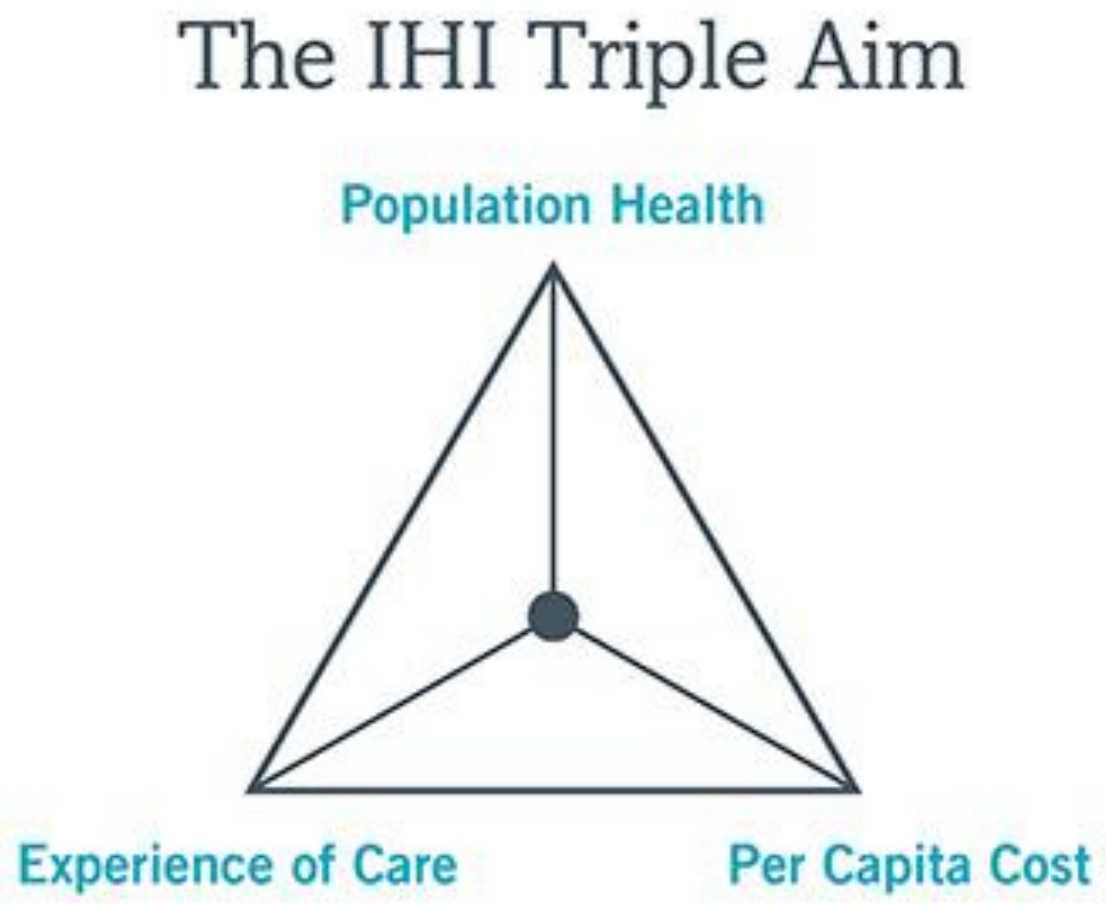
Quality in EMS
From the Hospitals to the Field

