

OTERAC STRATEGIC PLANNING UPDATE

Oklahoma Trauma Emergency Response Advisory Council

December 12, 2015



Oklahoma
State
Department
of Health

Overview

- Review Barriers and Critical Questions
- Progress Update on Next Steps
 - Stroke
 - Trauma
 - STEMI



Barriers and Critical Questions

- Review of Barriers
 - Zero Standardized system
 - (Pre-hospital & Hospital)
 - Benchmarking implementation.
 - Divert=delays.
 - Public early stroke recognition.
 - Lack of Paramedics able to transport TPA patients.
 - Lack of registry/data/QA.
 - Access to Neurologists.
 - Providers are uncomfortable administering TPA



Barriers and Critical Questions

- Review of Critical Questions
 - How do we increase the number of paramedics in rural settings?
 - How do we protect and encourage QA?
 - How do we increase public awareness?
 - How do we create standardized system/benchmarks?
 - How do we increase the availability of TPA across the state?
 - How do we increase telestroke?
 - How do we avoid making the same mistakes made during trauma plan/systems development?

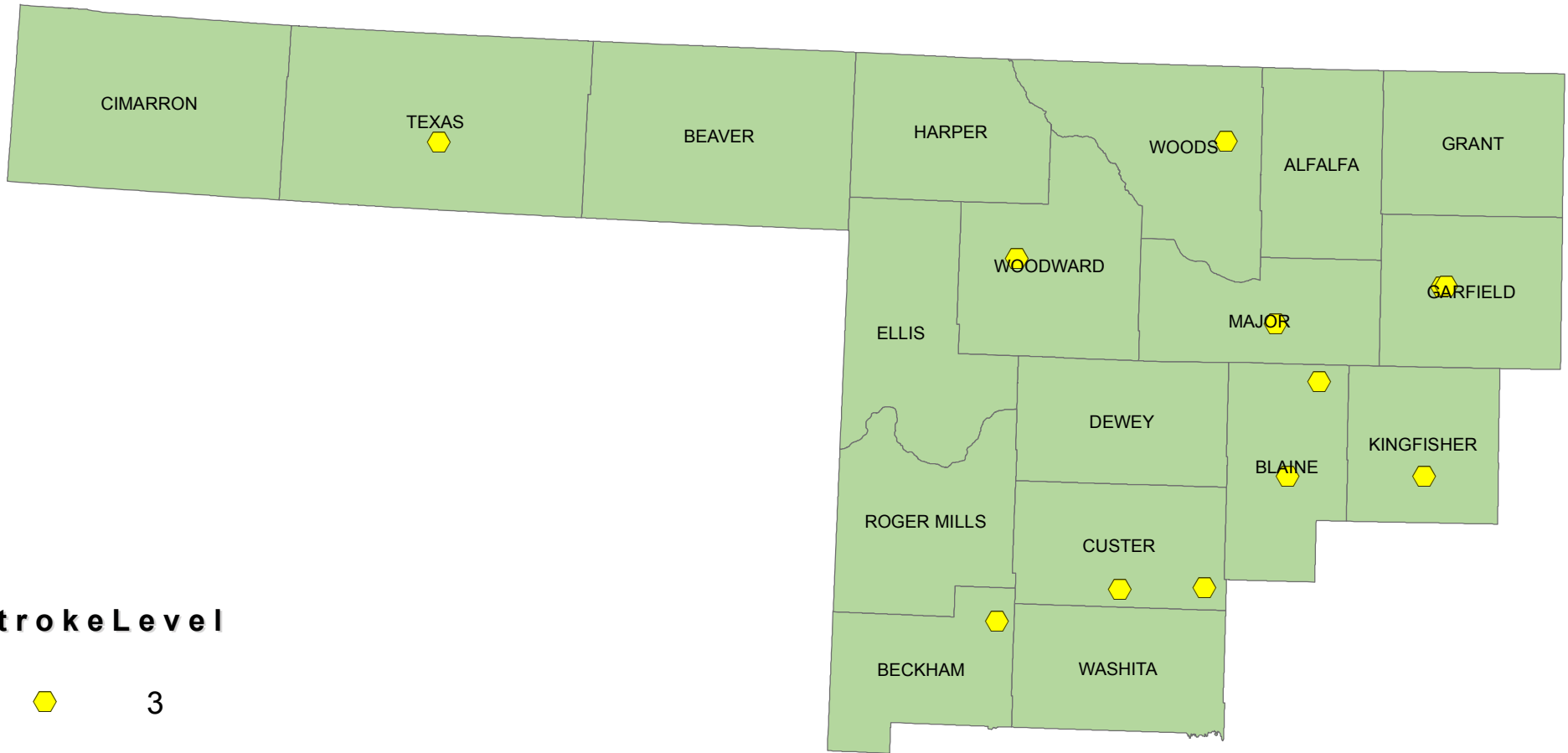


Next Steps --Stroke

- Share Education Piece with Oklahoma Stroke Advisory Council (Dr. Cathey and Eddie Sims)
- Share OTERAC discussion with working groups (OTERAC Members)
- Identify Barriers to Telestroke (Dr. Cathey)
- Report on New Registries (Brandon Bowen)



