



Arizona's EMS Strategic Map: Moving Upstream to Improve Public Health Outcomes

Will Humble, MPH

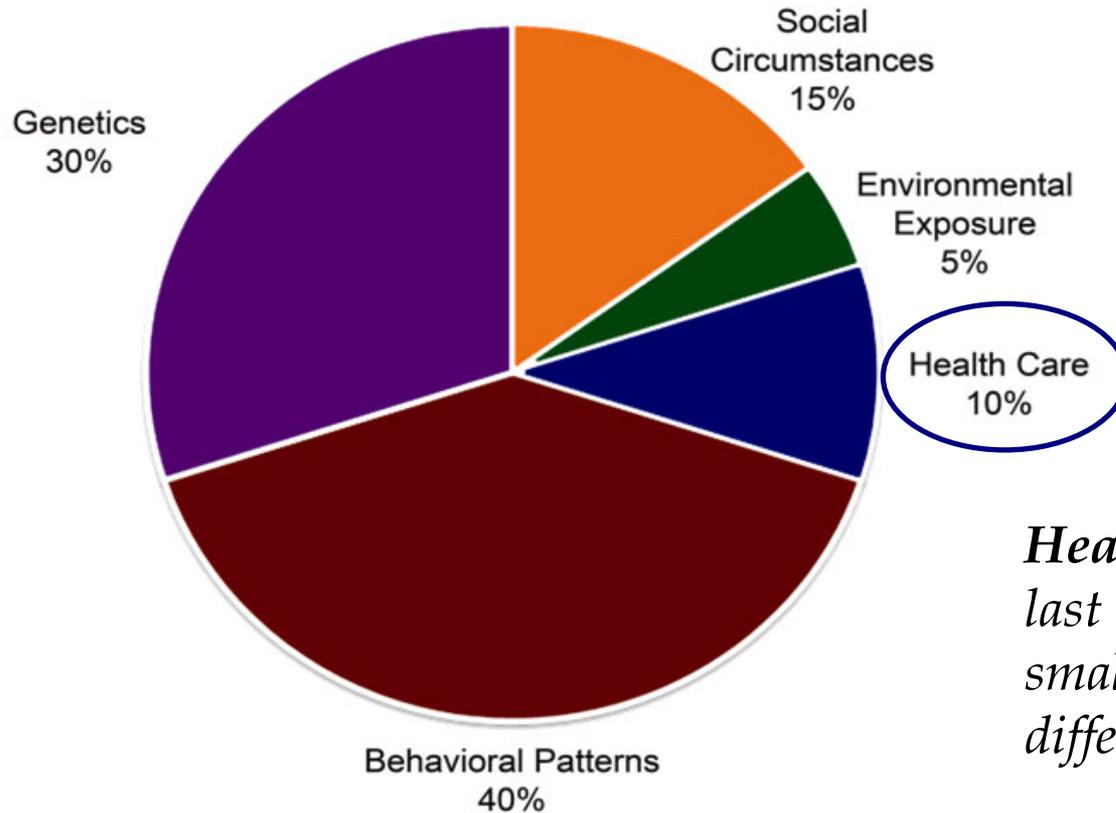
Director

Arizona Department of Health Services

Arizona Fire District Association Annual Meeting, Laughlin, NV, January 18, 2014

Determinants of Health

Factors Influencing Health Status

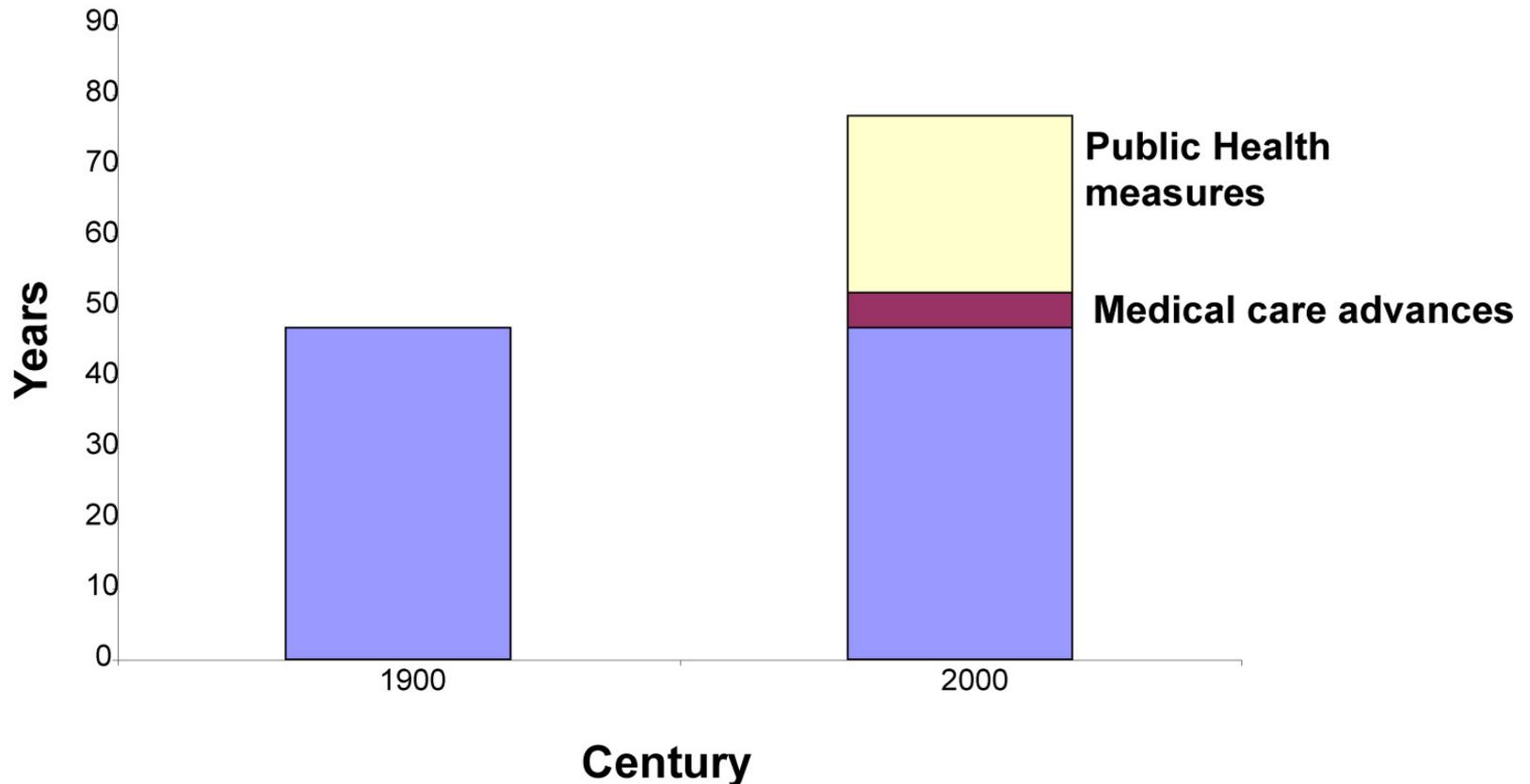


Health Care - one of the last remaining areas where small changes make a big difference

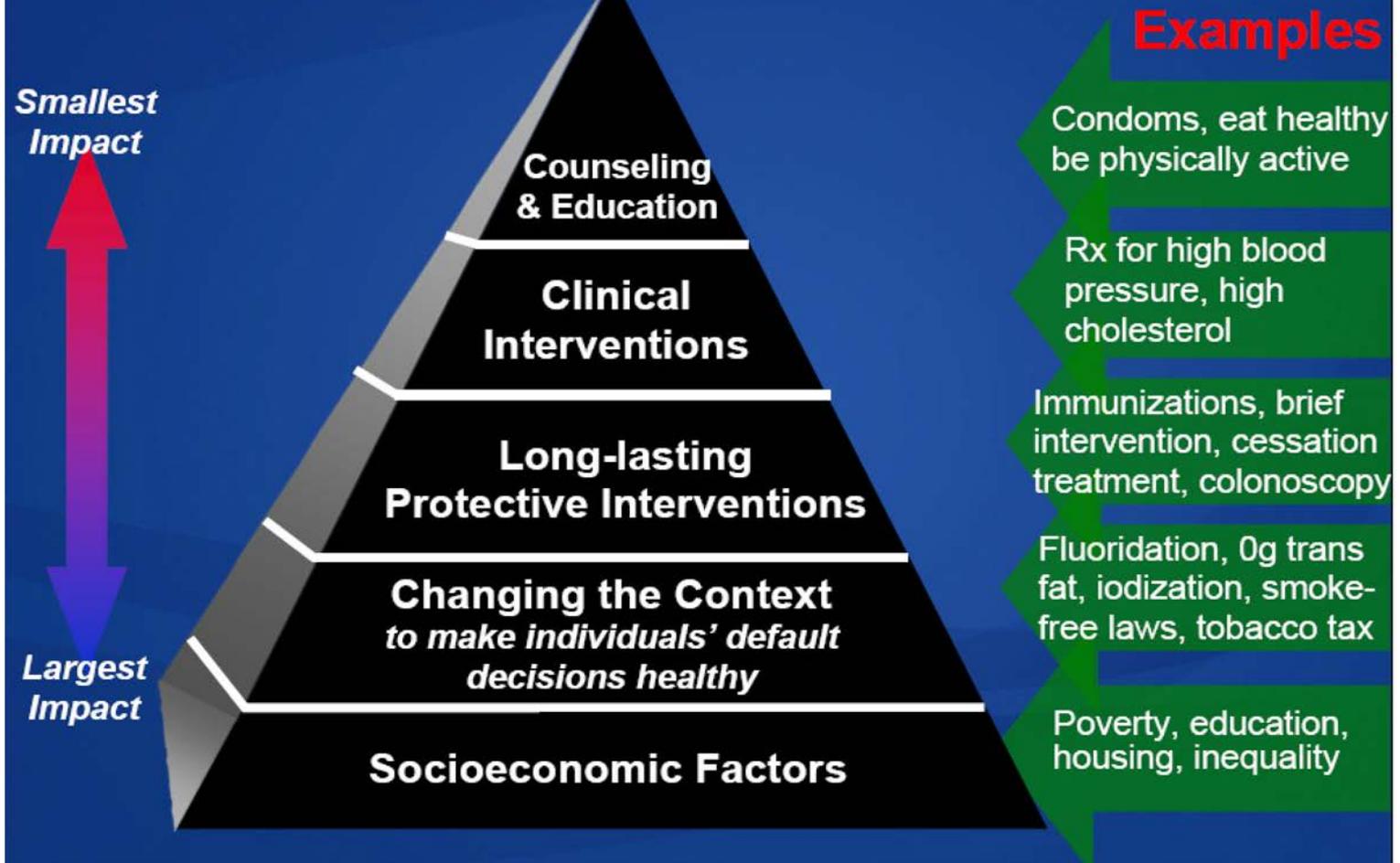
Source: N Engl J Med 2007;357:1221-8

Improvements in Longevity

100 Years of Progress



Factors that Affect Health



A photograph of an emergency scene at night. In the foreground, the rear of a white police car is visible, with 'POLICE' written on the back and its emergency lights flashing. Behind it, a white ambulance is parked, with 'PARAMEDIC' and 'AMBULANCE' written on its side. The scene is illuminated by the emergency lights of the vehicles.

