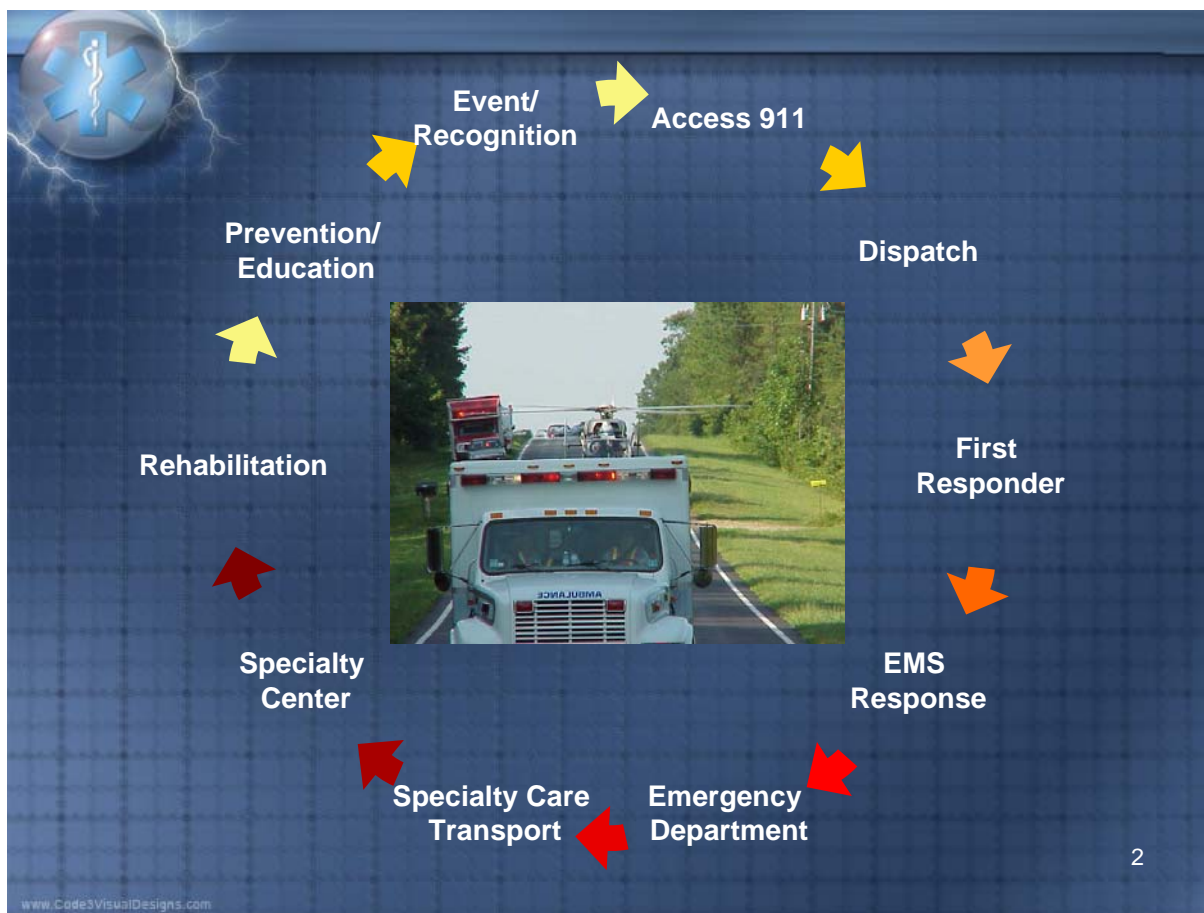




EMS Acute Stroke Care Toolkit

www.EMSPIC.org

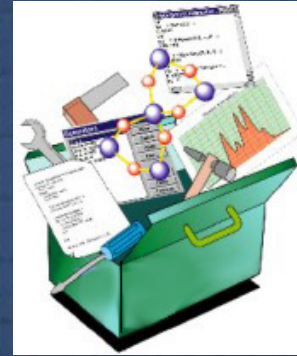
The EMS Performance Improvement Center
And
The North Carolina Office of Emergency Medical Services





What is an EMS Toolkit?