Region 1 Stroke Centers - Levels I, II, and III



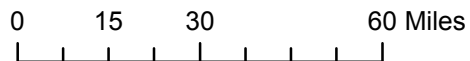
Stroke Level

 3

Data Source: Oklahoma State Department of Health
Emergency Systems

11-2-2015

Projection: USGS Albers Equal Area Conic

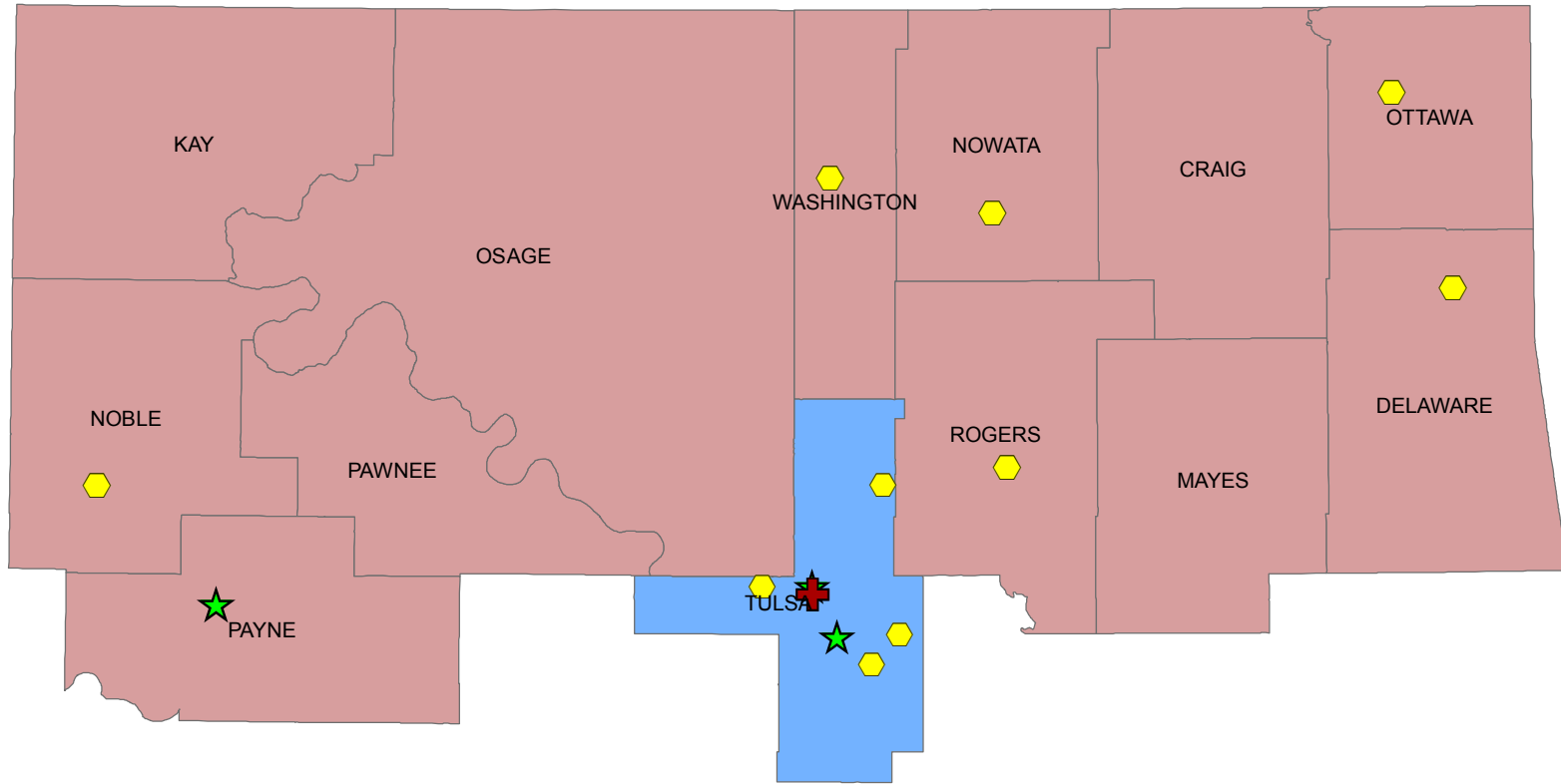


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Region 2 and 7 Stroke Centers - Levels I, II, and III