Rural EMS Conference
NOSORH/NASEMSO
Cheyenne, WY
May 5, 2015

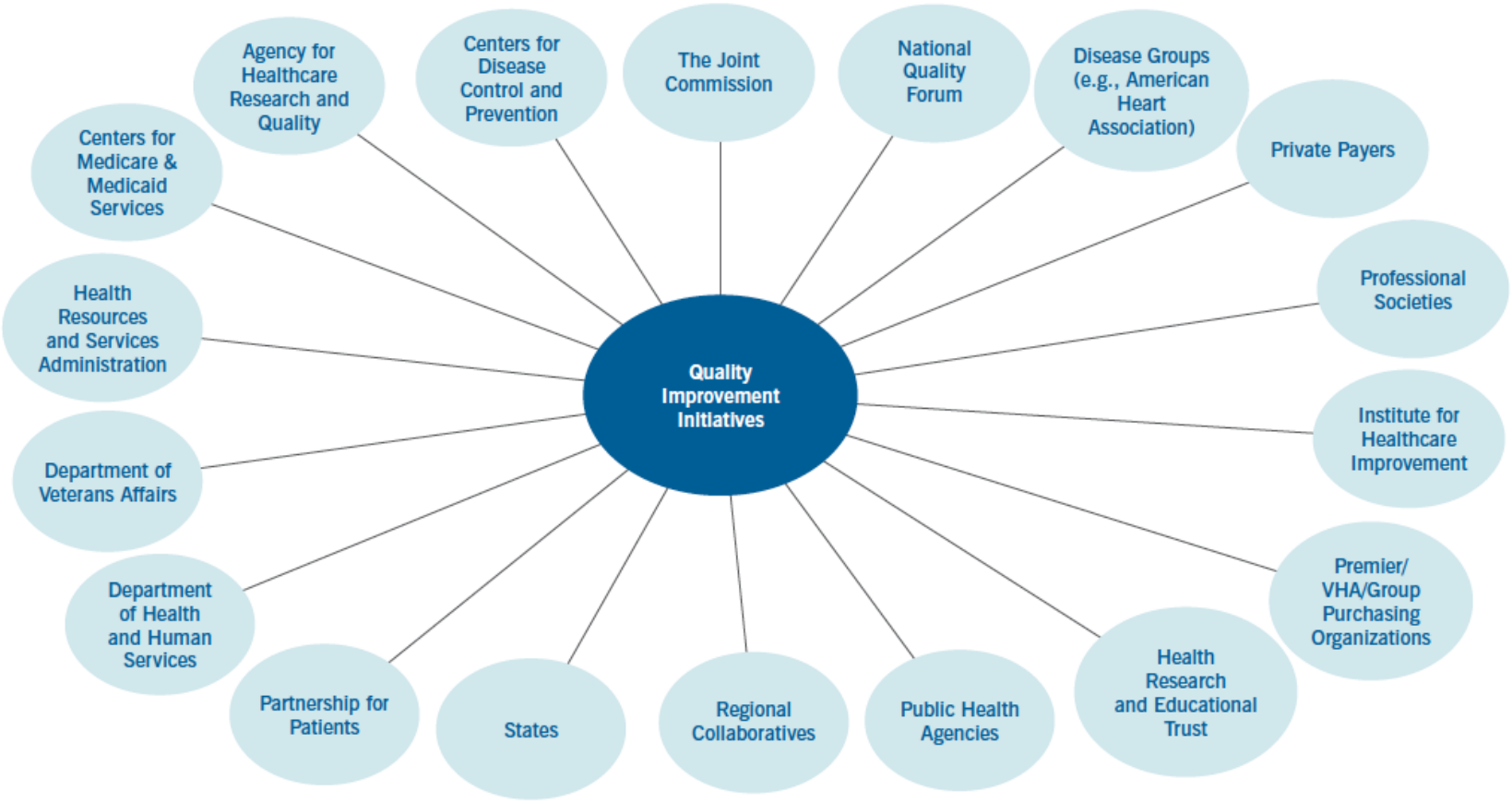
National Quality Perspective

Melinda A. Merrell, MPH, PCMH CCE
Senior Program Director
South Carolina Office of Rural Health

The Triple Aim



National (Hospital) Programs



National (Hospital) Programs

- Hospital-Acquired Condition (HAC) Reduction Program
- Hospital Value-Based Purchasing (VBP) Program
- Hospital Readmissions Reduction Program
- Physician Quality Reporting System (PQRS)
- Medicare Beneficiary Quality Improvement Program (MBQIP)

Incentives & Penalties

A Role for EMS

- Quality across the continuum of care
  - Outcomes-based metrics
  - Where's the data?
- Patient-centered medical home extenders
- Alternative payment models
  - Accountable Care Organizations
  - Coordinated Care Organizations
  - Bundled Payments
  - Value-Based Payments
  - Multi-payer Collaboratives

"I'm from the State, and I'm Here to Help"

Douglas F. Kupas, MD, EMT-P
Commonwealth EMS Medical Director
Bureau of EMS
Pennsylvania Department of Health

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Regulation
vs
Technical Assistance

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National EMS Quality Initiatives

What do we do with our data?

