Disclaimer & Disclosures

• The views expressed are my own and do not represent those of USU or the DoD
• I co-founded CARES and served on its advisory board until 2013
• I am co-inventor of a ‘hands-only’ CPR training manikin and a device to prevent inadvertent hyperventilation during CPR
• I have no other conflicts to disclose
“Knowing is not enough; we must apply. Willing is not enough; we must do.”

- Goethe
What Do We Know?

A meta-analysis of 79 studies involving 142,740 patients found that an OHCA victim is more likely to survive if:

• **Collapse is witnessed** by a bystander or EMS
• **The victim gets bystander CPR**
• **1st rhythm is “shockable”** (i.e., V Fib or V Tach)
• **ROSC is achieved at the scene**

Have Well Have We Applied This Knowledge?

- Between 1980 and 2010, OHCA survival to hospital discharge (all rhythms) was stuck at 7.5 – 8.5%
- *Huge city-by-city variability exists.*

Vfib/Vtach Survival in CARES Cities

2014 Utstein Survival Rates
CARES agencies with ≥15 Utstein arrests in 2014

National Utstein survival rate = 33.0%
CARES 2016: Cities & States

- 17 state registries
- 50 additional communities in 21 states
- Catchment area of ~28% of US population (>90 million people)
- 2016 Budget: $900K
CARES rates of survival to hospital discharge by calendar year


The “ABCs” of Cardiac Arrest

- Accountability
- Bystander CPR
- Cardiocrebral resuscitation

Tactics to Increase CPR

• Dispatcher-Assisted CPR
  – Seattle (‘82), Memphis (’87) Tucson

• Video Self-Instruction CPR
  – 90s: Braslow & Brennan; Emory
  – 2006: AHA “CPR Anytime”

• “Cell phone” CPR?
  – 2010: Merchant*

Minimally Interrupted Cardiac Resuscitation by Emergency Medical Services for Out-of-Hospital Cardiac Arrest

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Out-of-hospital cardiac arrest is a major public health problem and a leading cause of death. Unfortunately, in large metropolitan cities, the outcomes are poor for patients

Context Out-of-hospital cardiac arrest is a major public health problem.

Objective To investigate whether the survival of patients with out-of-hospital cardiac arrest would improve with minimally interrupted cardiac resuscitation (MICR), an alternate emergency medical services (EMS) protocol.

Design, Setting, and Patients A prospective study of survival-to-hospital discharge between January 1, 2005, and November 22, 2007. Patients with out-of-hospital cardiac arrests in 2 metropolitan cities in Arizona before and after MICR training of fire department emergency medical personnel were assessed. In a second analysis of protocol compliance, patients from the 2 metropolitan cities and 60 additional fire departments in Arizona who actually received MICR were compared with patients who did not receive MICR but received standard advanced life support.

Intervention Instruction for EMS personnel in MICR, an approach that includes an initial series of 200 uninterrupted chest compressions, rhythm analysis with a single shock, 200 immediate postshock chest compressions before pulse check or rhythm reanalysis, early administration of epinephrine, and delayed endotracheal intubation.

Main Outcome Measure Survival-to-hospital discharge.