Arizona's EMS & Trauma System

Demonstrating Progress

Where We've Been

The Wheel Was Invented and We Rolled With It



- 1981 - Certificate of Necessity requirement
- 1993 - Arizona State Trauma System Development Act
- 1994 - State Trauma Advisory Board
- 2002 - First Arizona EMS & Trauma System Plan
- 2005 - First state designated Level I Trauma Center
- 2006 - Arizona State Trauma Registry standardized data
- 2008 - First state designated Level IV Trauma Center
- 2010 - Premier EMS Agency Program
- 2011 - Arizona Prehospital Info. & EMS Registry System
- 2012 - First state-designated Prov. Level III Trauma Center

Where We're Going



- State Trauma System Plan
- Performance improvement
- EMS agency quality assurance quarterly reports
- County level trauma reports
- American Indian Trauma Report
- Dispatcher CPR
- Trauma System Consultation Report
- AZ EMSTS Strategic Plan
- State Trauma Advisory Board

Where We're Going, cont'd

- Resuscitation Quality Improvement Project
- Utilizing Public Health Education Programs
- Measure over-triage and support countermeasures
- Support operational excellence
- Launch and maintain online EMCT certification
- Expand schools of public health collaboration
- Support statewide community paramedicine
- Building Level IV trauma center in rural Arizona



1.0

Time Sensitive Injuries and Illnesses Program

Time Sensitive Injuries and Illnesses Program

In Forefront Supporting Chain-of-Survival Improvements

This program focuses on improving outcomes for Trauma, Stroke, STEMI and Out-of-Hospital Cardiac Arrest.

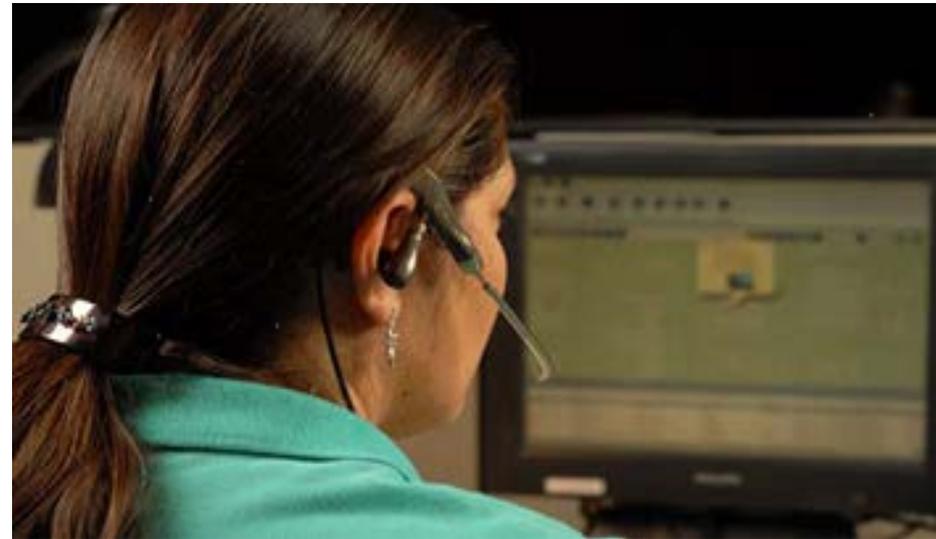


Health and Wellness for all Arizonans

Time Sensitive, cont'd

In Forefront Supporting Chain-of-Survival Improvements

- Pre-hospital Best Practices for TBI
- CPR Training
- Dispatch Assisted CPR
- Survivor Support Program (SHARE)
- Cardiac Centers
- AED Placement