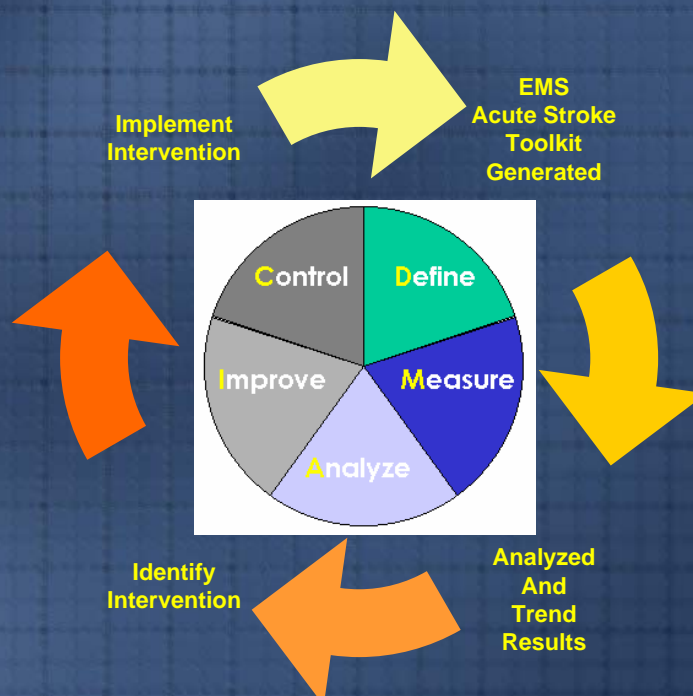
- + Detailed Report
- + Evaluates an EMS specific topic
 - + Patient Care
 - + Service Delivery
 - + Personnel Performance
- + Benchmarking with state and similar systems
- + Recommendations for improvement
- + Continuous use



3



Six Sigma meets Public Health



4



The Perception

Its NOT:

- + Judgmental
- + Negative
- + Degrading
- + Difficult

It IS:

- + Easy
- + Useful
- + Helpful
- + Educational
- + Enabling
- + Positive
- + Worthwhile

5



What is an Intervention

- + Customized direction provided within each EMS Toolkit based on an individual EMS System's results.
- + 30 interventions or recommendations are provided in the EMS Stroke Toolkit
- + Each EMS System is encouraged to choose 1 or 2 for implementation within their System
- + Rinse and Repeat

6



EMS Acute Stroke Care Toolkit

- + EMS Acute Stroke Care Overview
- + Data Quality
- + County CV Disease/Patient Statistics
- + EMS System Capability
- + EMS System Performance
- + EMS Personnel Performance
- + EMS Patient Outcomes
- + EMS Education and Community Outreach

7



Patient Selection

Record Selection Information:

- * An Acute Stroke Patient (E01_01 Patient Care Report Number) is identified by the following criteria:
 - * The Unit Notified Date is used to select the records for the Date Range
 - * Incident/Patient Disposition (E20_10) = No Treatment Required; Patient Refused Care; Treated and Released; Treated, Transported by EMS; Treated, Transferred Care; Treated, Transported by Law Enforcement; or Treated, Transported by Private Vehicle
 - * An "Acute **Stroke Patient**" is any patient whose age is greater than 35 years of age
- * In addition to the above criteria, one of the following criteria must be met:
 - * An "Acute **Stroke Patient**" is defined by the use of the following protocol (E17_01):
 - o Stroke/TIA
 - * Any records with the Stroke Screen documented with the following is considered a "**Acute Stroke Patient**":
 - o Cincinnati Stroke Scale Non-Conclusive
 - o LA Stroke Scale Non-Conclusive
 - o Cincinnati Stroke Scale Positive
 - o LA Stroke Scale Positive