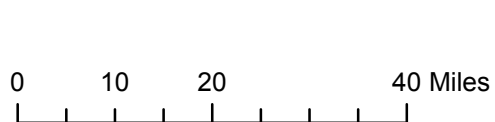
StrokeLevel

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Data Source: Oklahoma State Department of Health
Emergency Systems

11-2-2015

Projection: USGS Albers Equal Area Conic

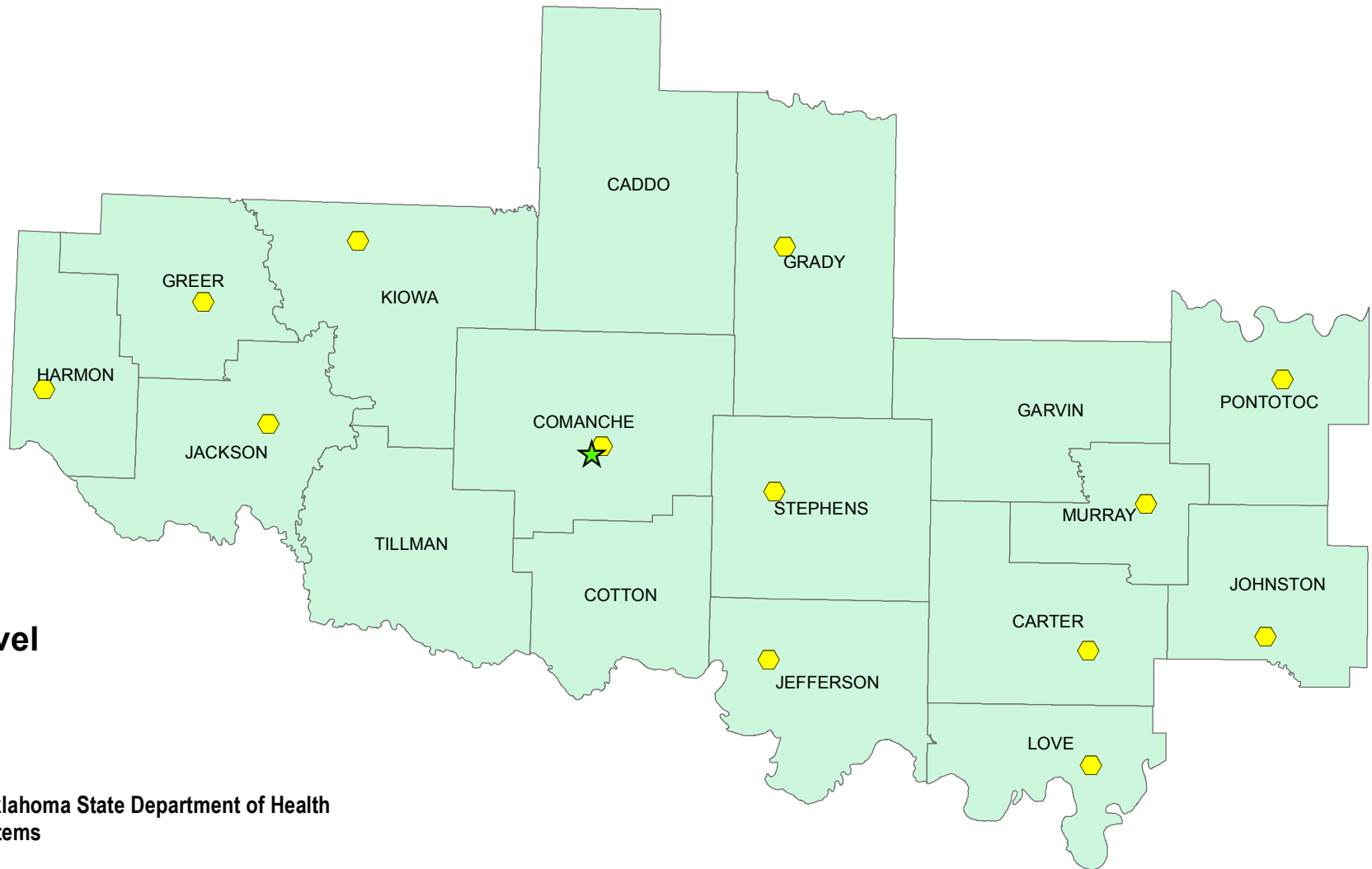


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Region 3 Stroke Centers - Levels I, II, and III