Time Sensitive, cont'd

CPR Training

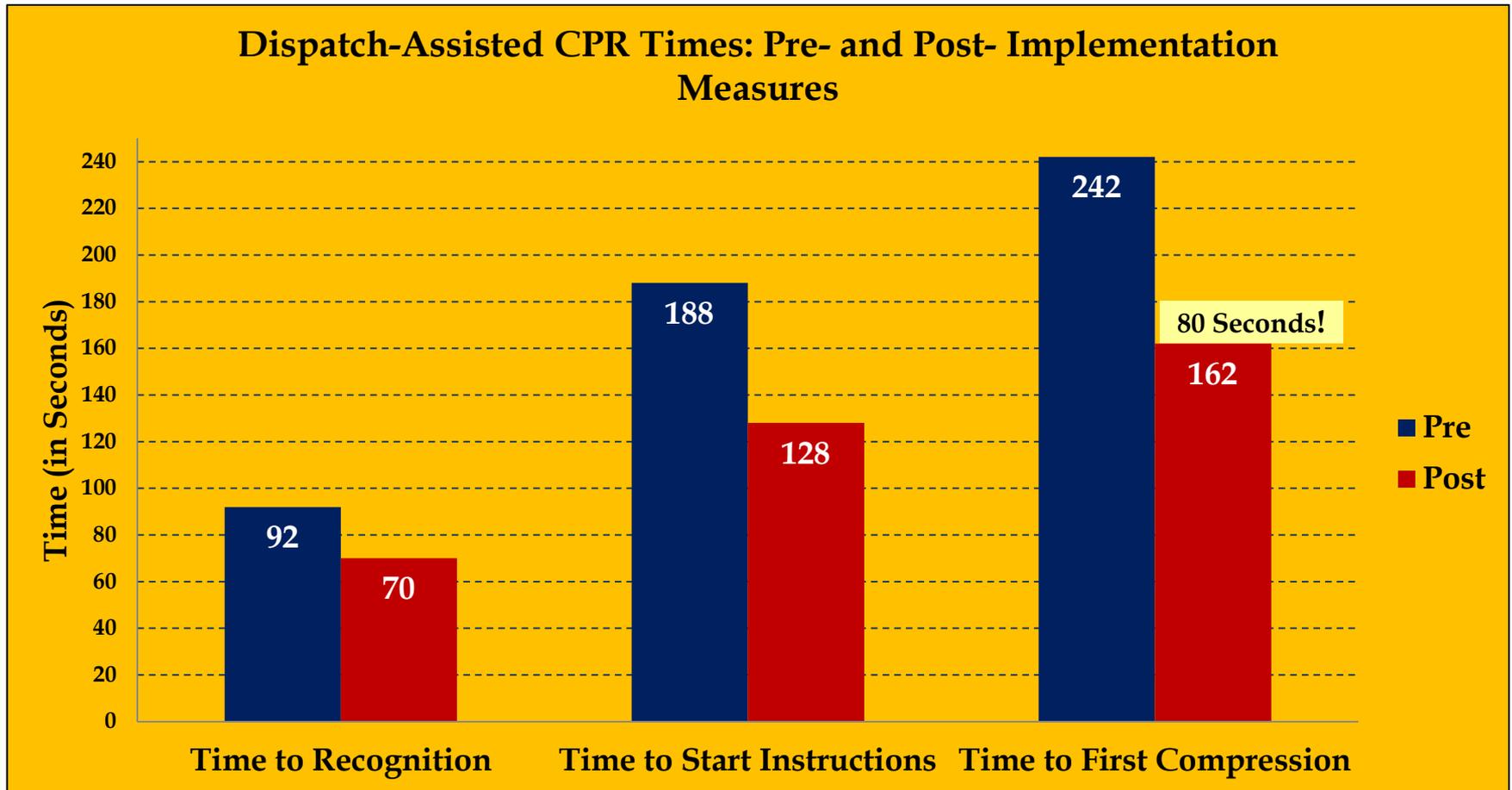
Bystander CPR: Incidence and Type



SHARE - JAMA 2010; Oct

Time Sensitive, cont'd

Dispatch-Assisted CPR



Time Sensitive, cont'd

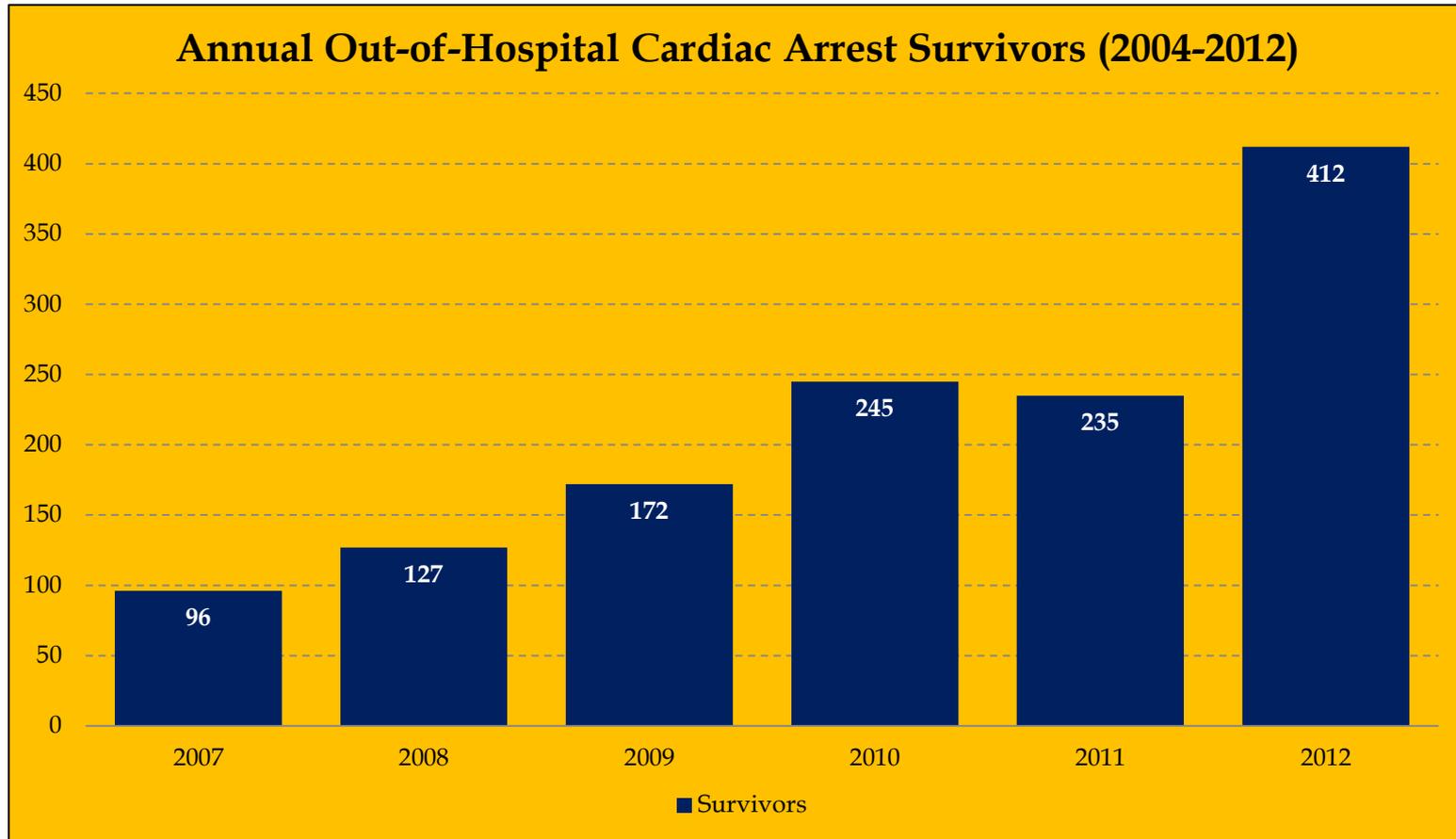
Save Hearts in Arizona Registry & Education (SHARE)

- Provides opportunities to speak at events that promote the latest in resuscitation
- Provides resources for support, answers and education
- Extends an invitation to Sudden Cardiac Arrest Foundations' Survivor Network to connect with other survivors and family members
- Provides advocacy opportunities for survivors of cardiac arrest



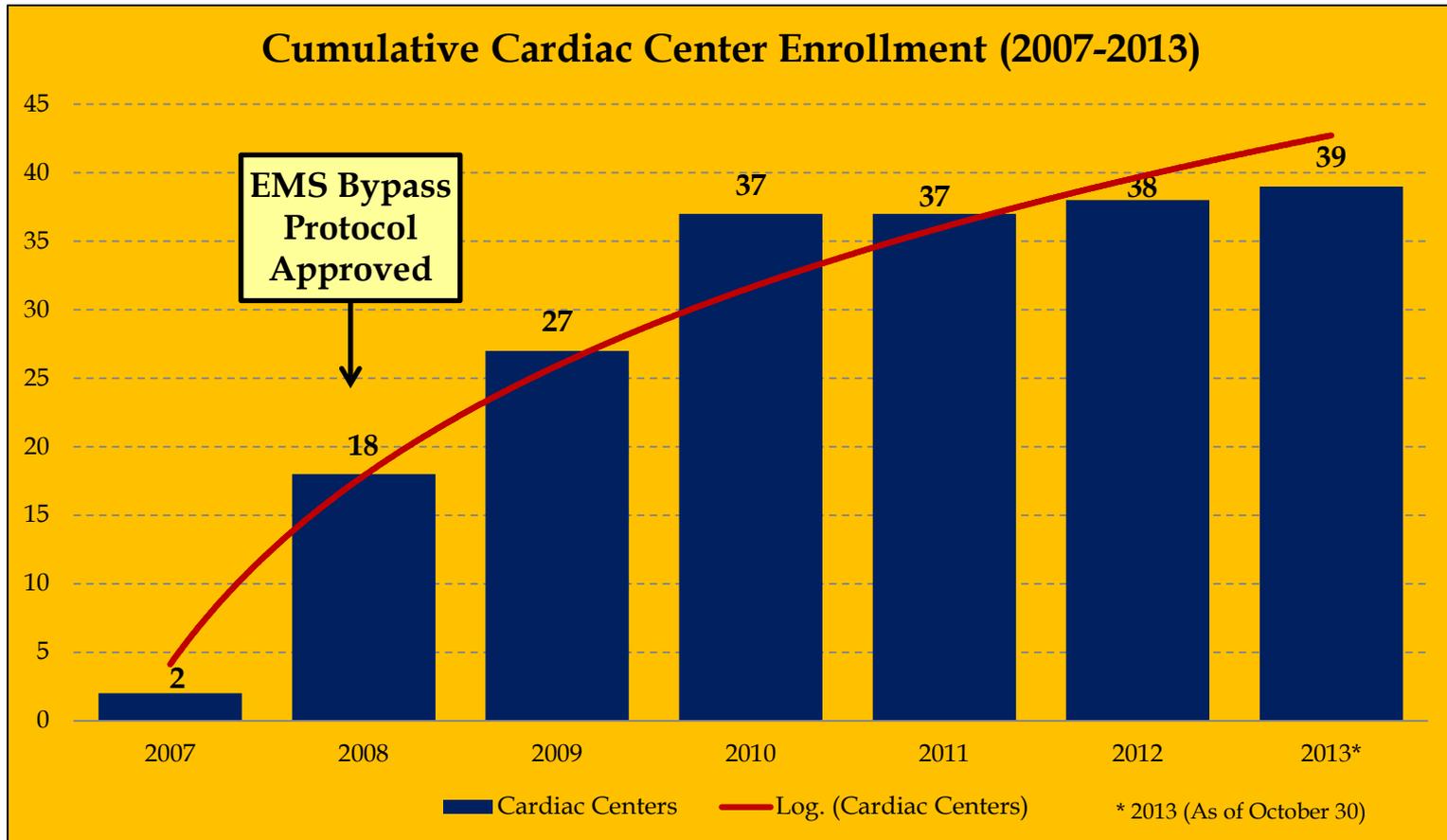
Time Sensitive, cont'd

Survivor Rates



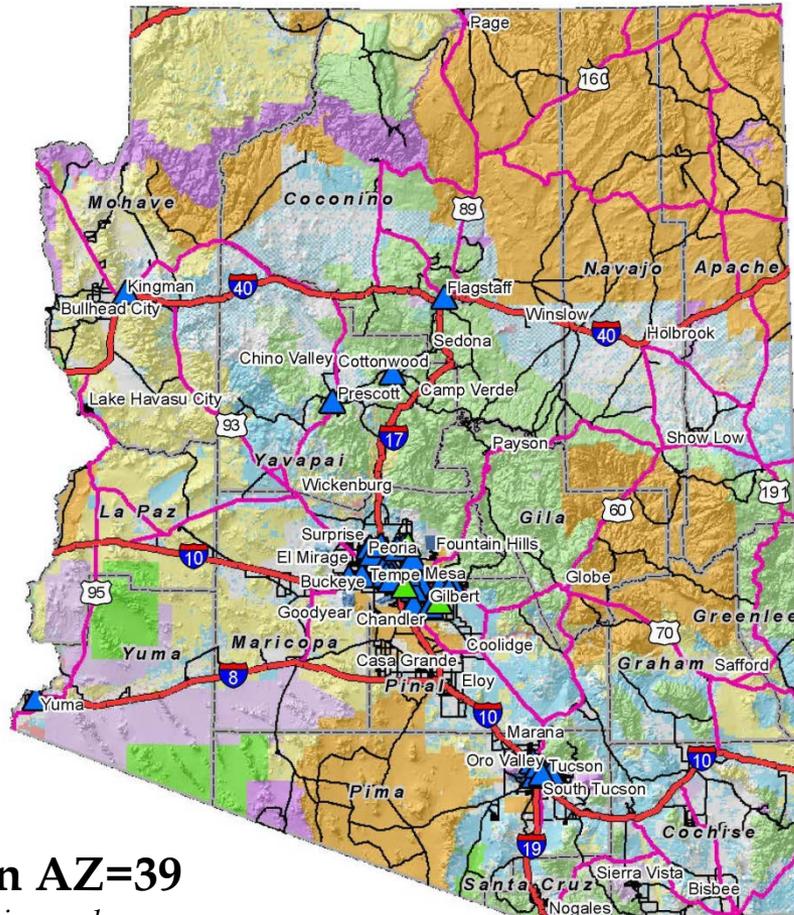
Time Sensitive, cont'd

Cardiac Centers Enrollment Progress



Time Sensitive, cont'd

Cardiac Centers in Arizona



-  Cardiac Receiving Center
-  Cardiac Referral Center
-  AZ Interstates
-  AZ Major Roads
-  AZ Minor Roads
-  AZ Counties
-  BLM
-  National Forest
-  Indian Reservation
-  Military
-  National Parks
-  Other
-  Private
-  Local or State Parks
-  State Trust
-  Wildlife Refuge

