

# STEMI Systems in Texas

## Where do we Stand?

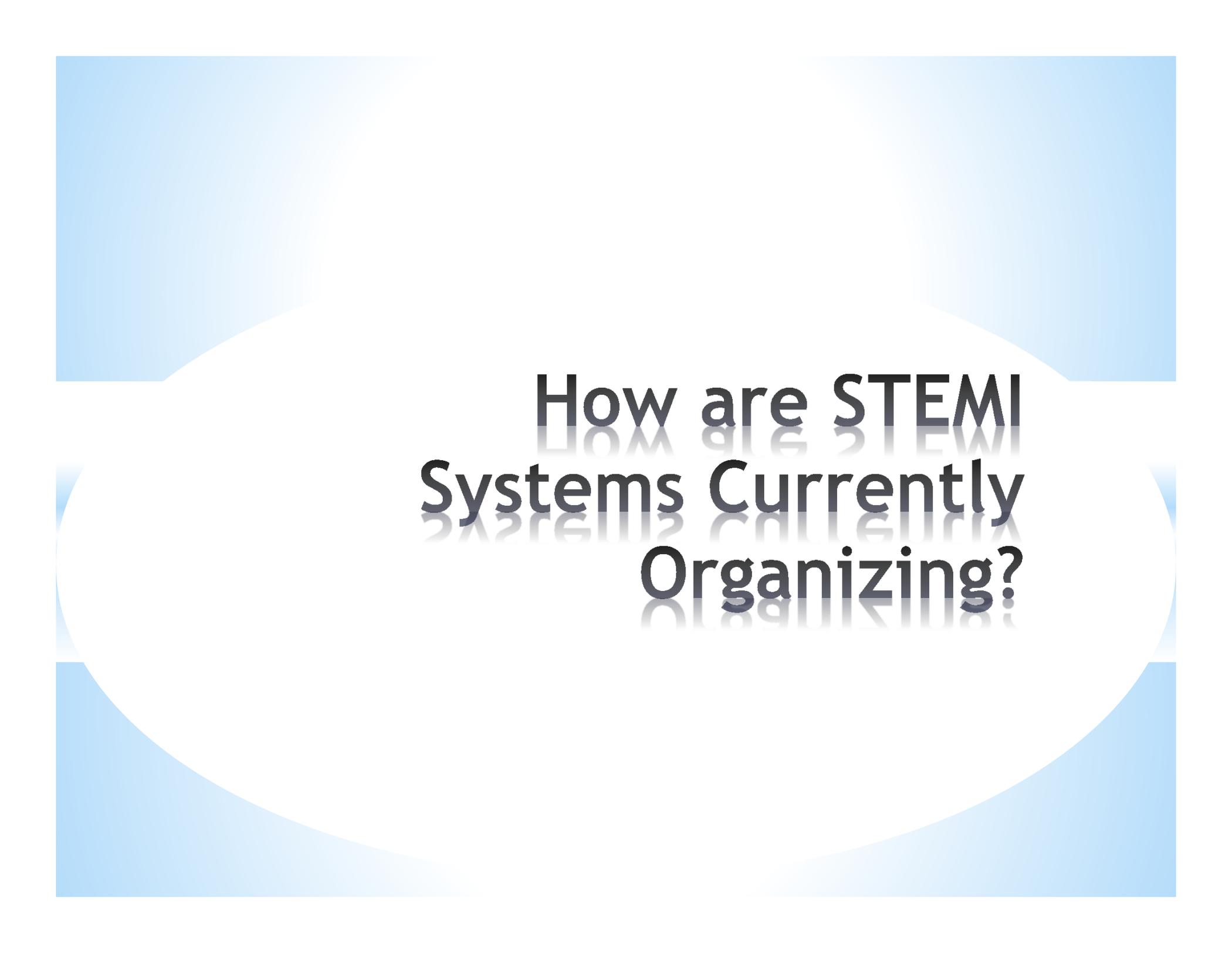


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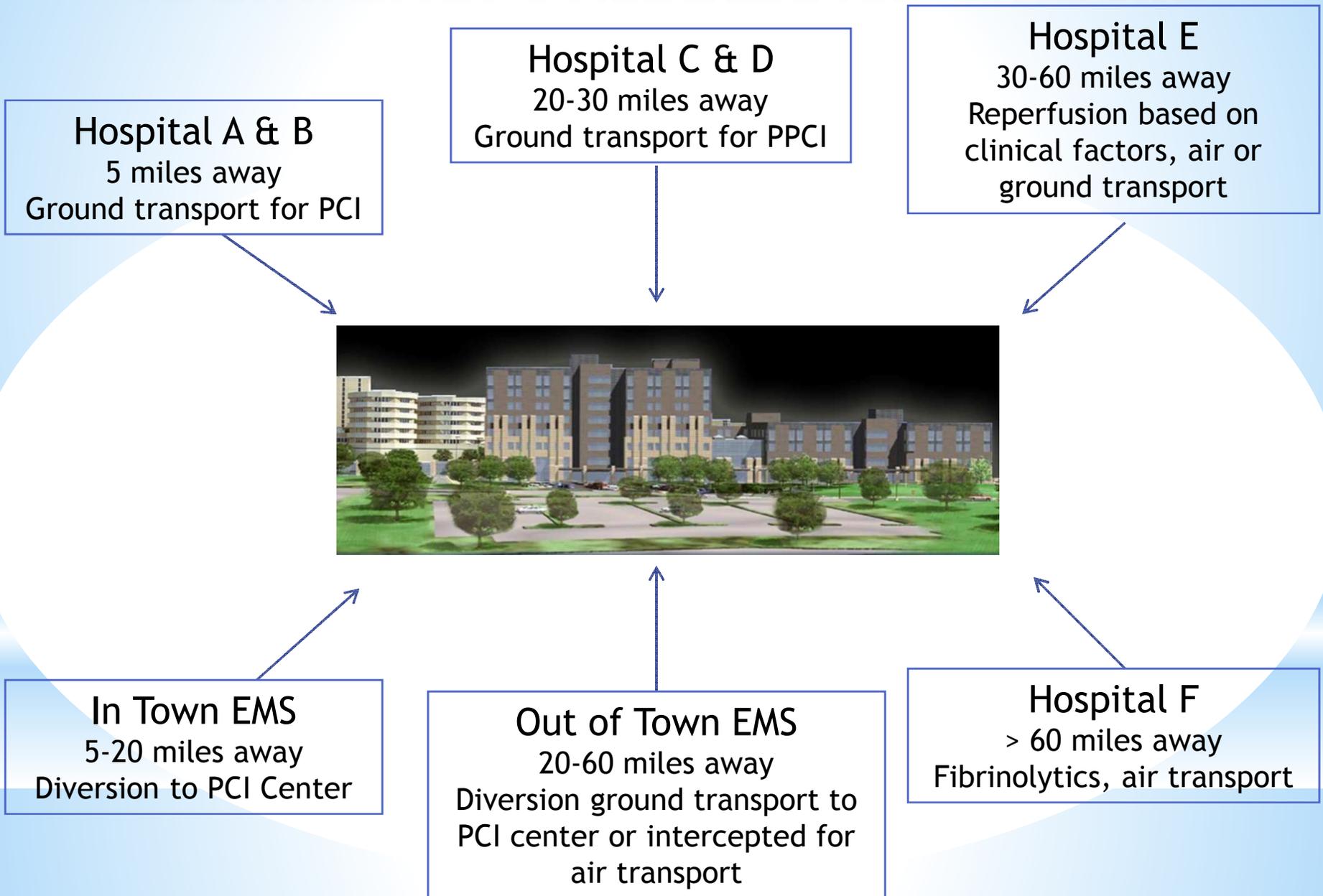
Course Director, STEMI Texas



**How are STEM  
Systems Currently  