8

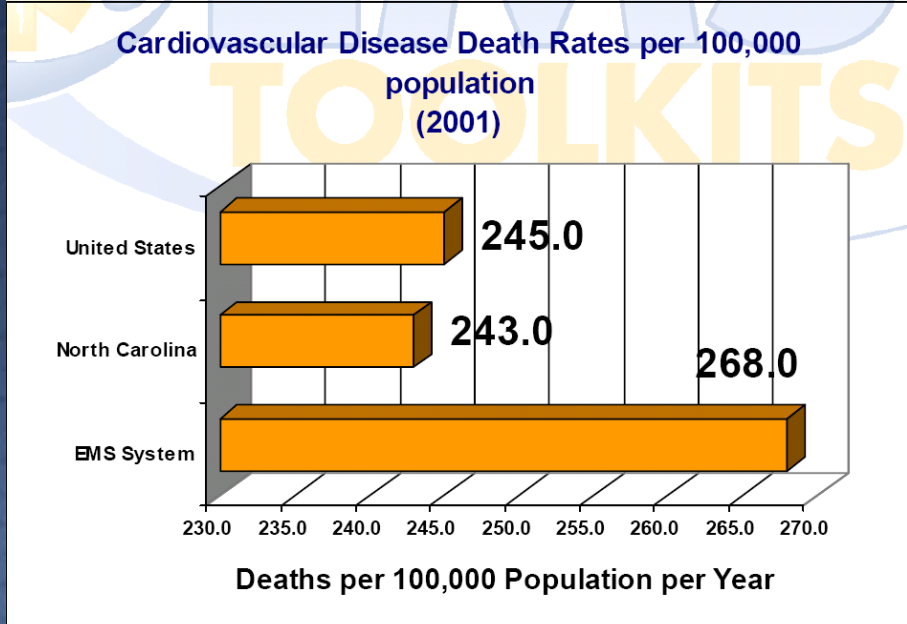


EMS Stroke Care Overview

Sample County EMS System Acute Stroke Care Toolkit Summary January 1, 2007 through March, 30, 2007		
	EMS System	State
Total Records found for Date Range	5,000	250,000
Total Patient Records Usable for Toolkit	4,023 (80%)	200,000 (80%)
* Acute Stroke Patients	43 (1%)	2,250 (1%)
* All Other Patients	3,980 (99%)	197,750 (99%)
Total Patients	4,023	200,000
Key EMS Time Intervals for Acute Stroke Patients		
* Dispatch Center Time (90% Fractal) in mm:ss	03:15	02:00
* EMS Wheels Rolling Time (90% Fractal) in mm:ss	02:30	01:30
* EMS Response Time (90% Fractal) in mm:ss	13:30	14:15
* EMS Scene Time (90% Fractal) in mm:ss	12:45	14:00
EMS Acute Stroke Patient Transport Times (90% Fractal) (mm:ss and number transported)		
* To Hospital East	14:30 (15)	
* To Hospital West	20:45 (05)	
* To Hospital South	35:00 (03)	
* To Hospital West	18:45 (16)	
* To Unknown Destination	45:00 (04)	