Total in AZ=39

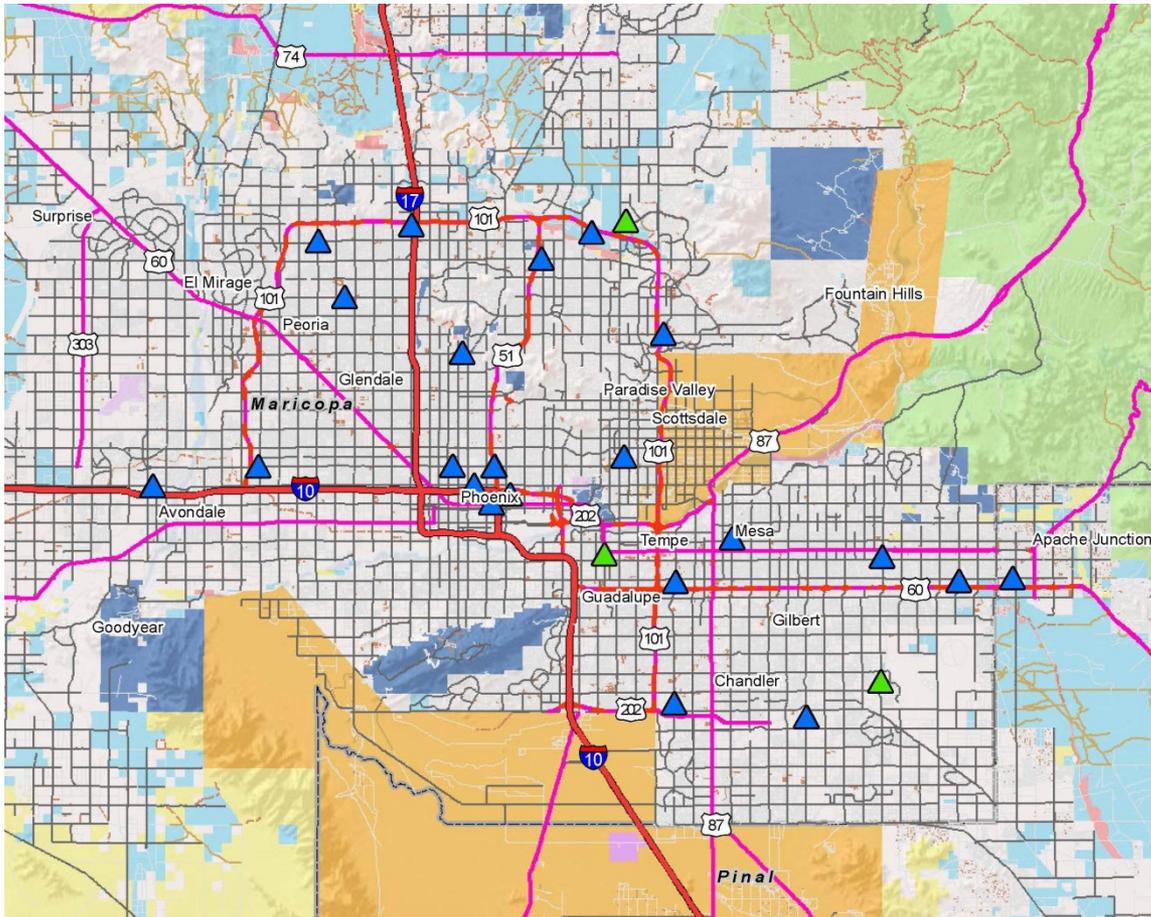
Incl. Receiving and Referral Locations



Health and Wellness for all Arizonans

Time Sensitive, cont'd

Cardiac Centers in Greater Phoenix Area



- ▲ Cardiac Receiving Center
- ▲ Cardiac Referral Center
- Interstate
- Interstate Ramps
- Highways
- Major Roads
- Local Roads
- Unimproved Roads
- Trails
- +
- AZ Counties
- BLM
- National Forest
- Indian Reservation
- Military
- National Parks
- Other
- Private
- Local or State Parks
- State Trust
- Wildlife Refuge

Time Sensitive, cont'd

AED Registry

THE UNIVERSITY OF ARIZONA

SHARE AED Registry

Register an AED, save a life.

Need to Register for an account? [Login](#)

Please Login: [Need a login? Register here.](#)

Login (Email Address)*
Password*

[Login](#) [Forgot Password?](#)

By registering your Automated External Defibrillators (AEDs) with the Save Hearts in Arizona Registry & Education (SHARE) Program, you will receive:

- Physician oversight (free of charge), oversight required by statute: A.R.S. 38-2262
- Assistance with your AED program, if needed

You report your AED Use by logging in and looking up your registered AED (or registering it if needed) and clicking the 'Report a Use' button.

Learn more about AEDs and the SHARE Program.

Is your business/workplace/school Heart Safe? Get recognized!
Apply for the SHARE Heart Safe Recognition Program.

Please Note: as of 1/1/2014, any AED Use reports need to be done in the AED Registry application – you go to your registered AED and click the 'Report AED Use' button to submit your Use report.

Arizona Department of Health Services | THE UNIVERSITY OF ARIZONA | THE UNIVERSITY OF ARIZONA Save Hearts Center

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There are **3,734** AEDs registered throughout the state

Time Sensitive, cont'd

AED Locations

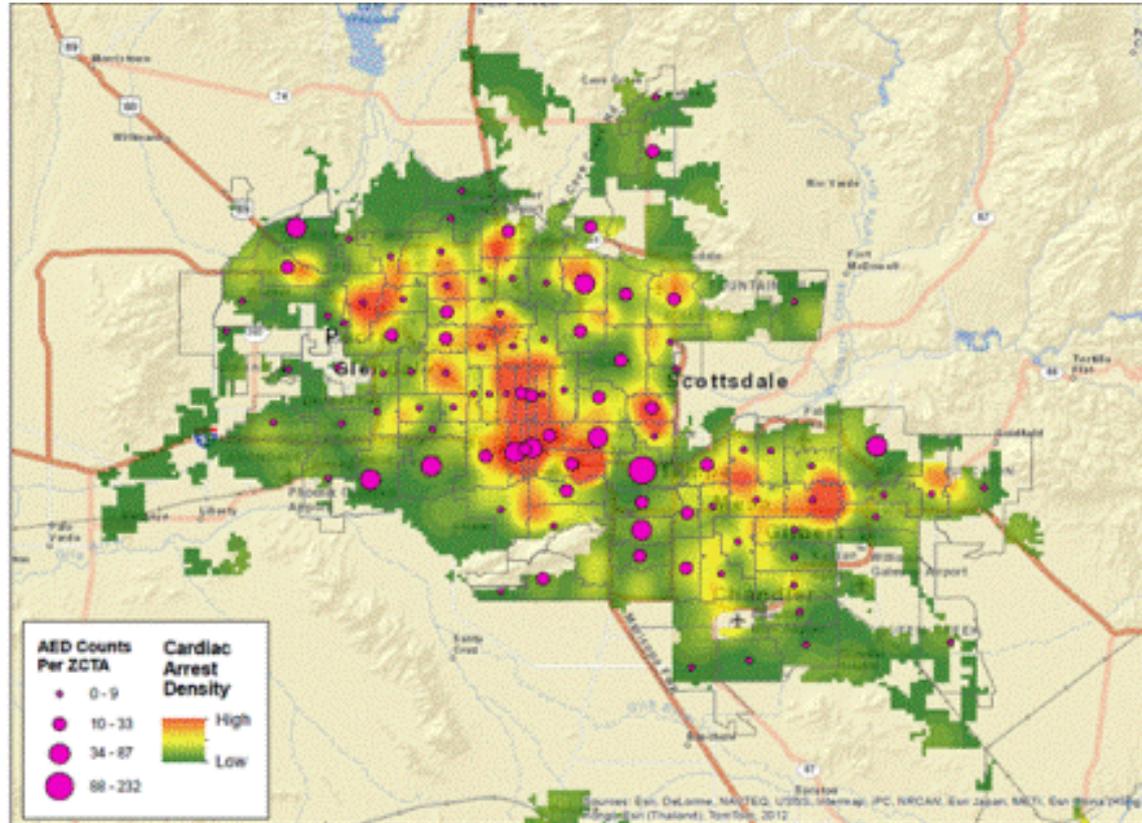


Figure. Map of out-of-hospital cardiac arrest incidents and number of automated external defibrillators per ZIP code tabulation area of Metro Phoenix

2.0

Trauma System Development

Trauma System Development

Past Accomplishments:

