EMS System Response Times: Ambulance-Based Expectations Fire Department-Based Impacts Clinical Goals & Effects

Jeffrey M. Goodloe, MD, NRP, FACEP
Medical Director, Medical Control Board
EMS System for Metropolitan Oklahoma City & Tulsa
Professor & EMS Section Chief, Department of Emergency Medicine
University of Oklahoma School of Community Medicine

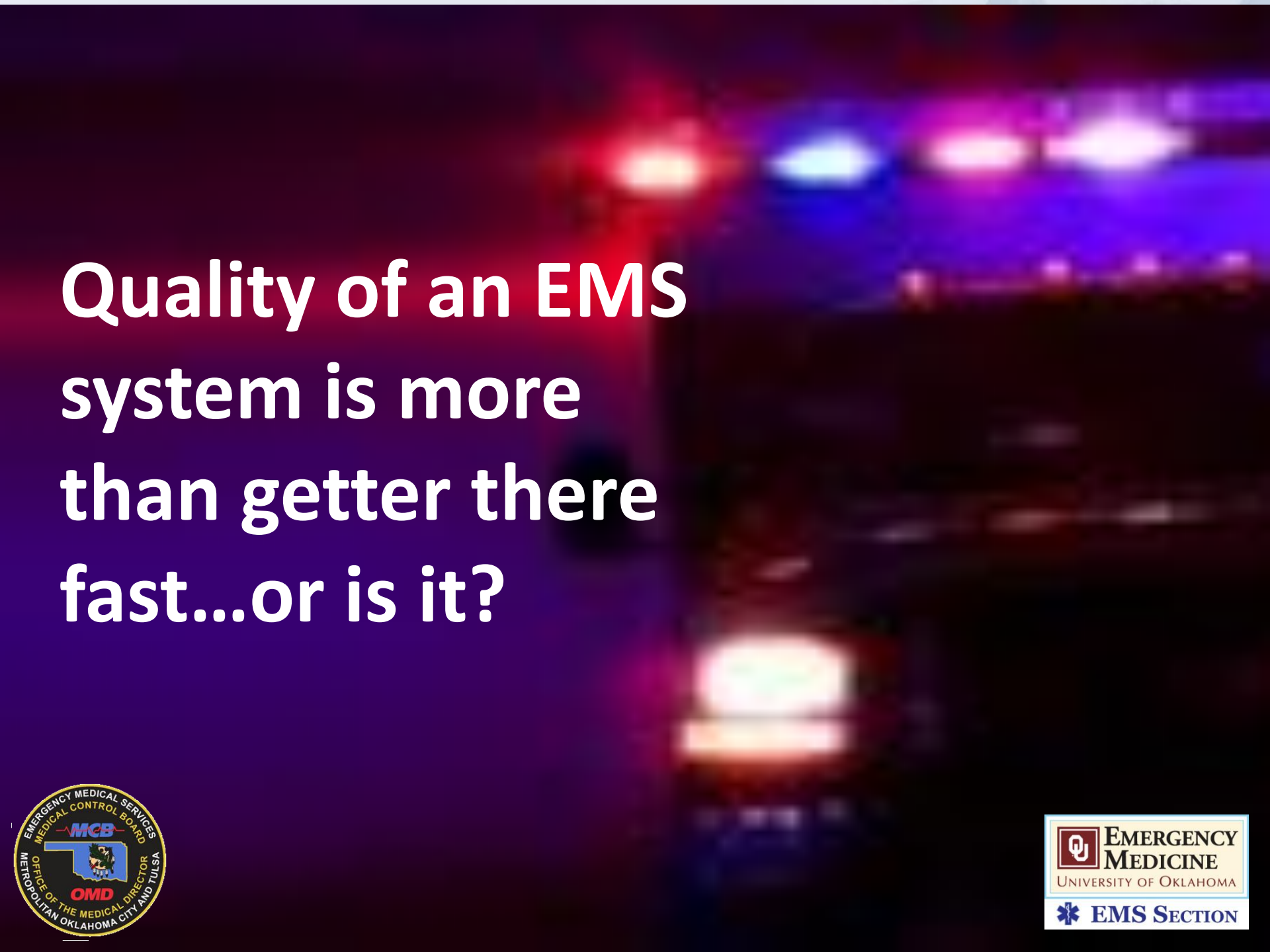
Mission & Responsibilities

- Relentless pursuit of optimal out of hospital emergency medical care capabilities
- Safety of the public, including our patients
- Support & safety of system professionals
- Fiscal accountability & stewardship