County Statistics



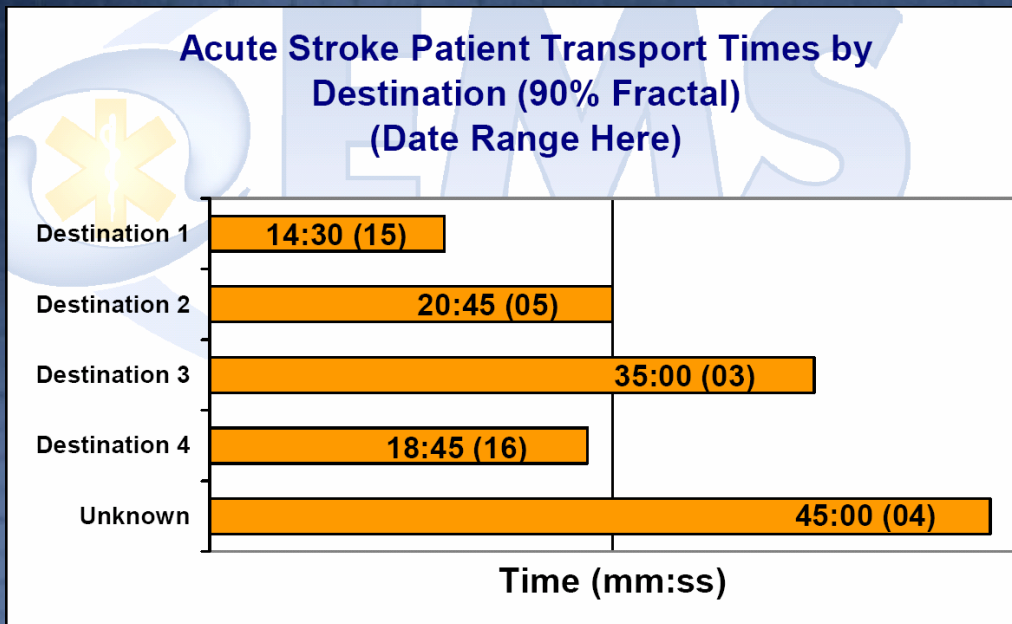


Community Demographics

2000 North Carolina Census	Top 50 NC Counties (mm:ss)	Bottom 50 NC Counties (mm:ss)	Difference
Median Age	7:49	7:32	3.6% slower EMS response in counties with increased age
Education Level	7:09	8:22	14.5% faster EMS response in counties with higher education levels
Poverty Level	8:51	7:23	16.6% slower EMS response in counties with higher poverty levels
Fatal Injury Rate	9:04	7:15	20.0% slower EMS response in counties with higher injury fatality rates
Cardiovascular Disease Death Rate	7:56	7:02	11.3% slower EMS response in counties with higher cardiovascular disease death rates



Destination Decisions



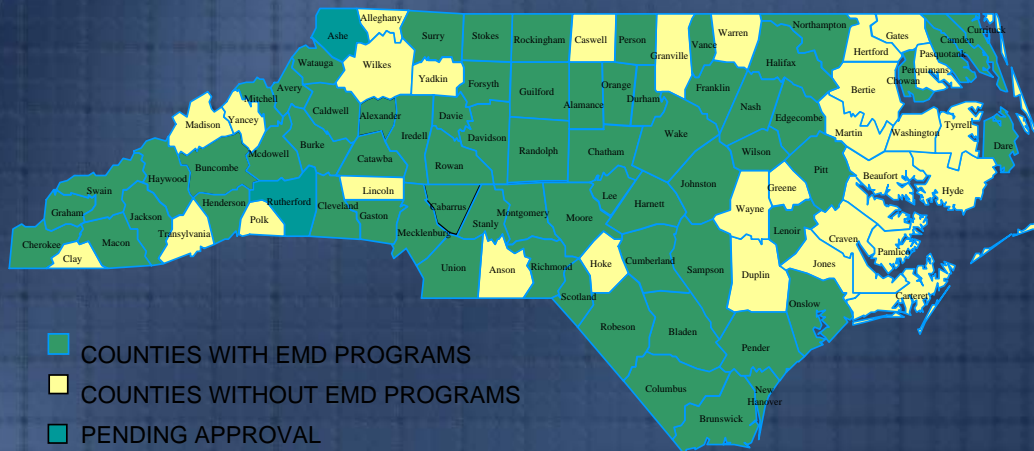


System Capabilities

Dispatch Center				
* Basic 911	Yes/No	XX (XX%) Yes	XX (XX%) Yes	XX (XX%) Yes
* Enhanced 911	Yes/No	XX (XX%) Yes	XX (XX%) Yes	XX (XX%) Yes
* EMD	Yes/No	XX (XX%) Yes	XX (XX%) Yes	XX (XX%) Yes
* Phase 2 Compliance	Yes/No	XX (XX%) Yes	XX (XX%) Yes	XX (XX%) Yes
Hospital Capability				
* Hospital in County	Yes/No	XX (XX%) Yes	XX (XX%) Yes	XX (XX%) Yes
* Invasive Stroke Capable Hospital in County	Yes/No	XX (XX%) Yes	XX (XX%) Yes	XX (XX%) Yes
* Distance to Nearest Invasive Stroke Capable Hospital	XX	XX	XX	XX
* Ability to Bypass Hospital in County to go directly to Stroke Capable Hospital	Yes/No	XX (XX%) Yes	XX (XX%) Yes	XX (XX%) Yes