Evidence-Based Medicine (EBM)
Value-Based Reimbursement (NQF, CMS)
Quality Education (IHI)

What are the quality measures for EMS?

www.emscompass.org — EMS Compass

PRIVATE Reader

EMS COMPASS

Improving Systems of Care Through Meaningful Measures

Call For Measures

About EMS Compass | Leadership & Working Groups | Performance Measures in EMS | History & Resources | In the News | Contact

For the EMS community, measuring performance is vital to achieving our ultimate goal —providing the best possible care to the people and communities we serve. Performance measures should be an integral part of the quality manage
identifying areas of strength and areas where we need to improve.

ems.gov

State EMS QI Initiatives

- State
  - State Quality Improvement Plan
  - Benchmarks/ Data
  - EMS Agency QI Requirements
  - Patient/ Provider Safety Initiatives

Quality Parameters in EMS

SPECIAL CONTRIBUTIONS

EVIDENCE-BASED PERFORMANCE MEASURES FOR EMERGENCY MEDICAL SERVICES SYSTEMS: A MODEL FOR EXPANDED EMS BENCHMARKING

A STATEMENT DEVELOPED BY THE 2007 CONSORTIUM U.S. METROPOLITAN MUNICIPALITIES' EMS MEDICAL DIRECTORS (APPENDIX)

J. Brent Myers, MD, MPH, Corey M. Slovis, MD, Marc Eckstein, MD, MPH,
Jeffrey M. Goodloe, MD, S. Marshal Isaacs, MD, James R. Loflin, MD,
C. Crawford Mechem, MD, Neal J. Richmond, MD, Paul E. Pepe, MD, MPH