2007 – Started with 7 Level I Centers

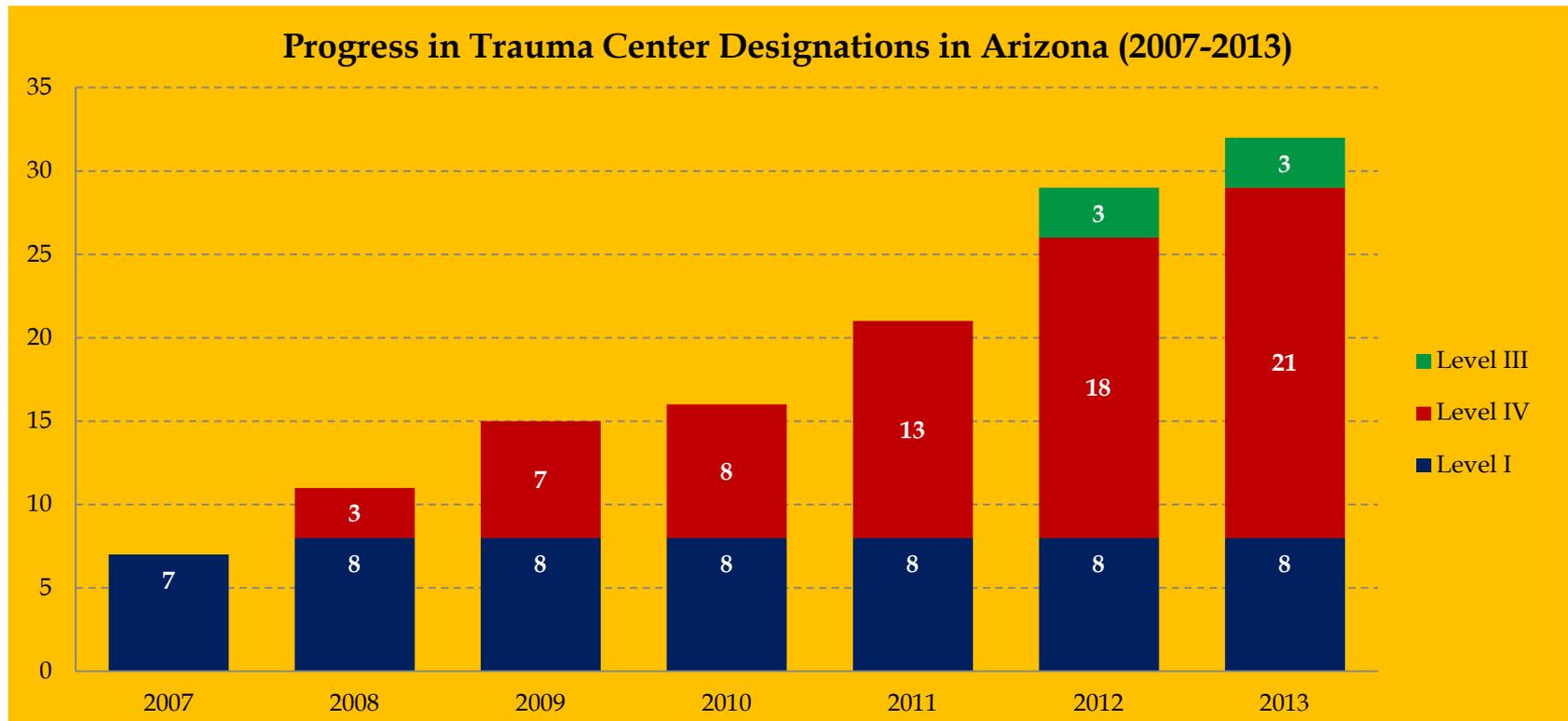
2013 – 32 Trauma Centers (I, III, IV)

2014 Fiscal Year Objectives:

- Reduce by 5% statewide over-triage incidence by 11/1/14
- Ensure that all 16 designated trauma centers are re-designated by 12/31/14

Trauma System Development, cont'd

Support Progress in Trauma Center Designations



Trauma System Development, cont'd

Trauma Placement Centers in AZ



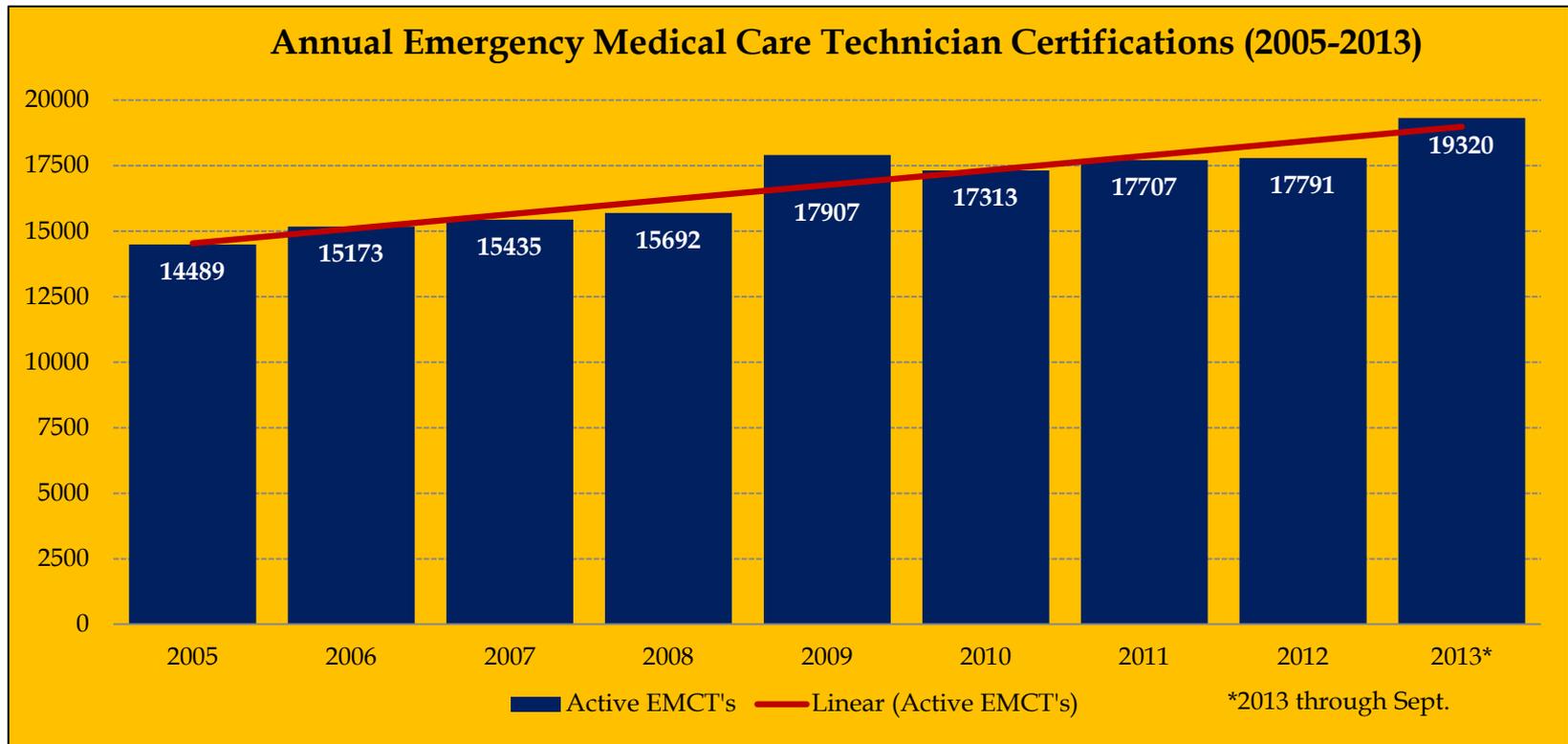
*Anticipated
for January
2014*

3.0

Emergency Medical Care Technician Certification

Emergency Medical Care Technician Certification

Promote Online Certification



Emergency Medical Care Technician Certification

Address Education Needs & Statewide Content Changes



Support the Transition to National Certification Categories

Bridge Courses

EMT-Basic

EMCT

EMT-I 99

**Advanced EMT/
Paramedic**

EMT-P

Paramedic

4.0

Data & Quality Assurance

Data & Quality Assurance

Build and Support a Robust EMS & Trauma Data Collection System

Public health and safety is evidence-based and data-driven, with data and quality assurance enabling agencies to measure population needs, service delivery needs, and patient outcomes.

Data & Quality Assurance, cont'd

The What and Why

Data enables public health and safety agencies to:

- Assess the needs of their service community;
- Devise services targeting their service community's needs;
- Measure the effectiveness, efficiency, and cost of services;
- Implement measures to improve patient outcomes and service delivery.

Data & Quality Assurance, cont'd

The What and Why

Quality Assurance Allows Public Health & Safety Agencies to:

- Interpret data that measures services delivered and patient outcomes;
- Identify gaps in service and information;
- Develop and refine performance indicators to establish benchmarks;
- Act upon the data results from established performance indicators.

Data & Quality Assurance, cont'd

The What and Why

Examples:

- AZ-PIERS run data support QA measures and reports:
 - Improving EMS-to-12 Lead Placement Times;
 - Premier EMS Agency Program support to participants
 - Cardiac Arrest Aggregate baseline data
 - STEMI Aggregate baseline data
 - Aggregate county injury and illness incident data

Data & Quality Assurance, cont'd

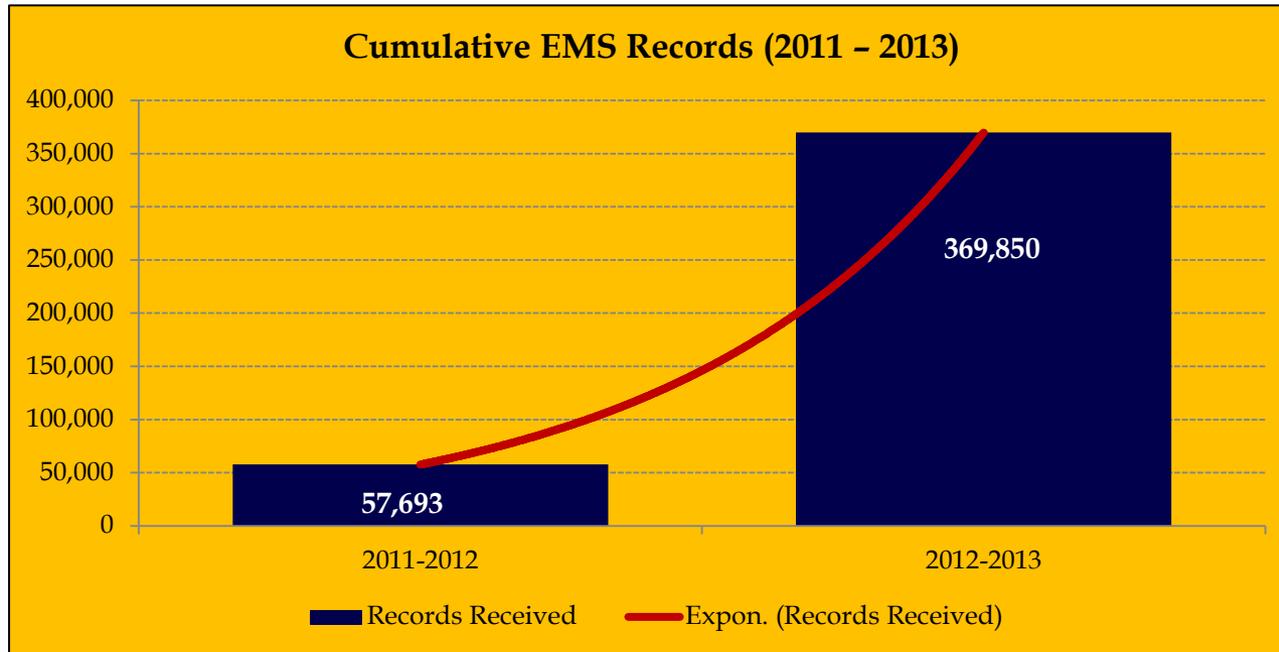
The What and Why

More Examples:

- The Trauma Registry data support QA measures and reports:
 - Reducing Over- and Under-Triage Rates;
 - Improving prehospital management of TBI patients;
 - Reducing ED dwell times;
- Improving Out-of-Hospital Cardiac Arrest Survival.
- Improving Dispatch-to-First Compression Times.