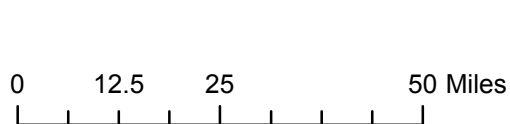
Stroke Level

- ★ 2
- ⬡ 3

Data Source: Oklahoma State Department of Health
Emergency Systems

11-2-2015

Projection: USGS Albers Equal Area Conic

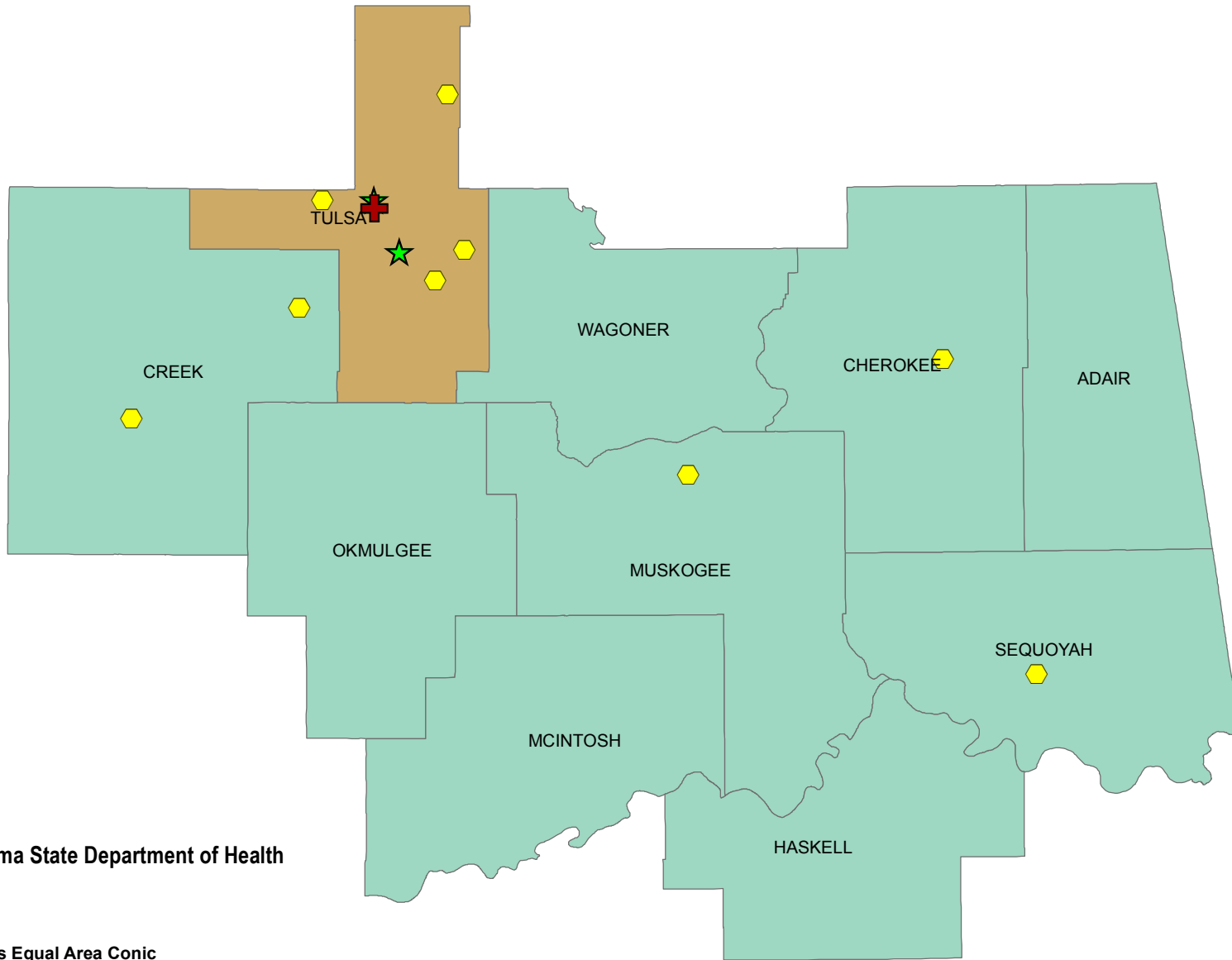


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Region 4 and 7 Stroke Centers - Levels I, II, and III