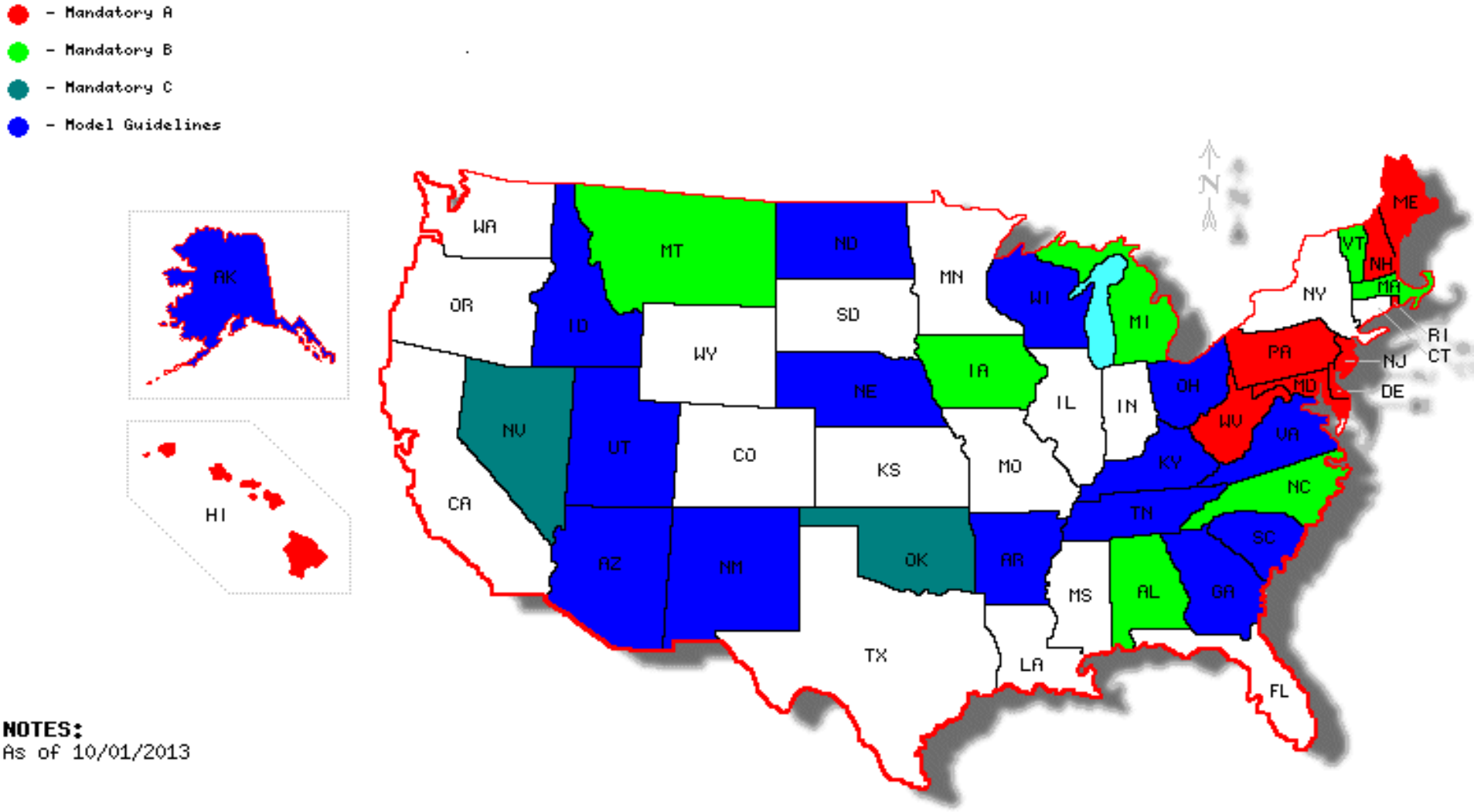
Prehosp Emerg Care 2008; 12: 141-151

TABLE 2. Numbers-Needed-to-Treat (NNT) by Clinical Scenario

Elements	NNT
Aspirin 12-lead electrocardiograph (ECG), direct transport to percutaneous cardiac intervention (PCI) interval from ECG to balloon < 90 minutes[46,47]	15
Administration of benzodiazepine for status epilepticus[66]	4
Noninvasive positive pressure ventilation (NIPPV)[59]	6
Patients with an Injury Severity Score (ISS) > 15 to trauma center[72]	11
Patients over 65 years of age with ISS > 21 to trauma center[69]	3
Defibrillator to the scene < 5 minutes rather than < 8 minutes[15]	8

Myers JB, et al. Prehosp Emerg Care 2008; 12: 141-151

Statewide ALS Protocols



Kupas DF, Shenk E, Kamin R, Sholl JM, Characteristics of statewide EMS protocols in the United States. Prehosp Emerg Care. 2015

NORTH CAROLINA OEMS OFFICE of EMS

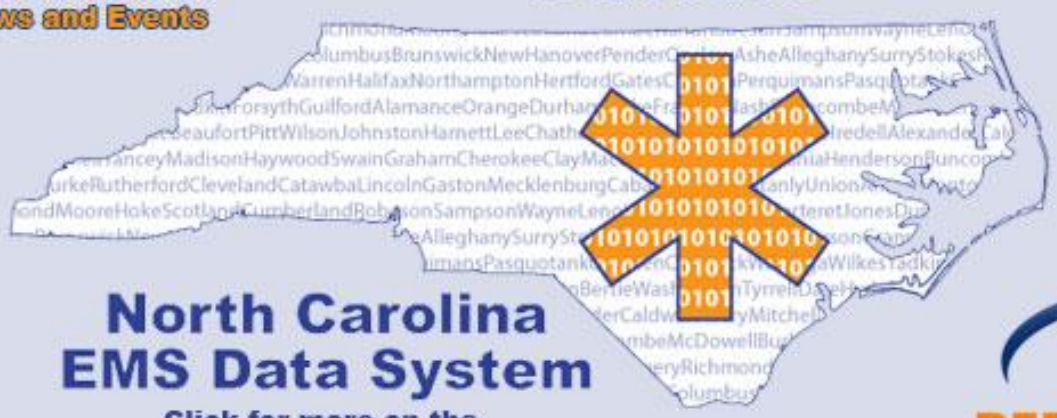
Click for the
NC OEMS Web Site

NCEMS News

Click for NC EMS
News and Events

EMS TOOLKITS

Click for the
EMS Toolkits Web Site



North Carolina EMS Data System

Click for more on the
NC EMS Data System

EMS PERFORMANCE IMPROVEMENT CENTER

Click for the EMSPIC Web Site

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Pennsylvania Statewide

Basic Life Support Protocols

Pennsylvania Department of Health
Bureau of Emergency Medical Services

Effective July 1, 2015

2004 – 2015 Pennsylvania Statewide Protocols

Trauma Patient Destination Statewide ALS Protocol

Performance Parameters:

A. Review all cases where patient meets criteria for Category 1 or 2 Trauma for appropriate destination and appropriate use of air transport.

B. Review on-scene time of all patients meeting Category 1 or Category 2 criteria. Consider possible benchmark of <10 minute on-scene time at in at least 90% of non-entrapped cases. Review all cases where on-scene time is > 10 minutes for appropriateness of care and documentation of reason for prolonged on-scene time.

Confirmation of Airway Placement Statewide ALS Protocol

Performance Parameters:

A. Review all ETI and Alternative Airway Device insertions for documentation of absence of gastric sound, presence of bilateral breath sounds, and appropriate use of a confirmation device.

B. If systems have the capability of recording a capnograph tracing, review records of all intubated patients to assure that capnograph was recorded.

C. Document $ETCO_2$ reading immediately after intubation, after each movement or transfer of patient and final transfer to ED stretcher.