EMERGENCY MEDICAL SERVICES
MEDICAL CONTROL BOARD
MCB
OMD
OFFICE OF THE MEDICAL DIRECTOR
METROPOLITAN OKLAHOMA CITY AND TULSA
EMERGENCY MEDICINE
UNIVERSITY OF OKLAHOMA
EMS SECTION

EMS System for Metropolitan Oklahoma City & Tulsa

- 1,100 square miles
- Population
  - 1.6 million day
  - 1.2 million night
- 191,658 calls (2014)
- 146,193 transports (2014)
  - 76 % transports


Quality of an EMS system is more than getter there fast…or is it?

Where Did 7:59 Come From?

Reprinted from the Journal of the American Medical Association
May 4, 1979, Volume 241

CGEMS # 9

Cardiac Resuscitation in the Community

Importance of Rapid Provision and Implications for Program Planning

Mickey S. Eisenberg, MD, PhD; Lawrence Bergner, MD, MPH; Alfred Hallstrom, PhD

• **Several time-related variables involving resuscitation from out-of-hospital cardiac arrest were studied. Short time intervals from collapse to initiation of cardiopulmonary resuscitation (CPR) and to provision of definitive care were significantly associated with survival from cardiac arrest. The two times were jointly related, and one short time without the other was unlikely to result in survival. If CPR was initiated within four minutes and if definitive care was provided within eight minutes, 43% of patients survived. If either time was exceeded, the chances of survival fell dramatically. The time to initiation of CPR and definitive care are factors directly influenced by emergency medical service program decisions. A realistic option to improve time to initiation of CPR is widespread citizen CPR training. A possible option to improve the time to definitive care is the training of emergency medical technicians in defibrillation.**

(*JAMA* 241:1905-1907, 1979)

definitive care, the time from collapse to provision of defibrillation, intubation, or emergency medication (definitive care was provided either by paramedic units or hospital emergency room personnel in the cases for which paramedic services were not available).

Only incidents in which the collapse was directly witnessed or heard were included: 569 (61%) of the 927 cardiac arrests. Unwitnessed cardiac arrests were not included because of the imprecision of defining time of collapse. Access time was determined at the scene by an EMT or paramedic questioning the bystander. Usually this was determined on arrival and before knowledge of the outcome. In

Emergency Medical Services Evidence-Based System Design White Paper for EMSA

Editors:
Jeffrey M. Goodloe, MD, NREMT-P, FACEP
Stephen H. Thomas, MD, MPH, FACEP

Authors:
Thomas H. Blackwell, MD, FACEP
Jeff J. Clawson, MD
Marc K. Eckstein, MD, MPH, FACEP
Charles Miramonti, MD, FACEP
Henry E. Wang, MD, MPH, MS

July 2011

System Response Time Standards for Ambulances

Before Nov. 1, 2013

- **Priority 1 8:59**
  - **– 11:59 outside OKC/TUL**
- **Priority 2 12:59**

After Nov. 1, 2013

- **Priority 1 10:59**
  - **– 11:59 outside OKC/TUL**
- **Priority 2 24:59**

EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD MCB OMD OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

EMERGENCY MEDICINE UNIVERSITY OF OKLAHOMA

EMS SECTION

Actual Effect on Ambulance Response Times – Metro OKC

All Calls Pre 11/1/13		All Calls Post 11/1/13	
• Priority 1	11:56	• Priority 1	13:14
• Priority 2	12:07	• Priority 2	18:13