North Carolina EMD

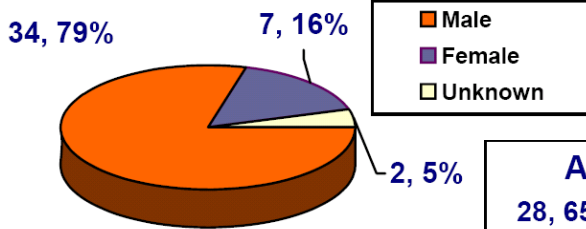


68 Counties have approved EMD Centers
 2 Counties are pending approval

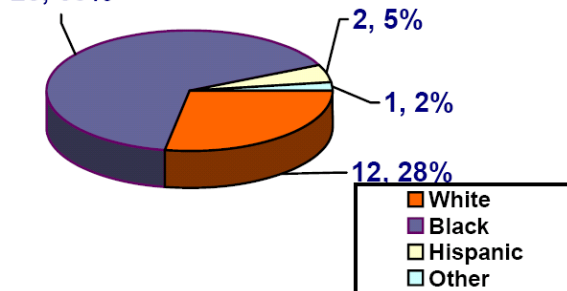


Patient Demographics

Acute Stroke Patient's Gender
1/1/2007-3/31/2007

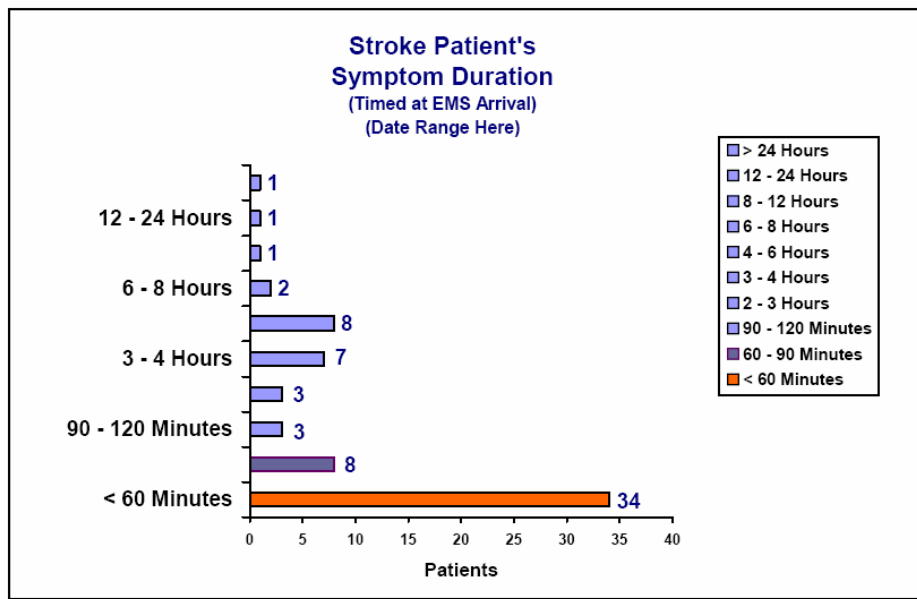


Acute Stroke Patient's Race
1/1/2007-3/31/2007



Symptom Duration/Onset

Stroke Patients Symptom Duration Documented at EMS Arrival

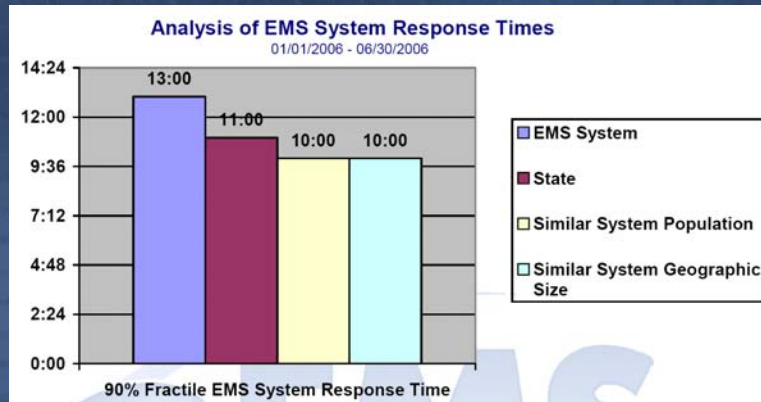




EMS Response Times

ANYTOWN EMS System Response Time 01/01/2006 – 06/30/2006

System	Number Of Events	Minimal Value	Maximum Value	Average Value	90% Fractal
EMS System	7,967	0:01:00	1:38:00	0:07:03	0:13:00
State	53,028	0:00:00	1:58:00	0:05:56	0:11:00
Similar EMS System (by Pop)	26,100	0:00:00	1:09:00	0:05:16	0:10:00
Similar EMS System (by Area)	28,194	0:00:00	1:49:00	0:05:34	0:10:00



Personnel Performance

(EMS System Name Here) EMS Personnel and System Acute Stroke Patient Protocol Compliance (Date Range Here)

Personnel ID	Patients	Stroke Screen	Glucose Level	Thrombolytic Screen	Scene Time of <10 minutes	Documentation of Symptom Onset	Cardiac Rhythm
ID #	XX	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)
ID #	XX	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)
ID #	XX	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)
ID #	XX	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)
ID #	XX	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)
EMS System Average	XXX	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)
State Average	XX,XXX	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)	XX (XX%)



Patient Outcomes

(EMS System Name Here)
Acute Stroke Care Patient Outcome Information
(Date Range Here)

Patient PCR Number	Date of Care	Symptom Onset Time Noted	Stroke Screen Obtained	Glucose Checked	Scene Time \leq 10 min.	Emergency Department Disposition	Hospital Disposition