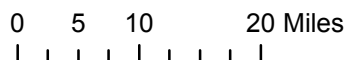
Stroke Level

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Data Source: Oklahoma State Department of Health
Emergency Systems

11-2-2015

Projection: USGS Albers Equal Area Conic

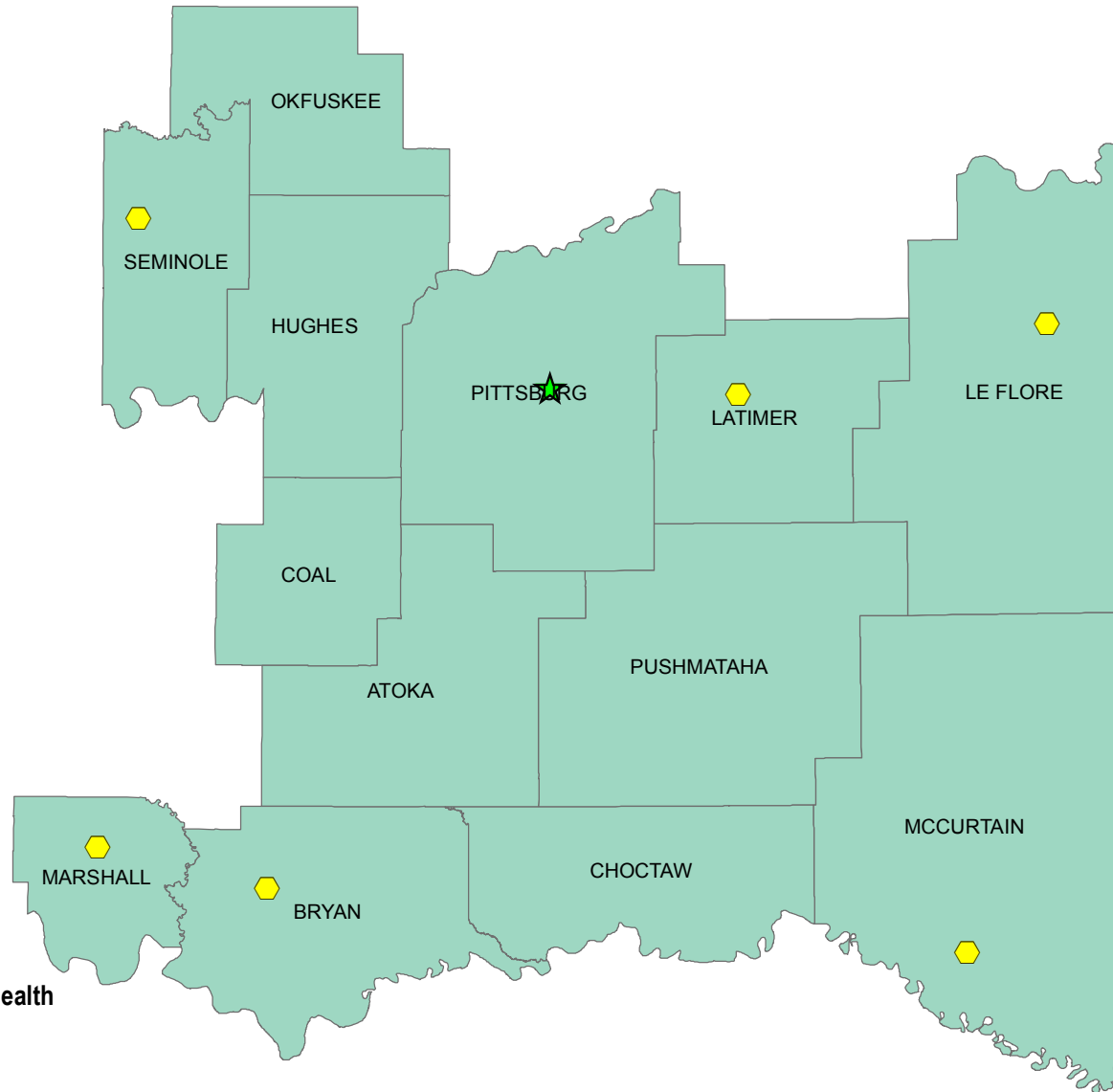


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Region 5 Stroke Centers - Levels I, II, and III



