein criteria)

Original CARES data from Wake, Durham and
Mecklenburg Counties



NC Success Stories:

- Pregnant Woman/School Teacher – Charlotte
- Legislator-Raleigh
- Police Officer - Yadkinville
- Baseball Coach-Winston-Salem
- Former Girl scout performs CPR-Durham
- Rural EMS: Stokes County Survival Rate 66%

HeartRescue Partners





HeartRescue Partners



Program Goals:

Goal 1: Improve Survival of Cardiac Arrest by 50% over 5 years in geographies we fund.

Goal 2: Increase and improve measurement of Sudden Cardiac Arrest.

Goal 3: Expand and improve national and global impact of the HeartRescue Project.

Program Results FY12- Q1FY13:

1. Partner programs now covering 50% or more of state populations, and reported on baseline and 2011 survival outcomes. **900 survivors reported in 2011.**
2. New partners in FY12 (AMR), and FY13 (University of Illinois)
3. All partners hosted 25 Resuscitation Academies and eLearning webinars reaching 1,000+ EMS/Hospital leaders with best practice education
4. Partners presented to 1,200 EMS leaders at 8 events to date.
5. 3 million people saved a life virtually with Save-a-Life Simulator on HeartRescueNow.com

Goals:

Program Goals

Improved Survival Rates

50% improvement in SCA survival in program states

- Partner grants



Improved Reporting

Increase and improve measurement of SCA nationwide

- Common data set and registry (CARES)
- SCA national index



Improved National and Global Impact

Expand nationally and internationally

- Expand grant program
- SCA Community Playbook





CPC Score:

Cerebral Performance Category

GOAL-ALIVE WITH GOOD
NEURO OUTCOMES



The level at the time of discharge

Level 1: Alert, able to work and lead a normal life.

Level 2: Conscious and able to function independently, but may have hemiplegia, seizures, or permanent memory or mental changes.

Level 3: Conscious, dependent on others for daily support, functions only in an institution or at home with exceptional family effort.

Level 4: Coma, vegetative state.

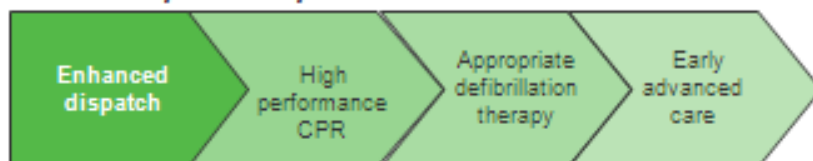
How to improve:

Improving SCA Survival

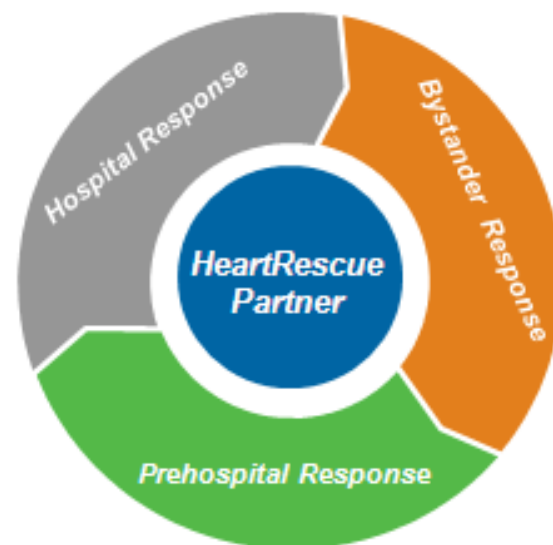
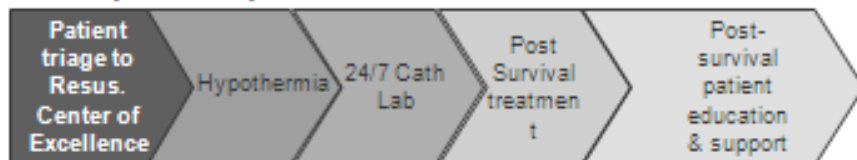
1: Bystander Response



2: Prehospital Response



3: Hospital Response



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



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.