Organizing?**



# Individual Systems/Networks



# How do we assess our progress?

1. Penetration—how many systems? how involved?



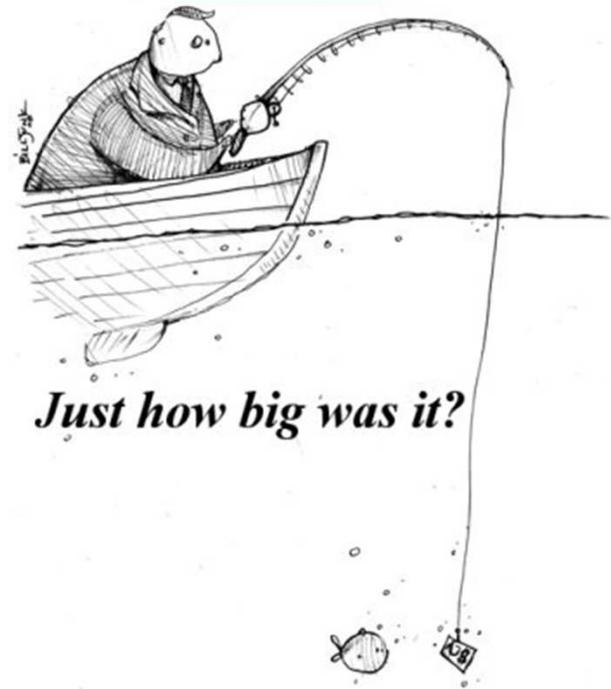
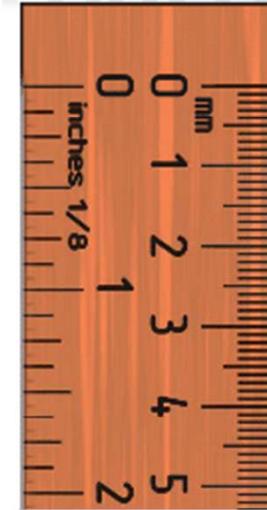
**“low hanging fruit”**