General Cardiac Arrest – Adult Statewide ALS Protocol

Performance Parameters:

A. Documentation of code summary from monitor /ECG rhythm strips.

B. Documentation of confirmation of advanced airway placement including documentation of gastric sounds, breath sounds and use of confirmatory device (include print out of $ETCO_2$ monitor if possible)

C. EMS agency should document patient outcome and QI indicators for cardiac arrest, including ROSC during EMS care, ROSC on arrival to ED, admitted to hospital, discharged from hospital alive, and neurologic function on discharge. Participating in and registering each cardiac arrest patient in CARES can be used to benchmark agency performance.

HeartRescue PROJECT

2013 National Highlights

- **HeartRescue publication** in American Heart Journal
- **80% population coverage for data collection of OHCA events**
- **HR communities seeing 50%-500% increase in survival rates over 3 years.**
- **6 million visitors to Save-A-Life Simulator**
  www.heartrescuenow.com

AHJ American Heart Journal

Multistate implementation of guideline-based cardiac resuscitation systems of care: Description of the HeartRescue Project

Sean van Diepen, MD, MSc,[a,j] Benjamin S. Abella, MD,[b,j] Bentley J. Bobrow, MD,[c,j] Graham Nichol, MD,[d,j] James G. Jollis, MD,[e,j] Joan Mellor, BA,[f,j] Edward M. Racht, MD,[g,j] Demetris Yannopoulos, MD,[h,j] Christopher B. Granger, MD,[e,j] and Michael R. Sayre, MD[i,j] *Alberta, Canada; Philadelphia, PA; Phoenix, AZ; Seattle, WA; Durham, NC; Minneapolis, and Duluth, MN; Greenwood Village, CO; and Columbus, OH*

Background There is large and significant regional variation in out-of-hospital cardiac arrest (OHCA), and despite advances in treatment, survival remains low. The American Heart Association has called for the creation of integrated cardiac resuscitation systems of care capable of measuring and improving evidence-based care from bystanders through to hospital discharge.

Methods The HeartRescue Project was initiated in 2010 by the Medtronic Foundation in collaboration with 5 academic medical centers and American Medical Response. The HeartRescue Project aims to develop regional cardiac resuscitation systems of care that will implement guideline-based best practice bystander, prehospital, and hospital care with standardized data reporting linked to outcomes. The primary goal is to improve collective OHCA survival by 50% over 5 years.

Results The total population in the 5 participating states is 41.1 million. At baseline, the HeartRescue Project covers approximately 26.1 million people (63.6%) and has engaged 767 emergency medical services agencies and 269 hospitals. Data will be collected for quality improvement, to inform provider feedback, and serve to define effective strategies to improve cardiac arrest care.

Conclusion The HeartRescue Project is the largest public health initiative of its kind focused entirely on cardiac arrest outcomes. The project is designed to significantly improve OHCA survival by implementing and measuring model systems of care for cardiac resuscitation. (Am Heart J 2013;0:1-7.e2.)

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

CARES
Cardiac Arrest Registry to Enhance Survival

EMORY WOODRUFF HEALTH SCIENCES CENTER

The Cardiac Arrest Registry to Enhance Survival

In 2004, the Centers for Disease Control and Prevention (CDC) collaborated with Emory University to develop a registry that could help increase OHCA survival rates.

CARES is a secure, Web-based data management system in which participating communities enter local data and generate their own reports. Communities can compare their EMS system performance to de-identified aggregate statistics at the local, state, or national level and discover practices that could improve emergency cardiac care.

LEARN MORE →

REGISTERED USERS LOGIN

Username

Password

Login

» Click here to learn more about enrollment.

LATEST NEWS

Purus Quam Tellus Egestas Fringilla »

Setus auctor fringilla. Cum sociis na toque penatibus et magnis dis parturient.

1 2 3

American Heart Association. Learn and Live

American Red Cross

Medtronic FOUNDATION

ZOLL

Pennsylvania

LEND-A-HAND SAVE-A-LIFE

Over 750,000 trained

Bystander CPR Rates

- 2012 27.8%
- 2013 34.0%
- 22.3% INCREASE

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4-Person Pit Crew CPR Example

(2 BLS and 2 ALS)

HeartRescue PROJECT PENNSYLVANIA

POSITION 3 (ALS)

-Insert Naso/oropharyngeal or alternative airway

-Apply oxygen

-Rhythm check/Shock immediately after each 200 compressions (charge during last 25 compressions of cycle)

-Hold BVM mask to face (2 thumbs up/ 2 person technique)