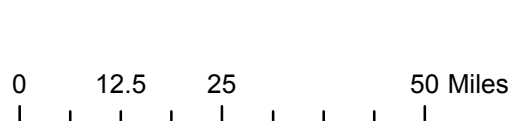
StrokeLevel

- ★ 2
- ⬡ 3

Data Source: Oklahoma State Department of Health
Emergency Systems

11-2-2015

Projection: USGS Albers Equal Area Conic

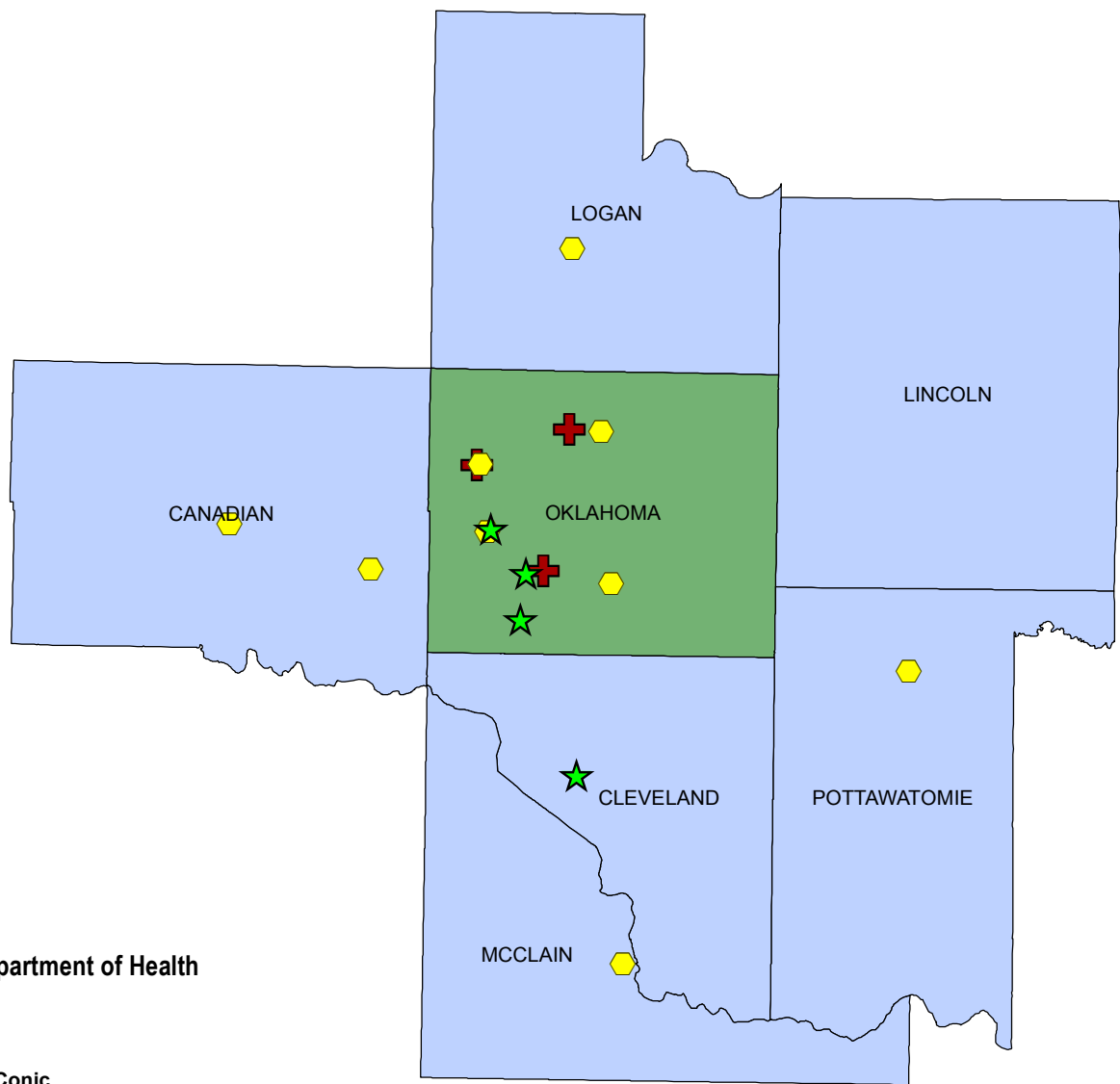


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Region 6 and 8 Stroke Centers - Levels I, II, and III



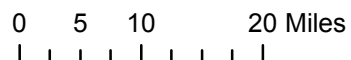
StrokeLevel

-  1
-  2
-  3

Data Source: Oklahoma State Department of Health
Emergency Systems

11-2-2015

Projection: USGS Albers Equal Area Conic



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Next Steps --Trauma

- Update on Consolidated Regional Plans (OSDH Staff)
- Condensed Version of Oklahoma Trauma Education Program with two posters (OSDH Staff -and Dr. Sacra)
- Develop Data Collection Subset (OSDH Staff and Dr. Sacra)
- Meet with Air Service Representatives (Judy Dyke)
- Identify Possible New Funding Sources by Approaching Contacts (OTERAC Members)



The goal of the Oklahoma Trauma System is to provide *timely integrated* care for the injured; always delivering the **right** patient to the **right** place, receiving the **right** treatment in the **right** amount of time.