# How do we assess our progress?

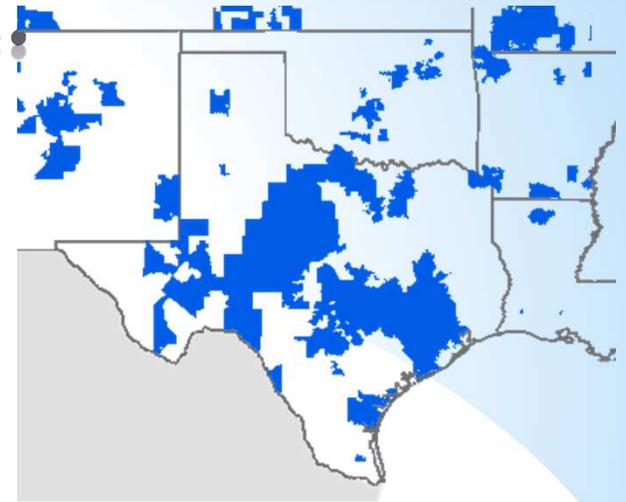
## 2. Outcomes

- Publicly reported data
- ACTION-GWTG<sup>®</sup> data

*“If you don’t measure it, you can’t improve it.”*



# Penetration in Texas...

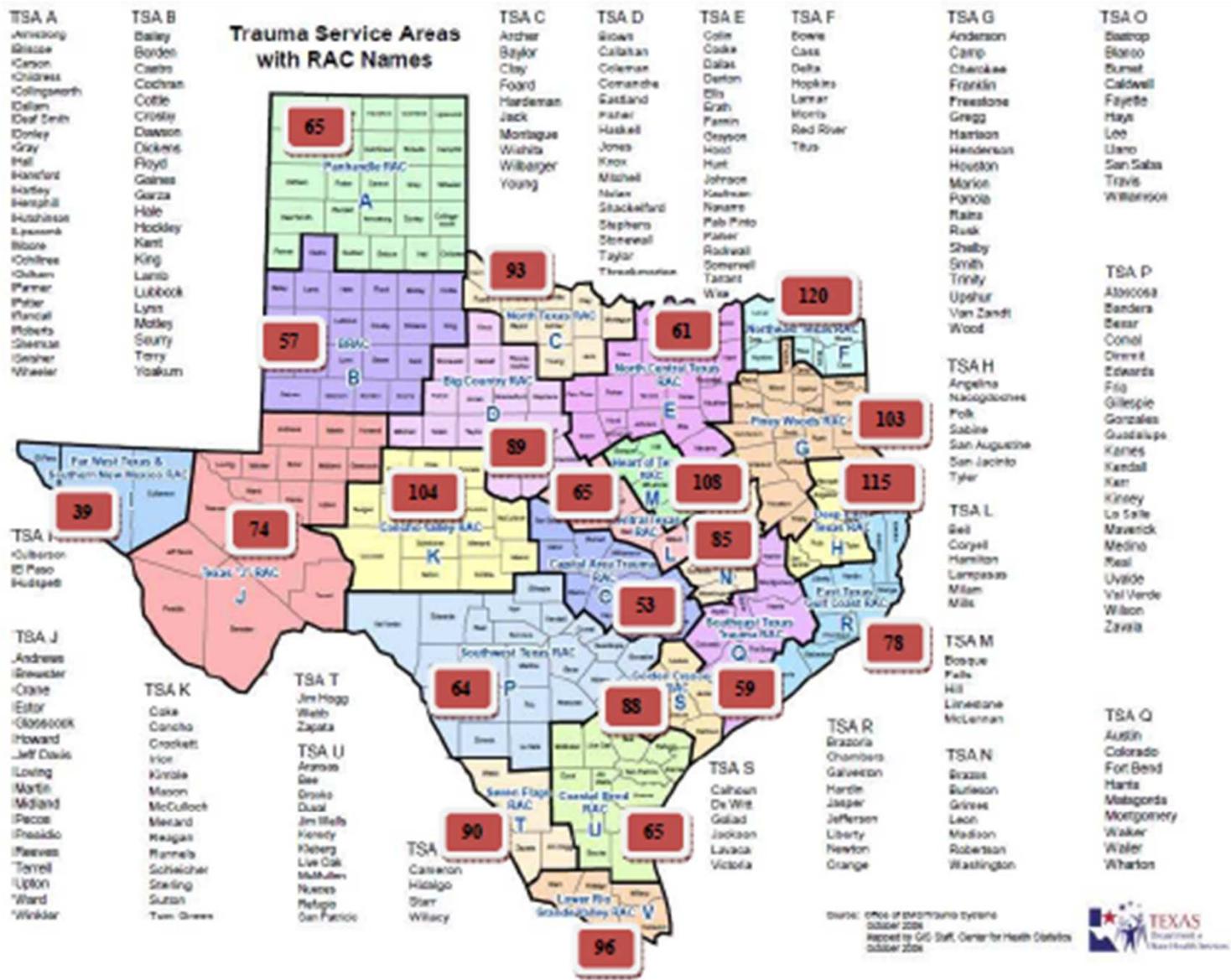


* Number of PCI hospitals	138
* PCI hospitals in ACTION-GWTG	76 (55%)
* Non PCI hospitals (5 in ACTION)	445 (1%)
* EMS agencies (48,000 personnel)	485
* First responder organizations	475

**Assessing our  
progress...Through outcomes**

**Texas  
Trauma  
Service Area  
(TSA)**

- A: 65.1
- B: 57.3
- C: 93.0
- D: 88.7
- E: 60.6
- F: 120.4
- G: 102.7
- H: 115.2
- I: 39.0
- J: 73.5
- K: 103.5
- L: 64.6
- M: 108.5
- N: 84.6
- O: 53.2
- P: 63.8
- Q: 59.3
- R: 77.7
- S: 87.8
- T: 90.1
- U: 65.3
- V: 96.2
- Texas: 69.9**