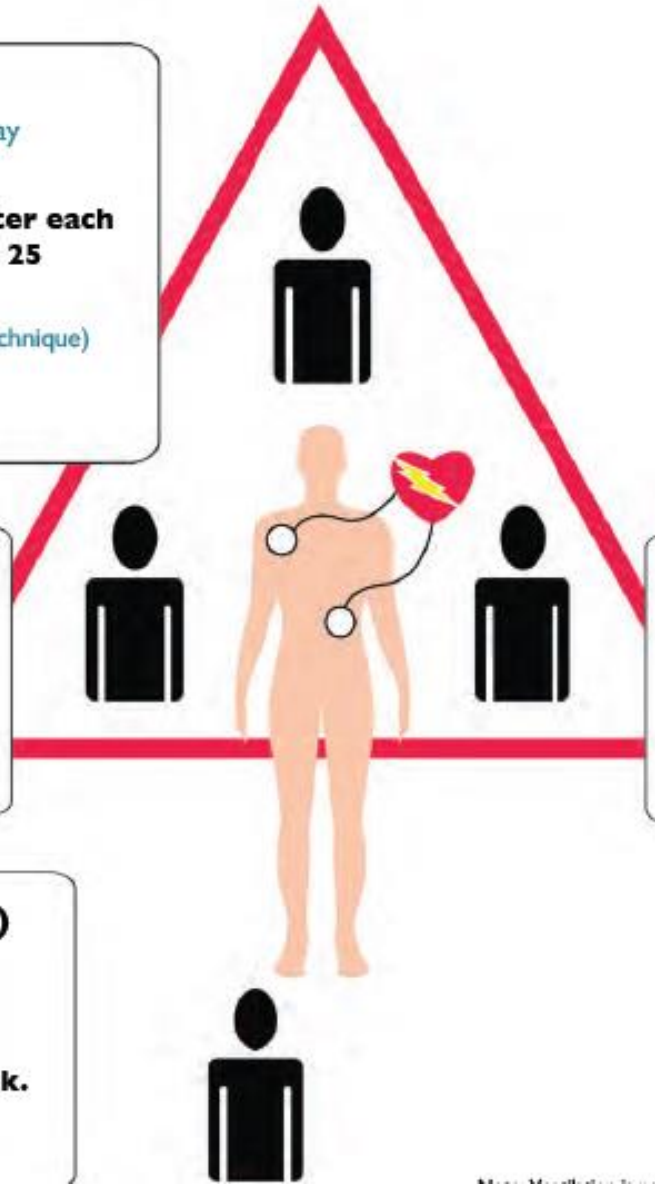
-Monitor capnography, if ventilating

-Attach ITD

POSITION 2 (BLS)

-Attach monitor/defibrillator pads
-Alternate 100 compressions with Position 1

-Ventilate in off cycle every 15 compressions



POSITION 1 (BLS)

-Assess patient and start CPR
-Alternate 100 compressions with Position 2

-Ventilate in off cycle every 15 compressions

POSITION 4 (ALS Team Leader)

- **Start IO/IV**
- **EPINEPHrine ASAP then every 400 compressions**
- **Amiodarone if VF/VT after first shock.**
- **Consider treatable causes**
- **Run CPR checklist**