Data & Quality Assurance, cont'd

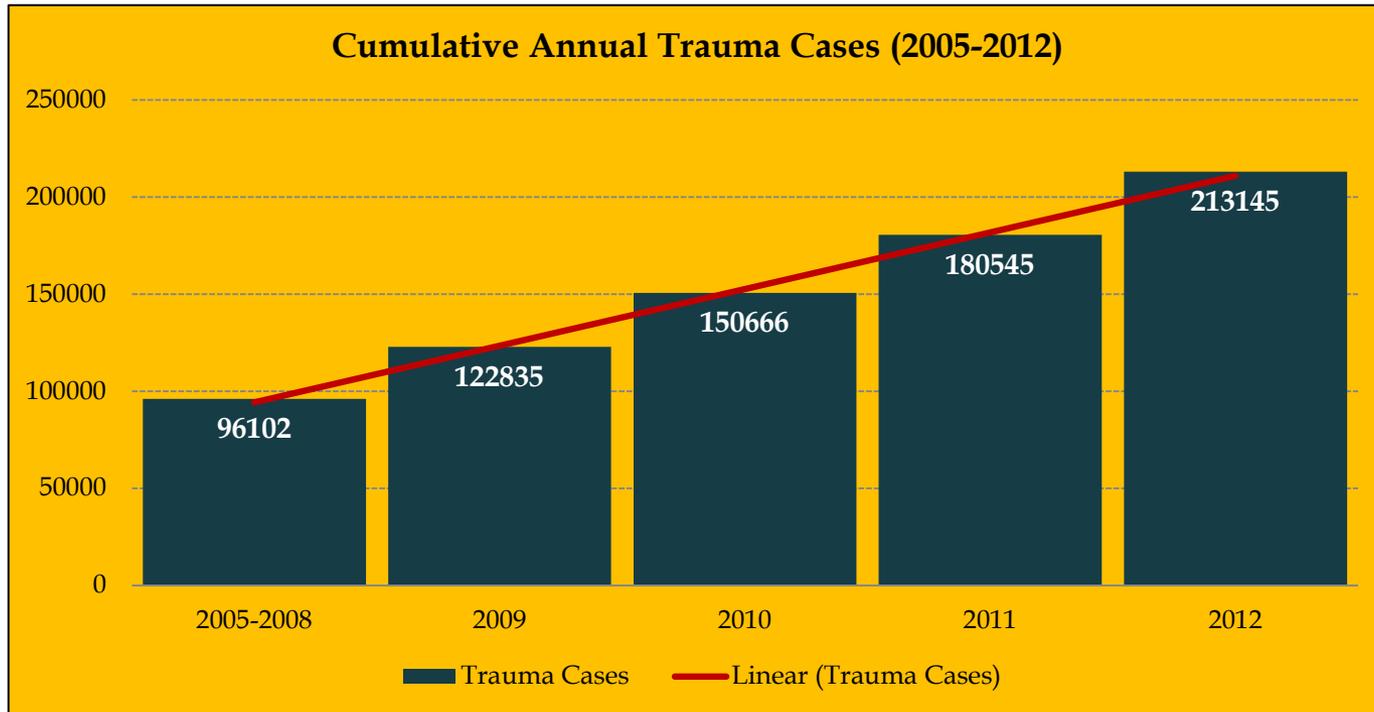
EMS Data Registry (AZ-PIERS)



66 EMS/Fire Agencies
369,850 Records (December 31, 2013)
29 Hospitals
4 EMCT Training Schools

Data & Quality Assurance, cont'd

Arizona State Trauma Registry



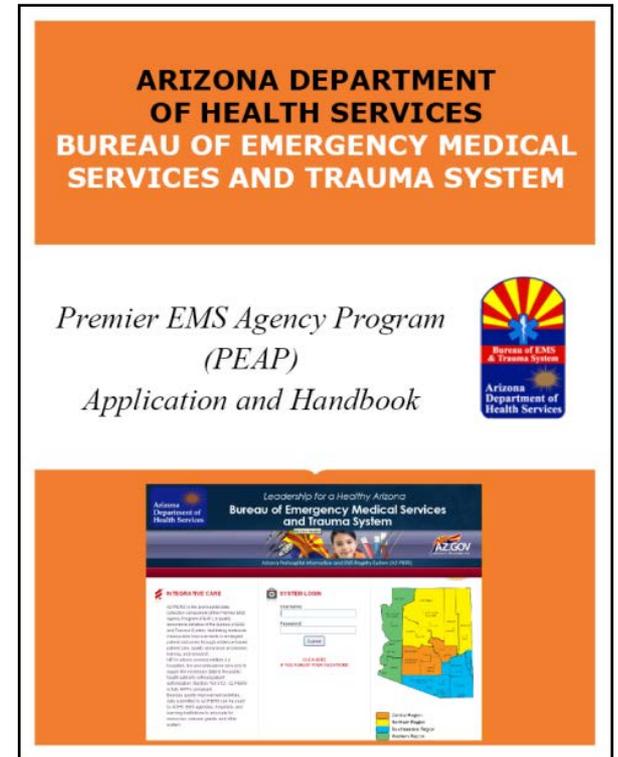
35 Hospitals
180 Data Elements
213,145 Records (Dec. 2012)

Data & Quality Assurance, cont'd

The Premier EMS Agency Program (PEAP)

EMS and trauma systems have a proven capability to improve outcomes of trauma, STEMI, cardiac arrest, and stroke patients.

The Premier EMS Agency Program supports these outcomes.



Data & Quality Assurance, cont'd

What is PEAP?

The PEAP is a four-part quality improvement initiative for EMS agencies designed to improve emergent patient care and outcomes, including:

- Agency leadership commitment
- Perform 100% quality improvement program to measure:
 - **Trauma**
 - **Cardiac Arrest**
 - **STEMI**
 - **Stroke**
- Collect EMS run data submitted to ADHS under QA standards
- Continuously train and educate EMS personnel using EMS data

5.0

Community-Based EMS

Community-Based EMS

Support efforts to reduce risks of chronic disease

Community paramedicine can help patients better manage:

- Cardiac Heart Failure
- Asthma
- Diabetes
- Hypertension

Community-Based EMS, cont'd

*Support Partnerships Providing Preventive Care
in Underserved Areas*



Community-Based EMS, cont'd

What is Community Paramedicine?

“Community paramedicine is a locally designed, community-based, collaborative model of care that leverages the skills of paramedics and EMS systems to address care gaps identified through a community-specific needs assessment.”

What is a Community Paramedic?

“A community paramedic is a paramedic with additional standardized training who works within a designated community paramedicine program under local medical control as part of a community-based team of health and social services providers.”

Community Paramedicine Expands the Role, Not the Scope of Paramedics

Community-Based EMS, cont'd

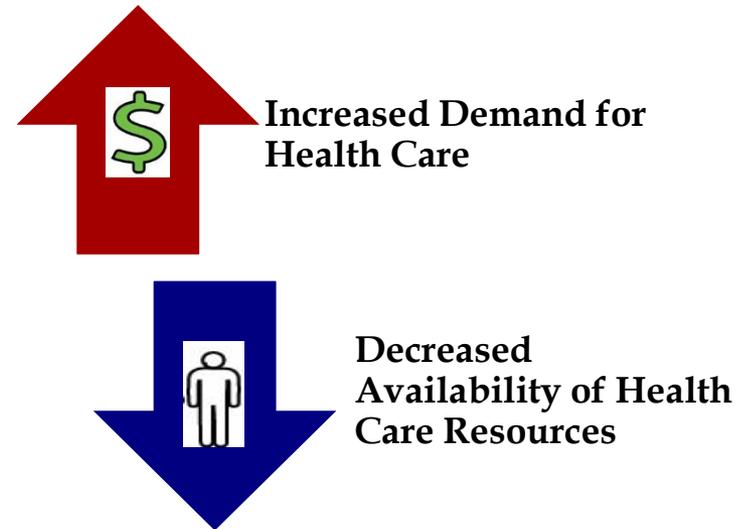
A Paradigm Shift in Using Paramedics

Emerging model where paramedics function outside the usual prehospital response and transport role, delving into primary care and preventative community health.

EMS Function	Expanded Role
Patient Assessment	<ul style="list-style-type: none"> Checking Vital Signs Blood Pressure Screening & Monitoring Prescription Drug Compliance & Monitoring Assessing Patient Safety Risks
Patient Treatment & Intervention	<ul style="list-style-type: none"> Breathing Treatments Wound Care & Dressing Changes Patient Education Intravenous Monitoring
Patient Referrals	<ul style="list-style-type: none"> Mental Health & Substance Use Disorder Referrals Social Service Referrals
Prevention & Public Health	<ul style="list-style-type: none"> Immunizations Well Baby Checks Asthma Management Disease Investigation

Community-Based EMS, cont'd

Why Community Paramedicine?