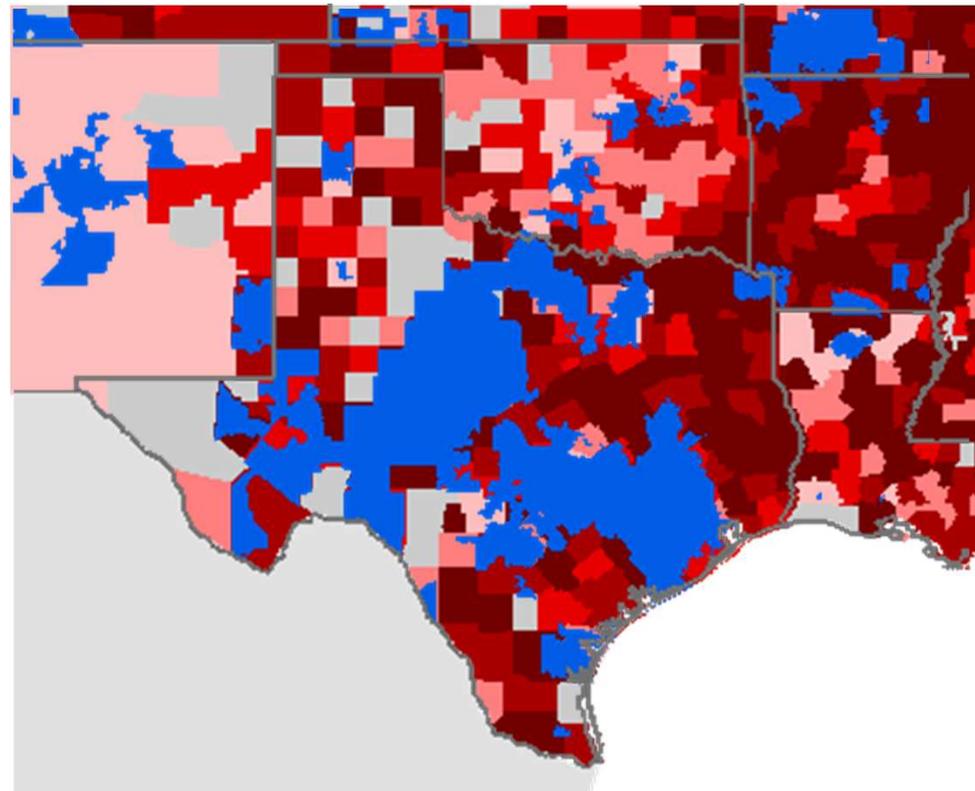


Heart Attack Mortality Rates (per 100,000) 2001-2006 Texas Department of State Health Services Vital Statistics.

Mortality due to Heart Attack (ICD-10 Code I21-I22): Age adjusted to the US 2000 census population.