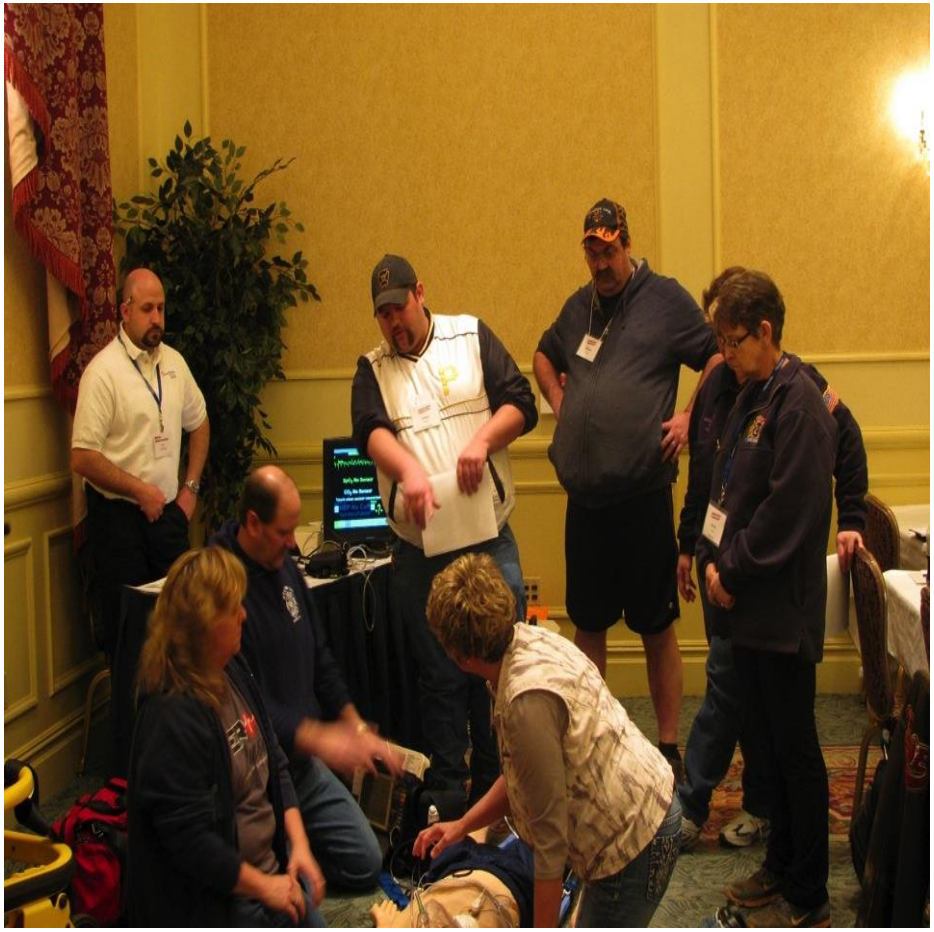
KEY

Black = General Cardiac Arrest Protocol-Adult (331A/3031A).

Blue = Per agency policy, optional.

Alt Airway= King LT or Combitube

Pit Crew CPR Results



- 13.7% **increase** in Overall CPR Survival
- 19.1% **increase** in Utstein (Witnessed-Shockable) Survival
- We can do even better

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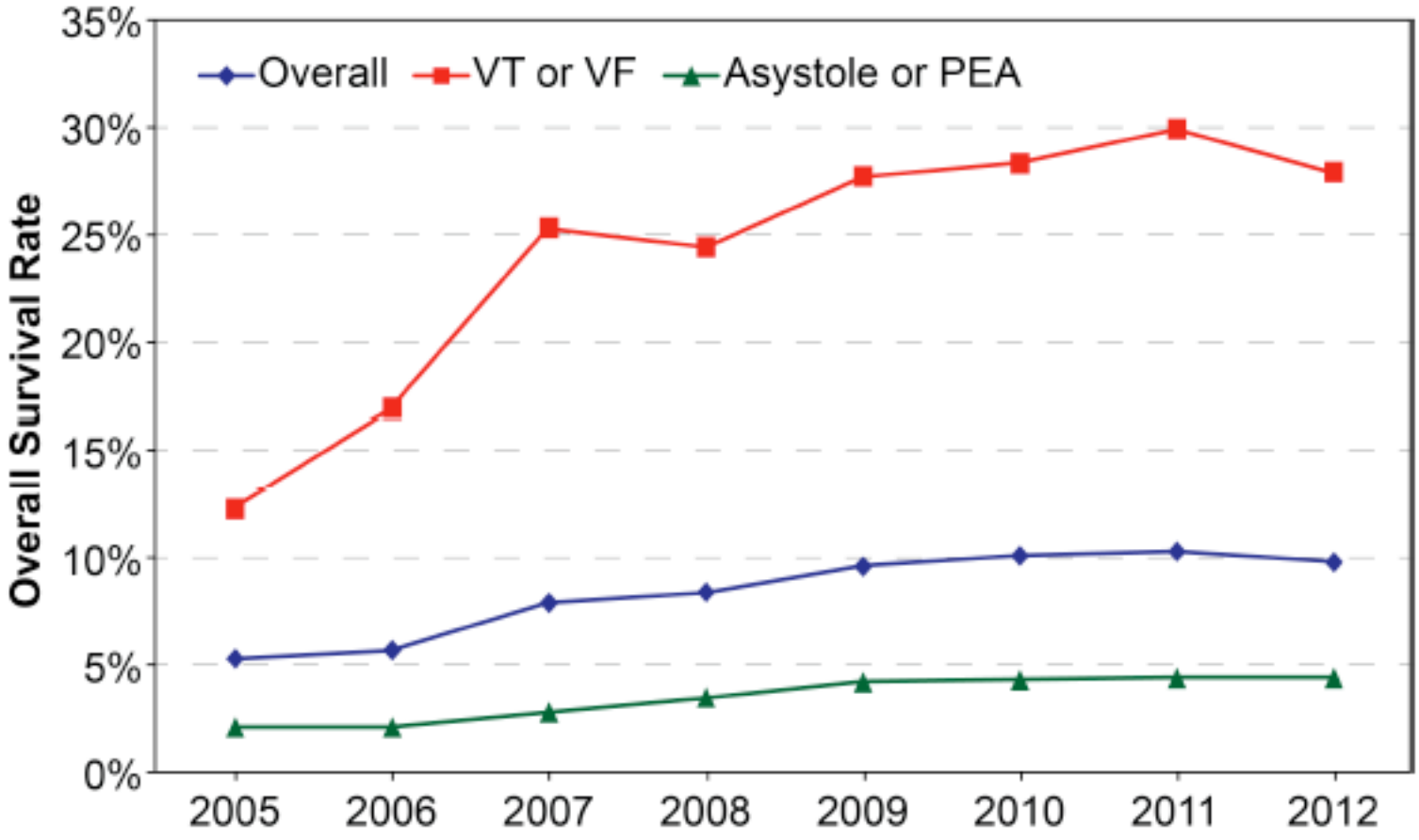
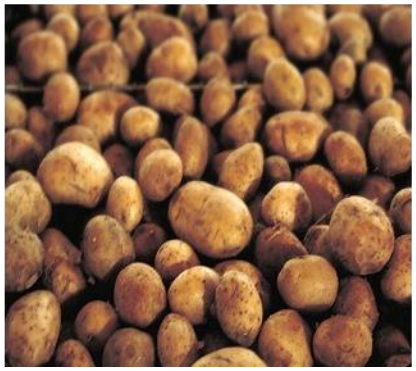