Community-Based EMS, cont'd

Why Community Paramedicine?

- 14% - 27% of ED visits are for non-urgent care and could be treated elsewhere, saving \$4.4 billion annually ([2010 Rand study](#)).
- Frequent users comprise 4.5-8% of ED patients and account for 21-28% of visits (2010 [Annals of Emergency Medicine](#)).
- Patients with a regular healthcare provider [have fewer preventable ED visits and hospitalizations](#).

Community-Based EMS, cont'd

Why Community Paramedicine?

- In 2012, 54 million Americans lived in areas [having shortages of primary medical care](#).
- During first half of 2011, 80% of adults visited the ED because they didn't have access to another provider [National Center for Health Statistics](#).

Community-Based EMS, cont'd



**Reduce
Healthcare
Costs**



**At-Home Vital
Signs
Monitoring**



**Extension of
Primary Care
Providers**



**Existing
Trained
Resource**



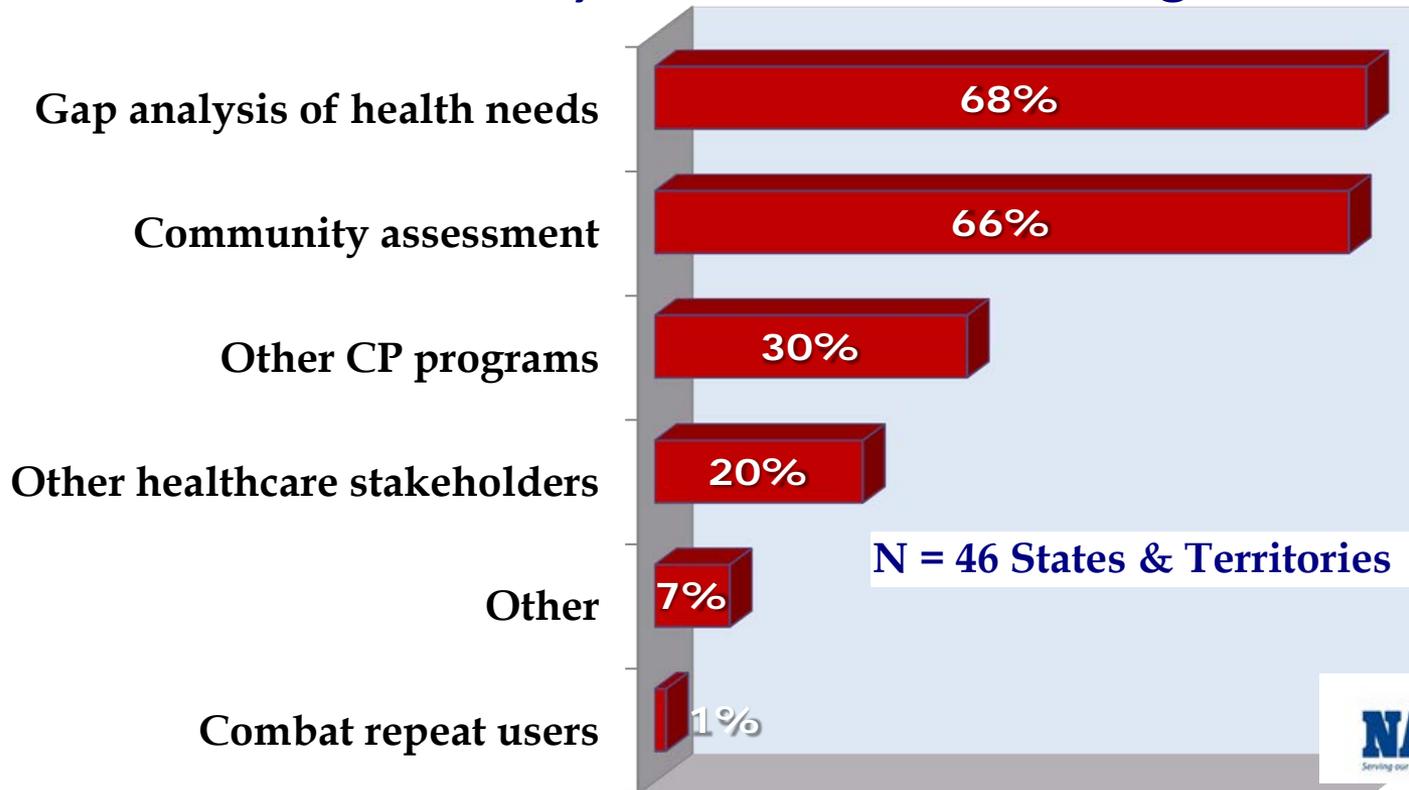
**Communications
with Medical
Directors**



**Patient Care
Documentation**

Community-Based EMS, cont'd

Catalyst for Starting a Community Paramedicine Program



Respondents were able to select more than one response, resulting in a percentage total greater than 100%.

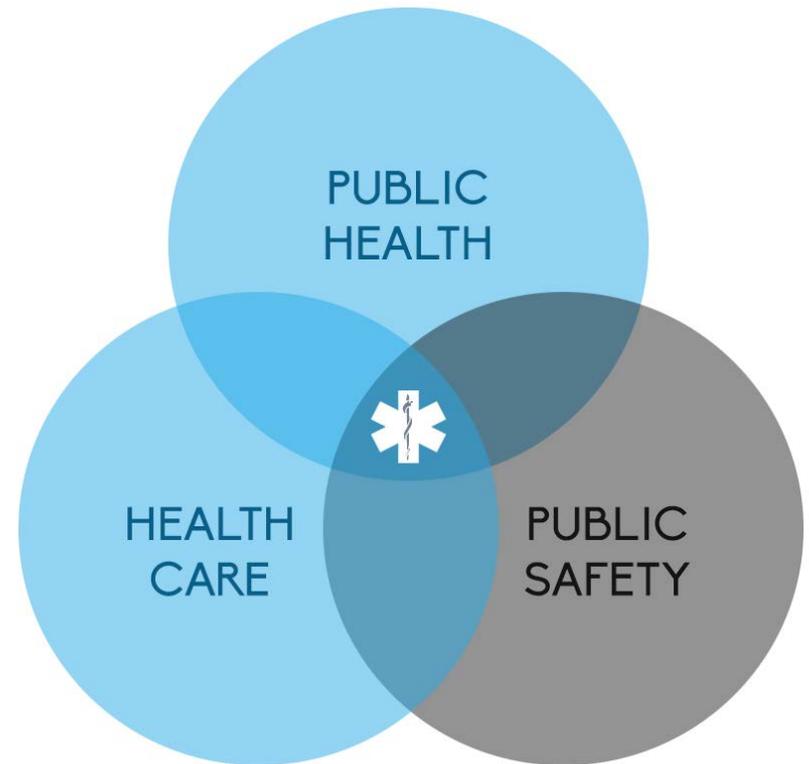
Community-Based EMS, cont'd

EMS is a Collaborative System

EMS integrates with other services and systems to maintain and enhance community health and safety.

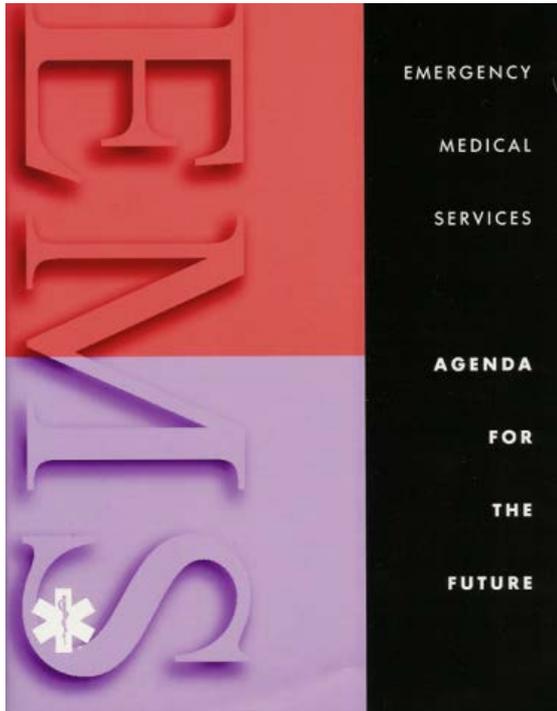
EMS operates at the crossroads of health care, public health and safety.

EMS often announces the emergence of significant public health problems (outbreaks and epidemics).



Community Paramedicine is the Continued Evolution of EMS

The Vision - EMS of the future will:



- be community-based health management
- be integrated with the overall health care system
- identify and modify illness and injury risks
- contribute to treatment of chronic conditions
- contribute to community health monitoring

-1996 NHTSA

Community-Based EMS, cont'd

Grass Roots Community Paramedicine Programs

- Are relevant to both rural and urban areas, with differing services
- Are extenders of primary healthcare providers
- Address specific local problems
- Utilize paramedics trained to provide specific needed services
- Provide paramedic level services under physician direction and supervision
- Utilize locally developed collaborations between EMS and other healthcare and social service providers

Community Paramedicine, cont'd

Benefits

- **Efficient Use of Emergency Care Services**
 - Transporting patients with non-emergent low acuity illnesses away from hospital EDs and to more appropriate destinations.
 - Assist needs of frequent 911 callers and ED users.

Community Paramedicine, cont'd

Increased Access to Primary Care for Medically Underserved Populations

- Follow-up home visits for recently discharged patients.
- Support services for patients with chronic diseases (e.g., diabetes, COPD).
- Provide preventative care (BP checks, diabetes screening, patient education).

Community Paramedicine, cont'd

My Vision for Arizona

Community paramedicine builds on the strength of the current EMS system to improve patient outcomes.