# Variation in STEMI System Coverage

## Variation in STEMI mortality



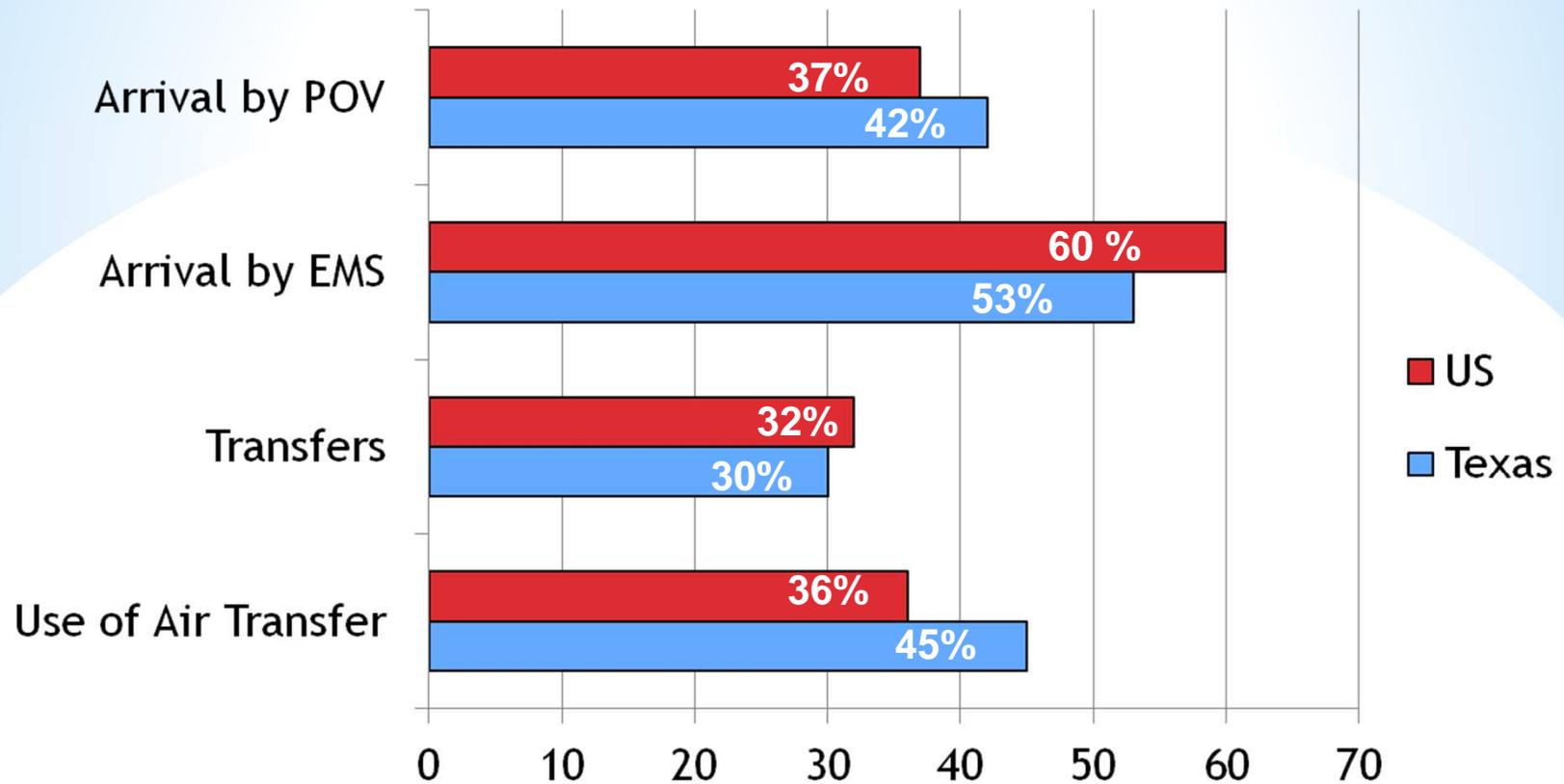
### LEGEND

STEMI SYSTEM  
COVERAGE AREA

### STEMI MORTALITY BY COUNTY

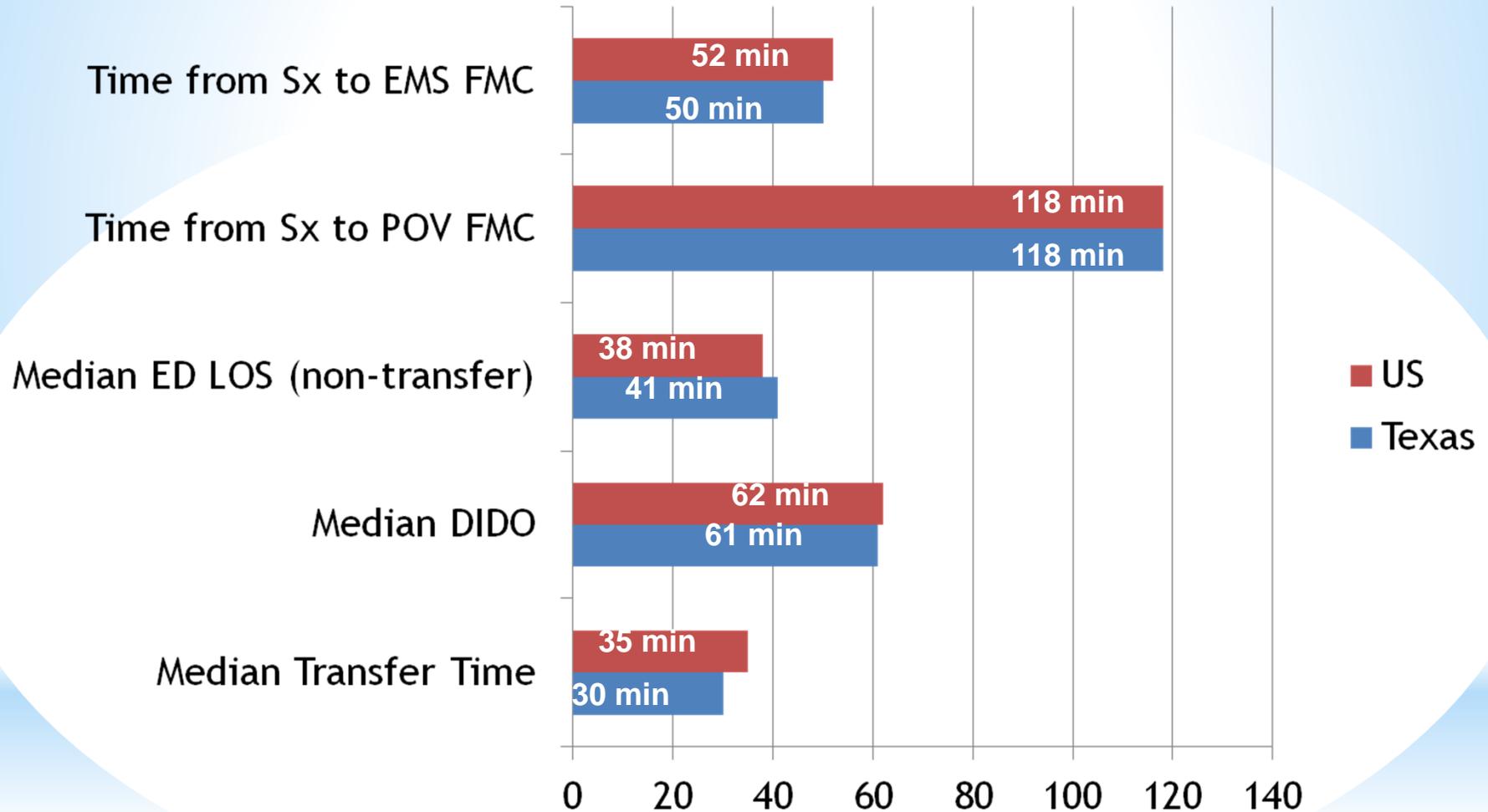
Class 1 (16.2-96.2)  
Class 2 (96.2-127.8)  
Class 3 (127.8-162.5)  
Class 4 (162.5-219.1)  
Class 5 (219.1-725.9)  
Insufficient Data