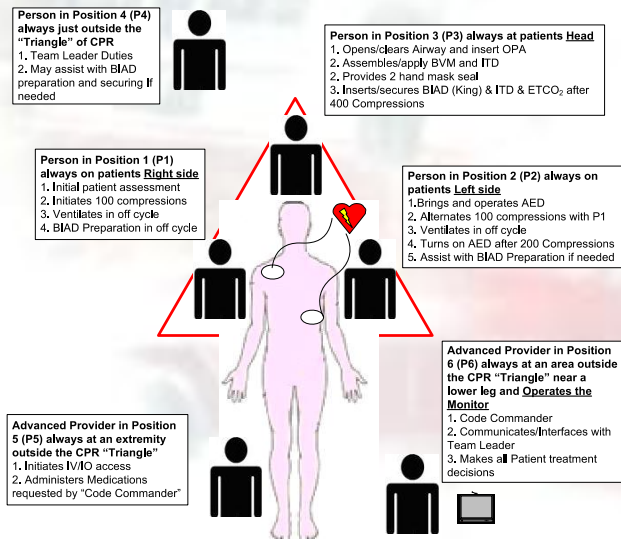
HIGH QUALITY CPR

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

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

Pit Crew Approach

CPR Procedure



- Each person has assigned role
 - Providers focus on their assigned job expertly and efficiently
 - Practice in each role
 - Helps minimize interruptions

Pre-assigned Roles

1. Pit Crew Leader
2. Airway Leader
3. IV/IO & Medications
4. CPR Chief
5. CPR Duty Chief
6. Variable Player

Variations to this model exist for:

- 3 Rescuers
- 4 Rescuers
- 5 Rescuers
- 6 Rescuers



Cardiac
Arrest
Resuscitation
System



HeartRescue
PROJECT

Every second counts. Every action matters.

Optimal Cardiac Arrest System Specification By Point Of Care Operations Manual Version 3.0

© RACE 2013

Community Efforts:





Public Health Crisis:

- have significant impacts on community health, loss of life, and on the economy
- Need transparency of data
- Creates accountability
- Can help leverage resources



Public Health Crisis:

- Have significant impacts on community health, loss of life, and on the economy
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North Carolina: RACE CARS



- Challenges
 - EMS response times vary from 4-10 minutes, rural communities even longer
 - Victim's need CPR started within 4 minutes or brain damage begins to occur
 - At 10 minutes, without CPR, survival is not likely
- You can help by learning:
 - Early recognition of SCA
 - Early Access – call 911
 - Early CPR



Cardiac Arrest Resuscitation System

SO EASY A DOG CAN DO IT!





Community Plans:

Goal: Increase the rate of bystander CPR and AED use

- Coordination by hospitals
 - Survey to understand what resources exist today
- Certification vs Education
 - AHA/Red Cross
 - RACE CARS developed materials
- AED devices – funding and identification
- Train all hospital employees of some level of CPR
- Train all heart patients and families on discharge

EMS, First Responders, and Hospitals will work together to off community education

Community Updates:

- [House Bill 837](#) -passed
 - requires students to learn CPR
 - pass a test showing proficiency in order to graduate
 - Effective with the Class of 2015
- [House Bill 914](#) -passed
 - requires at least one AED in every state building
 - state workers must be trained to use them





HeartRescue Flagship Premier Partner Program:

1st Chain: Community Response

- i. Early SCA Recognition
- ii. Early 911
- iii. Early and effective bystander CPR or CCC
- iv. Early Public Access to AED

2nd Chain: Pre-Hospital Response

- i. Enhanced dispatch
- ii. Enhanced/high performance CPR or CCC
- iii. Defibrillation care (e.g. one shock therapy for VF patients)
- iv. Pre-hospital hypothermia
- v. Drug delivery (e.g. Intra-osseous drug delivery)

3rd Chain: Hospital Response

- i. Patient triage to Resuscitation Center of Excellence
- ii. Hypothermia as indicated by local protocol
- iii. 24/7 Cath Lab
- iv. Patient indicated therapies provided (e.g. ICD, PTCA, stent, CABG)
- v. Post survival patient and family education and support

Improving outcomes in cardiac arrest

Conclusions:

- Cardiac arrest is common and the third leading cause of death.
- Victims of out of hospital cardiac arrest are unlikely to survive
- Simple interventions in the chain of survival are likely to improve survival
- Data drives change