XXXXXXXXXX	MM/DD/YYYY	Yes	Yes	No	Yes	Not Known	Not Known
XXXXXXXXXX	MM/DD/YYYY	No	Yes	Yes	No	Admitted ICU	Discharged
XXXXXXXXXX	MM/DD/YYYY	No	No	Yes	Yes	Death	Not Applicable
XXXXXXXXXX	MM/DD/YYYY	Yes	Yes	Yes	Yes	Admitted ICU	Discharged

Based on the information provided a total of **XX** Acute Stroke Patients were treated by the EMS System during this Toolkit Date Range.

A total of **XX (XX%)** of these patients received all four interventions (Symptom Onset, Stroke Screen, Glucose, and Scene Time).

† For every 12 patients who are treated optimally by EMS, one bad outcome will be avoided.



Community Outreach

Section H: Community Education and Prevention

Purpose:

This section will evaluate and analyze the EMS System's involvement and participation in community education and prevention initiatives related to heart disease. Information provided for this section was collected when the EMS Acute Stroke Care Toolkit was generated.

EMS System Participation in the North Carolina Stroke Initiative

North Carolina is implementing a statewide Stroke Initiative. This initiative engages EMS Systems and Hospitals to optimize care for stroke patients focusing on critical time intervals and interventions.

Based on information provided at the time this EMS Toolkit was generated, this EMS System describes their participation in the NC Stroke Initiative as follows:

Participation in the NC Stroke Initiative: **Yes**

EMS System Workforce Health Education

It is important for each EMS System to participate in community programs which promote health and wellbeing. Often the best place to start is an area often neglected: the EMS workforce.

Based on information provided at the time this EMS Toolkit was generated, this EMS System has developed and implemented an EMS Workforce Health and Safety which addresses cardiovascular fitness, risk factors, and health as follows:

EMS Workforce Health and Safety Plan is in place: **Yes**