# STEMI Performance Metrics



Data from ACTION-GWTG™, Q4 2011

# STEMI Performance Metrics



Data from ACTION-GWTG™, Q4 2011

## **Coronary Heart Disease**

### **Association Between Prehospital Time Intervals and ST-Elevation Myocardial Infarction System Performance**

Jonathan R. Studnek, PhD; Lee Garvey, MD; Tom Blackwell, MD;  
Steven Vandeventer; Steven R. Ward

*(Circulation. 2010;122:1464-1469.)*

## **Original Article**

### **Care Processes Associated With Quicker Door-In–Door-Out Times for Patients With ST-Elevation–Myocardial Infarction Requiring Transfer**

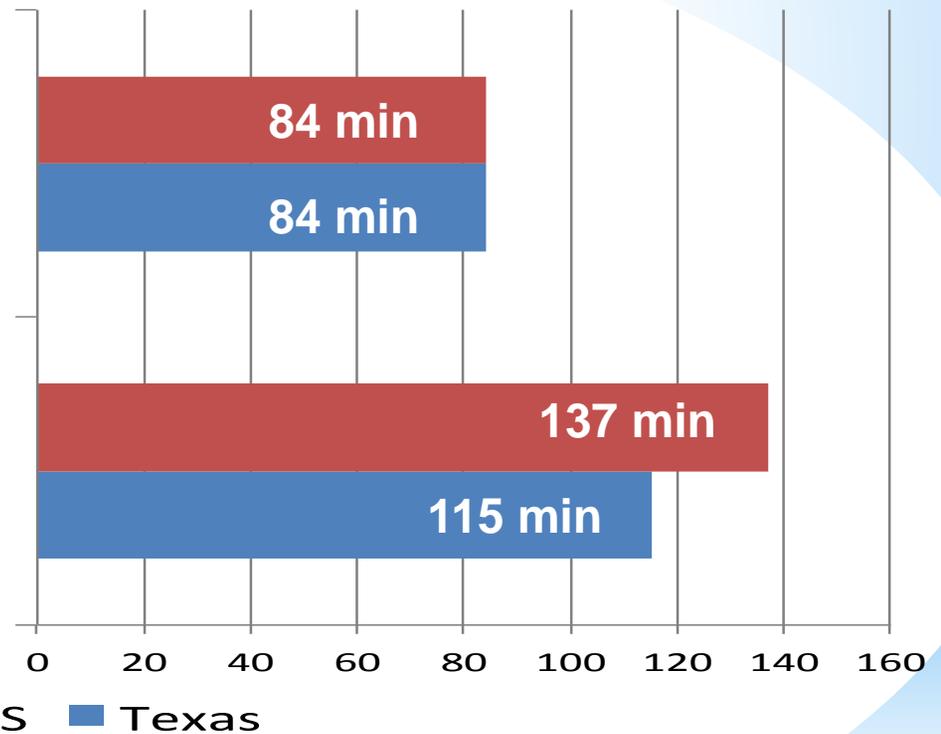
**Results From a Statewide Regionalization Program**

Seth W. Glickman, MD, MBA; Barbara L. Lytle, MS; Fang-Shu Ou, MS; Greg Mears, MD;  
Sean O'Brien, PhD; Charles B. Cairns, MD; J. Lee Garvey, MD; David J. Bohle, MD;  
Eric D. Peterson, MD, MPH; James G. Jollis, MD; Christopher B. Granger, MD