Overall
VT or VF
Asystole or PEA
Overall Survival Rate
35%
30%
25%
20%
15%
10%
5%
0%
2005
2006
2007
2008
2009
2010
2011
2012

Local EMS QI Experience

Where the Rubber Meets the Road

Jared Oscarson
Deputy Chief of EMS
Humboldt General Hospital
Winnemucca, NV

Winnemucca, Nevada



Humboldt General Hospital

- History of providing comprehensive care for over 150.
- We have faced many challenges relating to being located in some of the country's most rural and frontier environments.
- Public Tax District – The Humboldt County Hospital District
- 167 Miles East of Reno

Impetus For Change

- ¼ of Americans live in rural and remote areas.
- Only 10% of America's doctors practice rural and remote areas.
- Many rural and remote residents travel > 30 miles for health care compared to urban residents.

"Our problems and challenges are not unique, our solution must be"

Why EMS? Can they Integrate?

- Well respected throughout the community
- Highly visible – Walking and driving billboards
- Responsive
- Flexible and able to easily adapt
- Engaged

Buy In?

Leadership and Hospital Board
- Hospital Integration
- Support of other departments
- Added services
- Added revenues
- More resources

Community Leadership
- Community Outreach
- Support of other agencies
- Flexibility

Existing Volunteers and Employees
- Professionalism : “Volunteers to Casual Call Employees”
- Integration an membership into the hospital

Priorities

- Our system approach :
  - Where can we make the greatest impact in the existing health care infrastructure?
  - What role can we have in these areas?
  - Can services be expanded using EMS providers?

What we came up with…….

Cardiac Rehab

- Typical Cardiac Rehab programs include two RNs.
- Rural nursing shortage, equated to no Cardiac Rehab program.
- Developed a hybrid model where paramedics were substituted for 1 nurse, and a PT for the other.
- Program is sustainable and operates at a fraction of the cost of similar programs.

Nuclear Medicine

- Nuclear Medicine faced problems related to cost effective delivery of services.
- HGH paramedics were chosen to staff the program.
- Paramedics start IVs., monitor patients and provide overall support.
- Paramedics allow the program to operate 5 days a week in a cost effective manner.

Public Health

- Winnemucca has struggled to find a long term Public Health Nurse for a number of years.

- HGH has developed local and state agreements that has put the responsibility of community vaccination and emergency inoculation on the shudders of HGH.

Specialty Care Clinics

- EMTs and Paramedics serve as specialized Medical Assistants in the Orthopedic and General Surgery Clinic.
- These staff members have special training and can assist with casting, splints, and orthopedic surgical procedures as well as manage administrative functions.
- Like their fellow EMTs and paramedics these staff members serve to support the EMS department on an as needed basis.

In Conclusion

- Look for reasonable sustainable projects.
- Work closely with stakeholders
- Integration of EMS is not a replacement, but a compliment to an already burdened health care system.

- Robust and Useful Data
- Evidence-Based Care
- Quality EMS Care
- Patient Safety
- Value-Based Reimbursement