Priority 1 change impact is 1:18 at 90% fractile

Priority 2 change impact is 6:06 at 90% fractile

EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD MCB OMD OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

OU EMERGENCY MEDICINE UNIVERSITY OF OKLAHOMA

EMS SECTION

Actual Effect on Ambulance Response Times – Metro Tulsa

All Calls Pre 11/1/13		All Calls Post 11/1/13	
• Priority 1	11:17	• Priority 1	12:27
• Priority 2	12:47	• Priority 2	18:19

Priority 1 change impact is 1:10 at 90% fractile

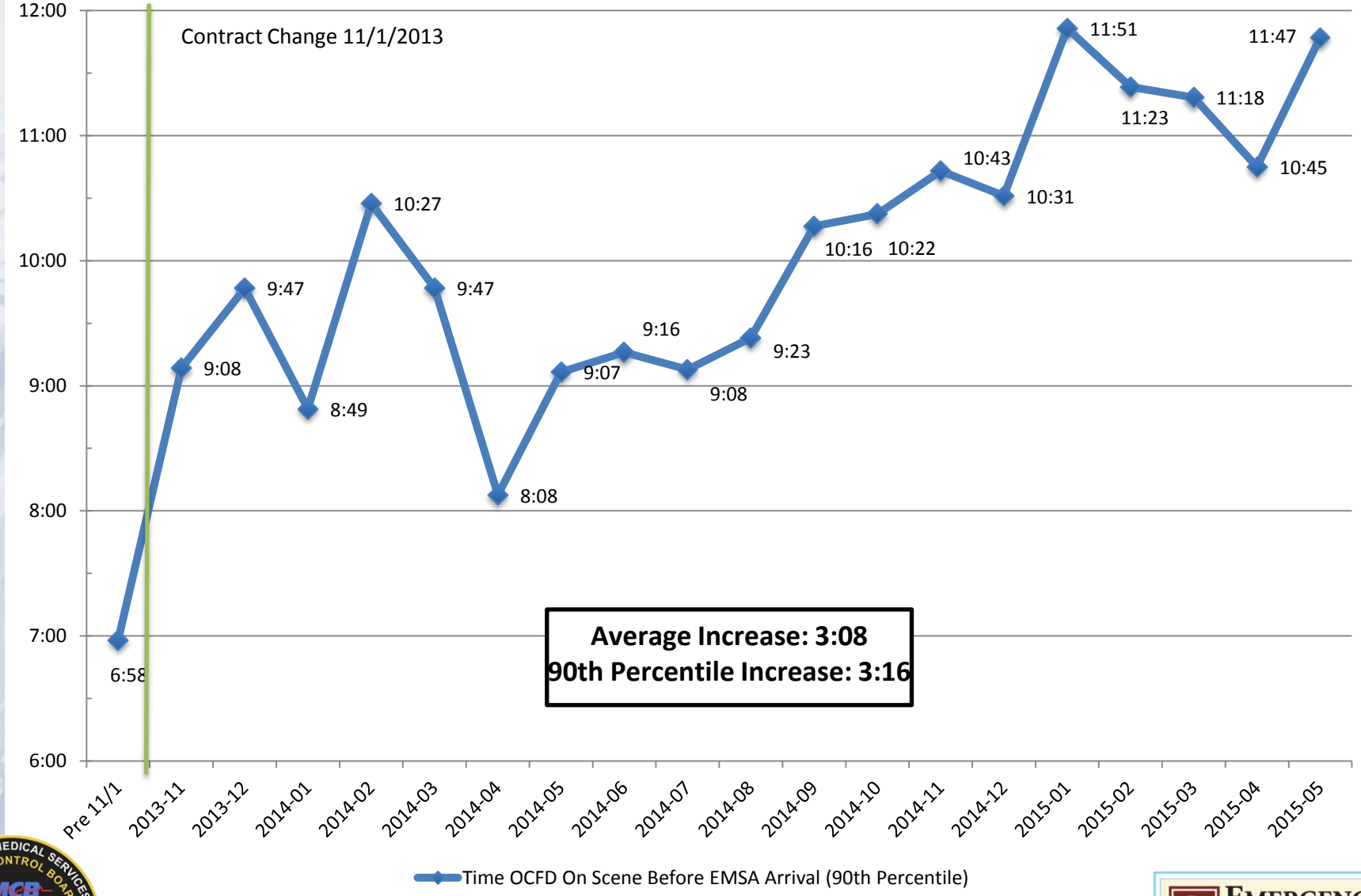
Priority 2 change impact is 5:32 at 90% fractile

EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD MCB OMD OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

OU EMERGENCY MEDICINE UNIVERSITY OF OKLAHOMA

EMS SECTION

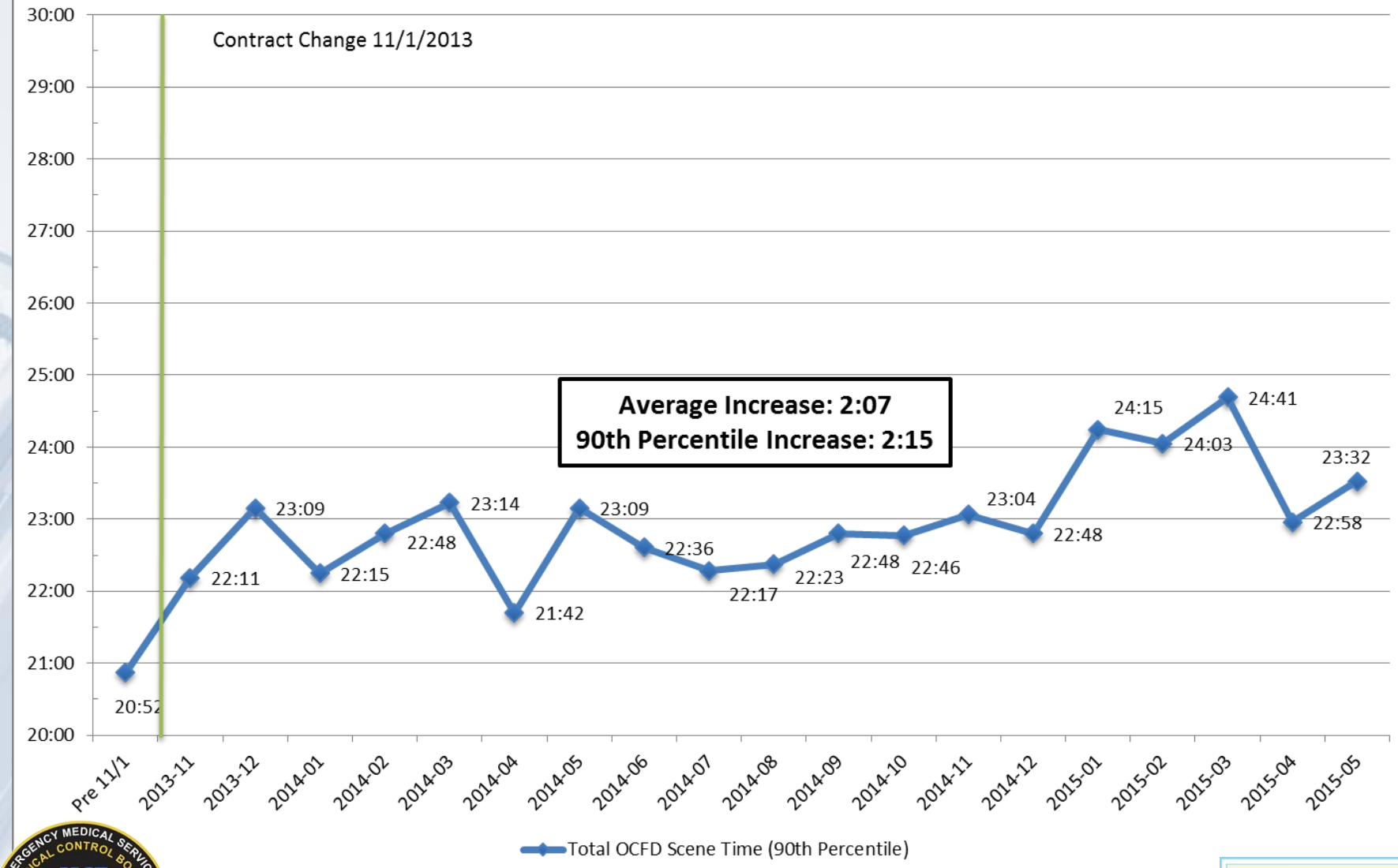
Time OCFD On Scene Before EMSA Arrival (90th Percentile)



EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD
MCB
OMD
OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

EMERGENCY MEDICINE
UNIVERSITY OF OKLAHOMA
EMS SECTION

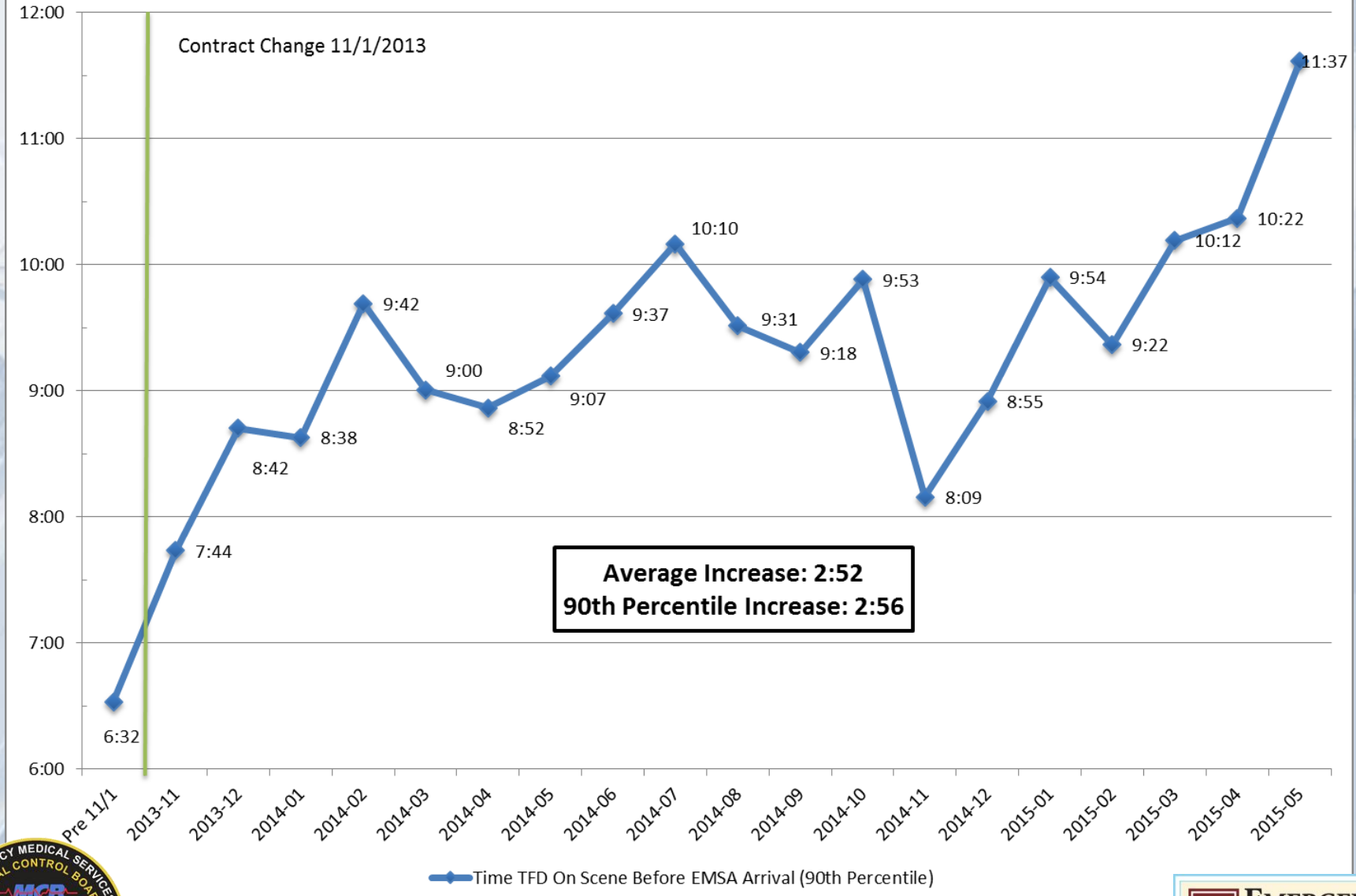
Total OCFD Scene Time (90th Percentile)



EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD
MCB
OMD
OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

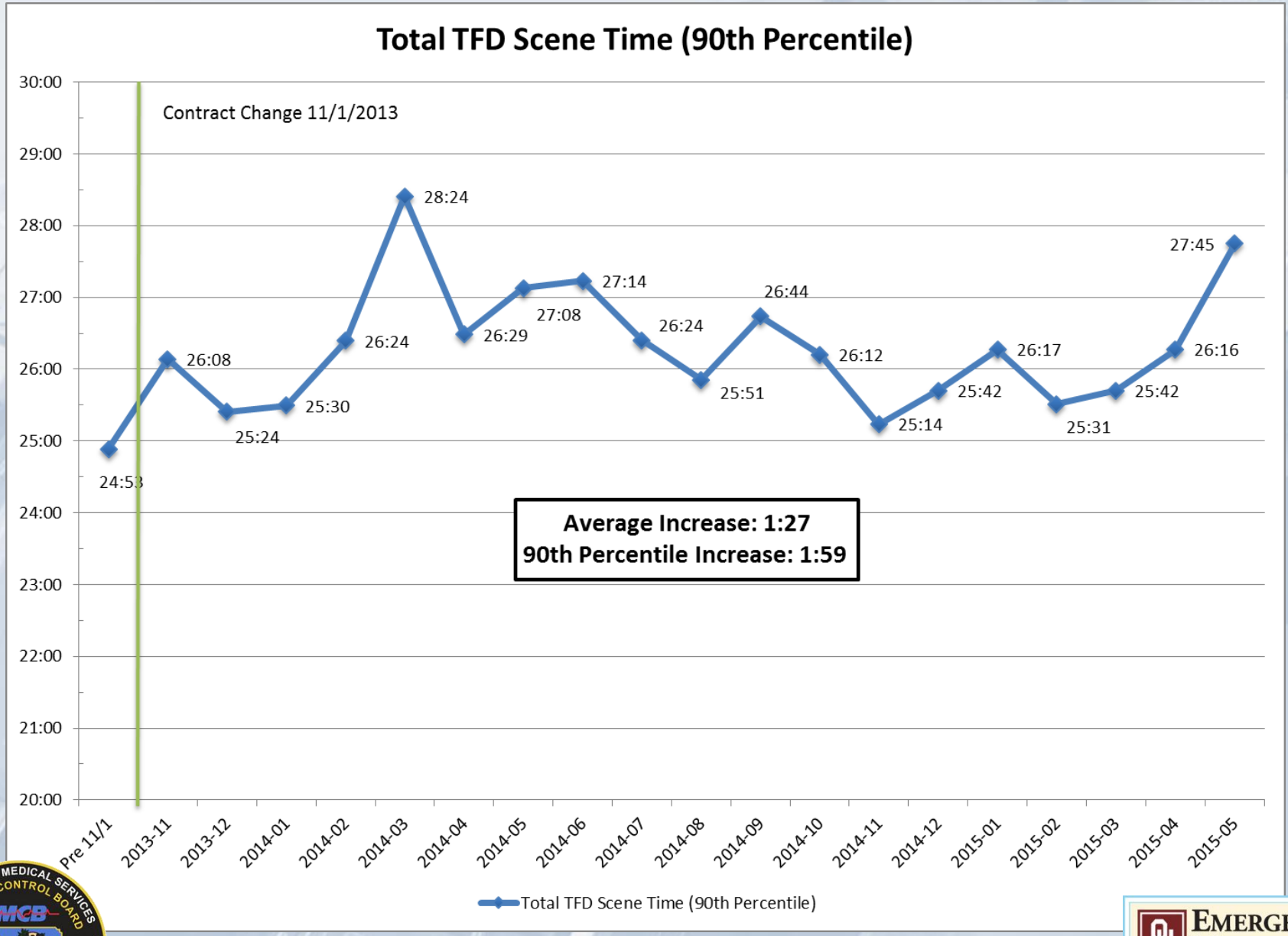
EMERGENCY MEDICINE
UNIVERSITY OF OKLAHOMA
EMS SECTION

Time TFD On Scene Before EMSA Arrival (90th Percentile)



EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD
MCB
OMD
OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

EMERGENCY MEDICINE
UNIVERSITY OF OKLAHOMA
EMS SECTION



EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD
MCB
OMD
OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

EMERGENCY MEDICINE
UNIVERSITY OF OKLAHOMA
EMS SECTION

Operational Result

- Year Prior to Response Time Changes
  - 179,753 RLS responses
- Year After Response Time Changes
  - 57,112 RLS responses (31%)
  - **124,459 Non-RLS responses** (69%)

Clinical Result

"There is absolutely zero instances since November 1, 2013, that I am aware of, that there is a deleterious clinical outcome substantially or wholly linked to these differences in time. Zero instances."

- Dr. Jeffrey Goodloe, Medical Director
EMSA Board of Trustees meeting, September 24, 2014

EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD
MCB