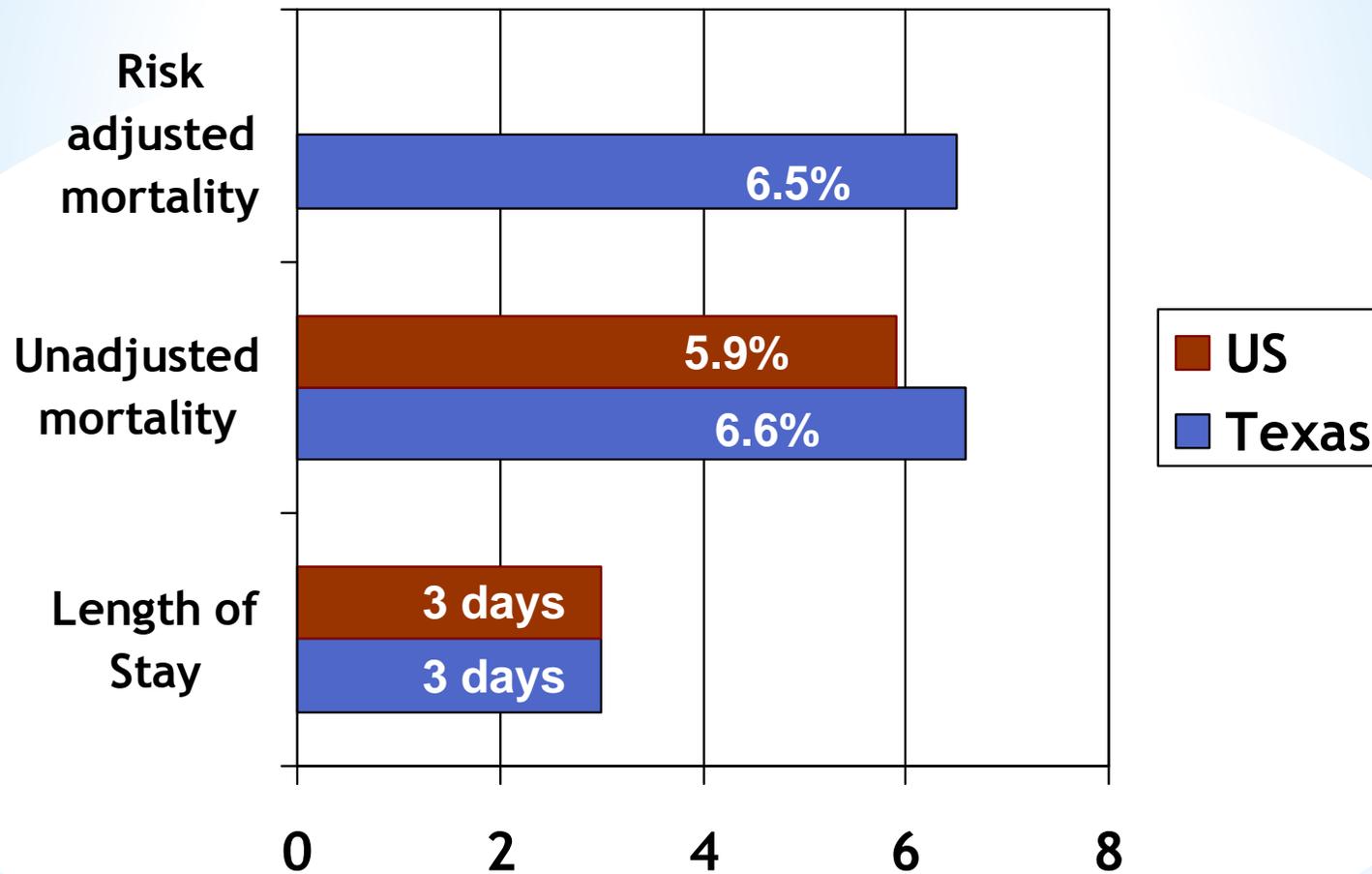
*Circ Cardiovasc Qual Outcomes, 2011*

# STEMI Performance Metrics

Median, FMC-2b, non transfer



Median, FMC-2b, transfer



Data from ACTION-GWTG™, Q4 2011



# Keys to Success within Regional Cooperation

- ✓ Strong, committed leadership
- ✓ High stakeholder buy-in
  - Multiple hospital & EMS systems “at the table”
- ✓ Common protocols/order sets

➤ [http://www.catrac.org/Mission\\_Lifeline/CATRAC\\_ML\\_Field\\_Guide\\_Final\\_newlogo7.26.2011.pdf](http://www.catrac.org/Mission_Lifeline/CATRAC_ML_Field_Guide_Final_newlogo7.26.2011.pdf)

- RAC wide data sheet (see example → )
- ✓ Data sharing plans
- ✓ ECG transmission
- ✓ STEMI drills: especially among EMS and non-PCI hospitals (where volume is lower)
- ✓ Educational offerings

**HOTRAC Regional STEMI Alert Form**

Date: \_\_\_\_\_ Symptom Onset Time: \_\_\_\_\_ Patient Name: \_\_\_\_\_ DOB: \_\_\_\_\_  Male  Female  
 \*\*\*Regional Goal: 90 minutes or less from initial medical contact to balloon inflation.\*\*\*

**EMS to complete this section**

EMS Provider: \_\_\_\_\_  
 Patient contact Time: \_\_\_\_\_  
 12-lead administered Time: \_\_\_\_\_  
 12-lead transmitted to facility Time: \_\_\_\_\_  
 O<sub>2</sub> L/min via \_\_\_\_\_  
 Scaled IV at \_\_\_\_\_ gauge  
 4 chewable baby aspirin (or equivalent) PO, unless contraindicated Time: \_\_\_\_\_

**RURAL HOSPITAL to complete this section**

\_\_\_\_\_  
 Patient arrived at ED Time: \_\_\_\_\_  
 Activate Code STEMI Time: \_\_\_\_\_  
 STAT EKG & contains cardiac monitoring Notify ED Physician Time: \_\_\_\_\_  
 O<sub>2</sub> L/min via \_\_\_\_\_  
 Enalapril 2 IV lines \_\_\_\_\_  
 STAT lab: CBC, CMP, PE/PT, CK, CKMB, Troponin I \_\_\_\_\_  
 Chest Xray completed Time: \_\_\_\_\_  
 4 chewable baby aspirin (or equivalent) PO, unless contraindicated Time: \_\_\_\_\_  
 NTG 0.4 mg SL q 5 minutes x 3, unless contraindicated Time: \_\_\_\_\_  
 Other Treatment: \_\_\_\_\_