Community Paramedicine, cont'd

Integrated EMS & Trauma Care

The goal of an **integrated EMS and trauma system** is to:

“Get the right patient, to the right treatment, at the right time.”

The goal of **Community Paramedicine** is to:

“Get the patient to the right care, delivered to the right provider, at the right time, resulting in the best outcomes and most efficient use of health care resources.”

Community Paramedicine, cont'd

Getting There with Preventative Services and Support

- Assisting patients with serious chronic disease in managing their care.
- Providing preventative services in rural and medically underserved communities
- Improve access to care and reduce emergent hospital admissions.



Community Paramedicine, cont'd

Getting There with Preventative Services and Support

Providing at-home services:

- Vaccinations
- Blood pressure
- Blood sugar
- Pulmonary monitoring
- Breathing treatments
- Patient and family health education.



Community Paramedicine, cont'd

The "Six C's"

Before integration with other providers is possible, Community Paramedicine needs to address:

- **Community:** Addressing a current unfilled need.
- **Complementary:** Enhancement without duplication.
- **Collaborative:** Interdisciplinary practice.
- **Competence:** Qualified practitioners.
- **Compassion:** Respect for individuals.
- **Credentialed:** Legal authorization to function.

A female community paramedic in a dark uniform with a stethoscope around her neck is the central focus. She is holding a red bag. In the background, another paramedic stands near a white ambulance with red emergency lights. The scene is outdoors with green foliage.

Community Paramedicine Arizona's Progress

Community Paramedicine Arizona's Progress

Case Studies

1. **Rio Rico - Rural Fire District**
2. **Guardian Medical Transport - Hospital-based**
3. **Phoenix Fire - Urban Fire Department**
4. **Life Line Ambulance - Private EMS**

Case Study 1

Rural Fire District - Rio Rico



Bridge the Gap in Community Health and Healthcare Education

Instead of responding to a costly 911 call, PROACTIVELY going to a patient's home before they have an emergency



Health and Wellness for all Arizonans

Case Study 1

Rio Rico

Partnerships

CP Project will be a collaboration between:

- Rio Rico Fire Department
- South East Arizona Area Health Center
- Holy Cross Hospital
- Mariposa Community Health Center
- University Medical Center



Case Study 1

Rio Rico

Chronic Disease Management

Reduce tertiary care used by residents with:

- Diabetes
- Asthma
- CHF
- COPD
- Environmental Scans
- Other



Case Study 2

Hospital-Based - Guardian Medical Transport

Guardian Medical Transport's Vision of Community Paramedicine:

Avoid Costly Hospital Admissions by At-Home Healthcare & Community Education



Health and Wellness for all Arizonans

Case Study 2

Guardian Medical Transport

Paramedics work with discharge planners & telemedicine specialist providing at-home patient follow-ups, performing assessments and patient education



Health and Wellness for all Arizonans

Case Study 2

Guardian Medical Transport

At-Home Patient Care and Follow-Up

- Patients at high risk for readmission.
- Assist patients with medications.
- Monitor, record, and report vitals signs.
- Perform tests, assessments, and treatments.
- Screenings to reduce ED or doctor visits.
- Follow-up on non-transported EMS patients.



Case Study 2

Guardian Medical Transport

Community Health and Education

- Vaccination clinics
- School health and safety
- Community first aid and CPR
- Health and safety fairs



Health and Wellness for all Arizonans

Case Study 3

Urban Fire District - Phoenix Fire Department

Phoenix Fire Department focuses on helping residents during an emergency and when there is no emergency.



Case Study 3

Phoenix Fire Department

- Vaccination clinics
- Community health and fitness information
- Injury prevention and water safety
- Preventative patient screening and services
- Record at-home patient vital signs



Health and Wellness for all Arizonans

Case Study 3

Phoenix Fire Department

Community Partnerships



Case Study 4

Private EMS - Life Line Ambulance



Health and Wellness for all Arizonans

Case Study 4

Life Line Ambulance

Life Line Ambulance views a community based paramedic program as a system that improves a patients wellbeing, while utilizing a model that supplements traditional EMS responses.



Case Study 4

Life Line Ambulance

The primary goal is to bridge the gap between community health service and the traditional EMS system.



Case Study 4

Life Line Ambulance

Although many community paramedicine programs are yet to be designed, the picture will come clear through collaboration and data analysis.



Community Paramedicine

Arizona's Progress

ADHS Develops
“Community Paramedicine Workgroup”

Includes:

- Health Education
- Medication Education
- Patient Follow-ups
- Immunizations



Community Paramedicine

Community Paramedicine Workgroup

- Definition and scope of community paramedicine in Arizona.
- 8 topics that need to be explored and described.
- Regional EMS Councils to each select 5 representatives for the Workgroup.
- Community Paramedicine guidance document for Arizona EMS agencies.
- Community Paramedicine Toolbox on the ADHS/BEMSTS webpage.

Community Paramedicine

Community Paramedicine Workgroup, cont'd

Develop a collaborative CP model in AZ leveraging expertise of paramedics and EMS systems to address healthcare gaps, improve efficiency & patient outcomes.



Community Paramedicine

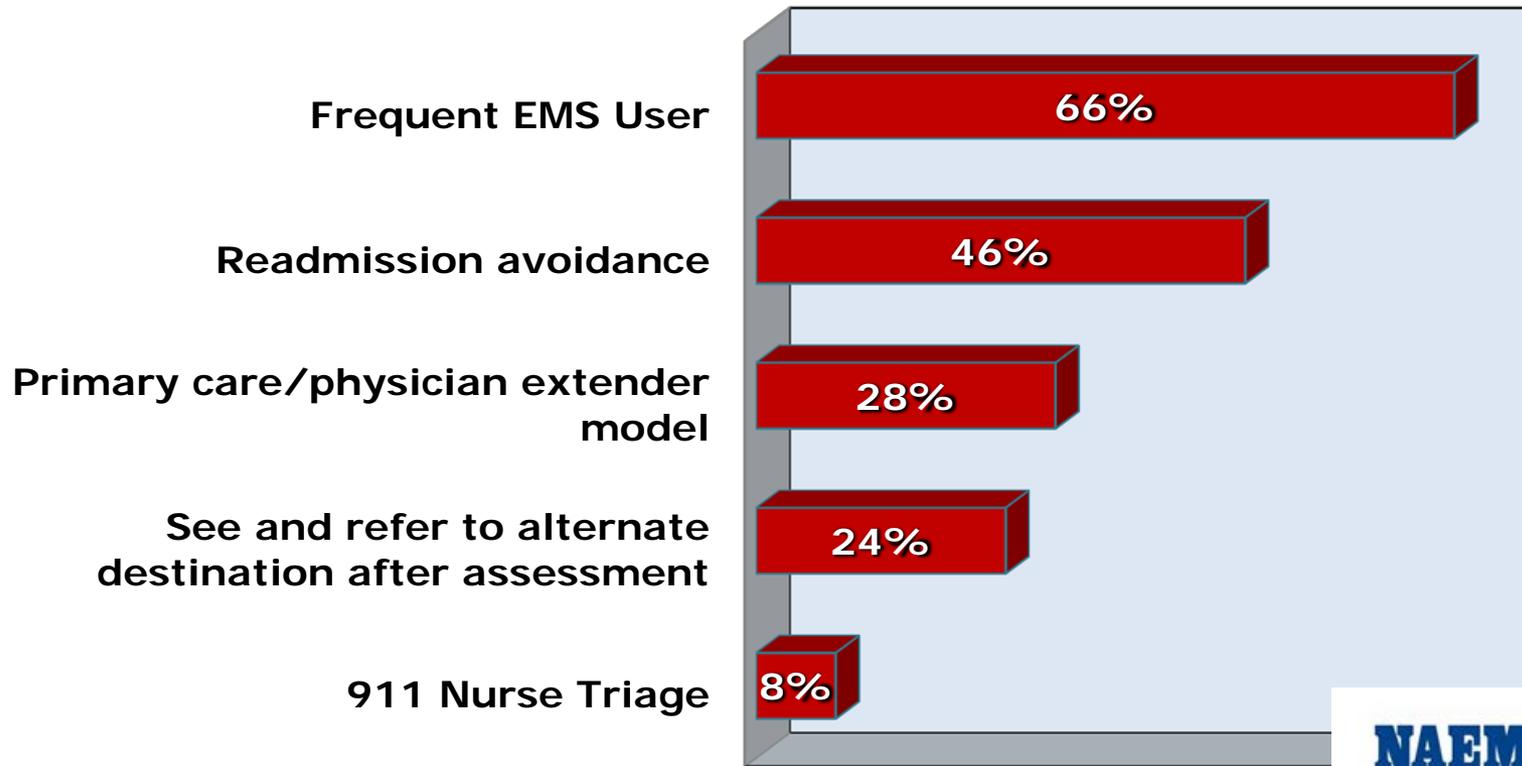
Community Paramedicine Workgroup, cont'd

- CP Workgroup Comprised of 5 Representatives from each of the Four EMS Regions:
 - 2 Fire Department Representatives;
 - 1 Hospital-based Representative;
 - 1 Ambulance Representative;
 - 1 Educator
- First Meeting in December 2013, and subsequent meetings scheduled for 2014.



Community Paramedicine In Other States

CP/MIHC Program Models



Respondents were able to select more than one response, resulting in a percentage total greater than 100%.

Health and Wellness for all Arizonans

Community Paramedicine In Other States

Texas

Greater Fort Worth EMS provider for more than 880,000 people

Implemented CP in 2009, identifying high system users and developed individual patient care plans.

Impact since Inception:

- Saved more than \$3.3 million in healthcare expenditures.
- Reduced 9-1-1 use by frequent patients by 86.2% 12 months post-enrollment.



Patient Health Education



**On the Path of Public
Health Improvement,
Community Paramedicine
is Just Around the Bend**

Get More Information

- Visit our website for resources and additional info:
- <http://www.ramseyfoundation.org/>
- <http://azdhs.gov/community-paramedicine/>