OMD
OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

EMERGENCY MEDICINE
UNIVERSITY OF OKLAHOMA
EMS SECTION

Nice Soundbite, But…

- One methodology of review
  - All MDPS codes reviewed
  - Focus on anything previously RLS response
  - Comparison of RLS returns -
- Nothing jumps out! (so far)

06C01 = Non Life Threat
"Abnormal Breathing"

- Pre 11/1/13 EMSA/PPlus responding RLS
- 06C01 represents 2.00% of all calls in OKC
- 66/1412 = 4.67% RLS return

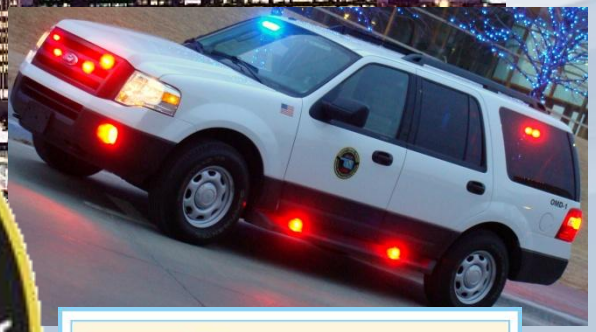
- Post 11/1/13 EMSA/AMR responding non-RLS
- 06C01 represents 1.68% of all calls in OKC
- 49/1182 = 4.15% RLS return

EMERGENCY MEDICAL SERVICES MEDICAL CONTROL BOARD MCB OMD OFFICE OF THE MEDICAL DIRECTOR METROPOLITAN OKLAHOMA CITY AND TULSA

OU EMERGENCY MEDICINE UNIVERSITY OF OKLAHOMA

EMS SECTION

TULSA FIRE DEPARTMENT
PROTECTING LIFE, HEALTH, PROPERTY & ENVIRONMENT
EST. 1900



FIRE • RESCUE • EMS
FD
Est 1889

EMERGENCY MEDICAL SERVICES
MEDICAL CONTROL BOARD
MCB
OMD
OFFICE OF THE MEDICAL DIRECTOR
METROPOLITAN OKLAHOMA CITY AND TULSA

OU EMERGENCY MEDICINE
UNIVERSITY OF OKLAHOMA
EMS SECTION

Contact Info:
jeffrey-goodloe@ouhsc.edu
Office of the Medical Director
405-297-7173