**STEMI FACILITY to complete this section**

\_\_\_\_\_  
 Patient arrived at ED Time: \_\_\_\_\_  
 Activate Code STEMI Time: \_\_\_\_\_  
 STAT EKG Time: \_\_\_\_\_ & contains cardiac monitoring Notify Cardiologist \_\_\_\_\_  
 Time called: \_\_\_\_\_ Time Arrived: \_\_\_\_\_  
 O<sub>2</sub> L/min via \_\_\_\_\_  
 Enalapril 2 IV lines \_\_\_\_\_  
 STAT lab: CBC, CMP, PE/PT, AMIP \_\_\_\_\_  
 Chest Xray completed Time: \_\_\_\_\_  
 4 chewable baby aspirin (or equivalent) PO, unless contraindicated Time: \_\_\_\_\_  
 NTG 0.4 mg SL q 5 minutes x 3, unless contraindicated Time: \_\_\_\_\_  
 Other Treatment: \_\_\_\_\_

**TRANSFER - TRANSPORTING AGENCY:**

\_\_\_\_\_  
 Status Change(s): \_\_\_\_\_  
 Signature: \_\_\_\_\_

**CATH LAB to complete this section**

\_\_\_\_\_  
 Patient arrives in Cath Lab \_\_\_\_\_  
 Arrival of interventionalist \_\_\_\_\_  
 First Lesion Access \_\_\_\_\_  
 Repetitive time interventions complete \_\_\_\_\_  
 ICU Notified for Room \_\_\_\_\_  
 Patient leaves Cath Lab \_\_\_\_\_  
 Nurse Name (Printed): \_\_\_\_\_  
 Signature: \_\_\_\_\_

\_\_\_\_\_  
 Thrombolytics given Drug Dose \_\_\_\_\_  
 Prep Patient for Cath \_\_\_\_\_  
 Remove all patient's clothes; hospital gown only \_\_\_\_\_  
 Nasal-safety beads on patient \_\_\_\_\_  
 IV x 2 with continuous tubing \_\_\_\_\_  
 IV NS at KVO rate for primary line \_\_\_\_\_  
 Clip patient's groin bilaterally \_\_\_\_\_  
 Place radiopaque defibrillation pads at the right sub-axillary and the left midaxillary areas (NOT over heart) \_\_\_\_\_  
 Connect patient to the portable monitor \_\_\_\_\_  
 Possible O<sub>2</sub> tank on monitor \_\_\_\_\_  
 Place consent on chart; ensure patient has signed consent after explanation from cardiologist \_\_\_\_\_  
 Place label on front of chart and ensure appropriate paper is included \_\_\_\_\_

\_\_\_\_\_  
 Patient leaves ED for Cath Lab Time: \_\_\_\_\_  
 Nurse Name (Printed): \_\_\_\_\_  
 Signature: \_\_\_\_\_

Place patient label here

1 - STEMI Facility 2 - RAC 3 - Transport EMS 4 - Transferring Facility 5 - 9-1-1 EMS

# Areas Requiring *Intense* Focus

## Transfer patients

- Accounts for 1/3 of STEMI
- Treatment times significantly fall short of goal metrics

## Potential Solutions:

1. Focus on DIDO at outlying facility (proven strategies to minimize)
2. Increase/encourage diversion destination protocols (i.e. avoid non-PCI hospital)
3. Think outside the box in terms of most rapid way to transfer patients:

Ground over air ?

Mock transfer drills

EMS that brings to non-PCI hospital, also transport to PCI

# Areas Requiring *Intense* Focus

## Patient Factors

- 40% still present by private vehicle
- Median presentation time by POV is 118 minutes!

## Potential Solutions:

1. Public education and awareness
2. ????
3. Think outside the box !!

# Areas Requiring *Intense* Focus

## ED of PCI Centers

- Median length of stay 38-41 minutes

## Potential Solutions:

1. Greater penetration/usage of PH ECG
2. Increase effective communication of findings
3. Streamlined processes and therapies

# Areas Requiring *Intense* Focus

## Time to Reperfusion Therapy

- 1/3 patients present to non-PCI centers
- Only 25% of US hospital have 24/7 PCI capabilities
  - (31% in TX)
- Patient delay in presentation

## Potential Solutions:

1. Patient education
2. Effective and rapid networks of PCI and non-PCI hospitals
3. Desperately need adequately powered/well designed trial of pharmaco-invasive strategy vs transfer for PCI !!!

# State of the Union...

## The Good

- \* Regional cooperation is happening
- \* Metrics tracking with national trends
- \* Overall treatment times improving

## The Bad

- \* Many pockets of “immature” systems
- \* Wide variation in outcomes
- \* Lack strong, central leadership/oversight

[www.stemitexas2012.com](http://www.stemitexas2012.com)

5th Annual  
**STEMI**  
**TEXAS**



IN PARTNERSHIP WITH **AHA DALLAS CARUTH INITIATIVE**

# ADVANCING STEMI CARE

SUSTAINING THE GAIN

**MAY 31 - JUNE 1, 2012**

Innovations | Technology | Processes

# STEM Systems in Texas



**Don't  
mess with  
Texas.**