While unstable time-sensitive Priority 1 patients constitute fewer than 10 percent of all injuries, these patients present the greatest challenge for our system. Since time and distance from the scene of injury to definitive care can be long, it is imperative that all providers work in a coordinated fashion.

Early recognition and appropriate stabilization while minimizing EMS scene time, early activation of the system and eliminating unnecessary diagnostic testing in Level III or IV hospitals are essential in preventing unnecessary death and disability.

Priority 1 adult and pediatric patients with high energy blunt or penetrating injuries resulting in **physiological abnormalities, altered mental status or significant single or multi-system anatomical injuries** are defined in the Oklahoma Trauma Education Program, as well as, the Prehospital and Interfacility Trauma Triage and Transfer Guidelines and the Quick Reference Guide used by TReC.

All providers should be aware of the criteria for these time-sensitive Priority 1 injured patients and always provide timely and coordinated care with the following in mind—

EMS personnel should—

- minimize scene time by performing only life-saving stabilization.
- activate the Trauma System through early notification of the receiving hospital.
- consider air rendezvous either at the scene or initial receiving hospital, depending on time and distance to definitive care.

Hospital personnel should—

- know the capabilities of their facility including on-call resources and quickly determine if definitive surgical care is available.
- initiate prompt transfer arrangements after immediate stabilization if definitive surgical care or critical care monitoring are not available.
- not delay the transfer decision by performing unnecessary non-therapeutic diagnostic testing.
- contact TReC promptly and consult with the receiving facility and/or receiving physician as additional care may be necessary prior to transfer. Stabilization may involve surgical intervention prior to transfer.
- not delay transfer waiting for diagnostic studies to be completed; however, these studies may be continued while the transfer protocol is activated.
- consider air transport depending on time and distance to definitive care, and make arrangements early to shorten the ETA for air transport.

They are called “Time-Sensitive” for a reason. Make the most of the patient’s time!

Interfacility Trauma Triage and Transfer Guidelines

Quick Reference Guide

Priority One Adult

Priority 1 Adult Definition: Patients with high energy blunt or penetrating injury causing physiological abnormalities or significant single or multi-system anatomical injuries.

Respiratory Distress and/or Hemodynamic Instability

- SBP consistently <90 or persistent tachycardia following 2 L crystalloid
- Respiratory distress with rate <10 or >29

Multi-System

- Significant injury to 2 or more body regions
- Head or spine injury combined with: face, chest, abdominal, or pelvic injury; or resulting from a positive mechanism of injury such as MVC, MCC, ATV, auto vs. pedestrian/bicycle, personal watercraft, aircraft, equine accidents with significant forces or velocity; falls from a significant height; or significant assault or altercation
- Burns associated with significant injuries

Penetrating Injury

- Head, neck, chest/abdomen or extremities proximal to elbow and knee

Spinal

- Suspected or diagnosed fracture with neurological deficit

Thoracic

- Major chest wall or pulmonary injury with respiratory compromise
- Wide mediastinum or suspected great vessel, tracheobronchial, or esophageal injury
- Cardiac injury (blunt or penetrating) including tamponade

Abdominal/Pelvic

- Hemodynamically unstable plus evidence of abdominal or pelvic trauma
- Ruptured hollow viscous
- Pelvic fracture plus shock or other evidence of continuing hemorrhage
- Open pelvic fracture or unstable pelvic ring disruption
- Rigid tender and/or distended abdomen

Central Nervous System

- GCS ≤ 10 or deterioration of 2 or more points
- Penetrating/open head, neck injury, or depressed skull fracture
- Neurological deficits/lateralizing signs
- CSF Leak

Skeletal

- Fracture/dislocation with loss of distal pulses
- Amputation of extremity proximal to wrist or ankle
- Two or more long bone fracture sites
- Major vascular injuries documented by arteriogram or loss of distal pulses
- Crush Injury or prolonged extremity ischemia
- Compartment syndrome

Clinical Deterioration

- Needs mechanical ventilation
- Sepsis
- Single or multiple organ system failure (deterioration in CNS, cardiac, pulmonary, hepatic, renal, or coagulation systems)
- Major tissue necrosis

Interfacility Trauma Triage and Transfer Guidelines Quick Reference Guide

Priority One Pediatric

Priority 1 Pediatric Definition:

Patients, ages 16 and younger, with high energy blunt or penetrating injury causing physiological abnormalities or significant single or multi-system anatomical injuries

Pediatric Trauma Score (PTS)

- PTS Score ≤ 5

Respiratory distress and/or hemodynamic instability

- SBP consistently <90 or persistent tachycardia following 20 ml/kg crystalloid
- Respiratory distress with rate:
Newborn: <30 or >60
Up to 1 year: <24 or >36
1 to 5 years: <20 or >30
Over 5 years: <15 or >30

Multi-System

- Significant injury to 2 or more body regions
- Head or spine injury combined with: face, chest, abdominal, or pelvic injury; or resulting from a positive mechanism of injury such as MVC, MCC, ATV, auto vs. pedestrian/bicycle, personal watercraft, and aircraft, equine accidents with significant forces or velocity; falls from a significant height; or significant assault or altercation
- Burns associated with significant injuries

Penetrating Injury

- Head, neck, chest/abdomen or extremities proximal to elbow or knee

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- Suspected or diagnosed fracture with neuro deficit

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ADULT PRE-HOSPITAL TRIAGE AND TRANSPORT GUIDELINES

Oklahoma Model Trauma Triage Algorithm

- INABILITY TO SECURE AIRWAY
- TRAUMATIC ARREST

YES

GO DIRECTLY TO NEAREST APPROPRIATE FACILITY

PHYSIOLOGICAL COMPROMISE CRITERIA

PRIORITY I

- Hemodynamic Compromise¹-Systolic BP < 90mmHg
Or signs that should be considered include:
 - Sustained tachycardia
 - Cool diaphoretic skin
- Respiratory Compromise²- RR < 10 or > 29 breaths/minute
or < 20 in infant < 1 yr
- Altered Mentation of trauma etiology³- GCS < 14

NO ↓

ANATOMICAL INJURY

- Penetrating injury of head, neck, chest abdomen, or extremities proximal to elbow or knee.
- Combination of burns > 10% or significant burns involving face, airway, hands, feet or genitalia without significant trauma transport to regional Burn Center. Burns > 10% with significant trauma transport to trauma center.
- Amputation above wrist or ankle
- Paralysis or suspected spinal fracture with neurological deficit
- Flail chest
- Two or more obvious proximal long bone fractures [upper arm or thigh]
- Open or suspected depressed skull fracture
- Unstable pelvis or suspected unstable pelvic fracture
- Tender and/or distended abdomen
- Crushed, degloved, or mangled extremity

YES

INITIATE TRAUMA TREATMENT PROTOCOL

ACTIVATE TRAUMA SYSTEM

RAPID transport to the designated Level I,II, or Regional Level III Trauma Center according to the Regional Trauma Plan but may be stabilized at a Level III or IV facility depending on location of receiver and time and distance to the higher level trauma center.

Air Rendezvous may be necessary considering time & distance constraints. If conditions do not permit air transport then consider ALS rendezvous. Stabilization may occur either in the field or at the nearest appropriate facility.

Combination of burns > 10% or significant burns involving face, airway, hands, feet or genitalia *without* significant trauma transport to regional Burn Center. Burns >10% *with* significant trauma transport to trauma center.

YES

NO ↓

RISK OF SERIOUS INJURY - SINGLE SYSTEM INJURY

Patients with potentially time sensitive injuries due to a high energy event (positive mechanism of injury) but currently with no physiological abnormalities or significant anatomical injury, or patients with less severe single system injury.⁴

- Ejection (partial or complete) of the patient from an enclosed vehicle
- Auto/pedestrian, auto/bike, or motorcycle crash with significant impact (>20 mph) and patient thrown or run over by vehicle
- Falls greater than 20 feet or 2-3 times height of patient
- Significant assault or altercations
- High risk auto crash⁵
- Neurology: Isolated head trauma with transient loss of consciousness or altered mental status but currently alert and oriented
- Orthopedic: Single proximal and distal extremity (including open) from high energy event, isolated joint dislocations-knee, hip, elbow, shoulder without neurovascular deficits, and unstable joint (ligament) injuries without neurovascular deficits.
- Maxillofacial trauma: Facial lacerations; such as those requiring surgical repair, isolated open facial fractures or isolated orbit trauma with or without entrapments, or avulsed teeth.

YES

PRIORITY II

INITIATE TRAUMA TREATMENT PROTOCOL

PROMPT transport to the designated Level III Trauma Center or higher depending on location according to the Regional Trauma Plan

YES

NO ↓

CONSIDER⁶ Co-morbid factors
-Gestalt-EMS clinical judgment

NO

PRIORITY III

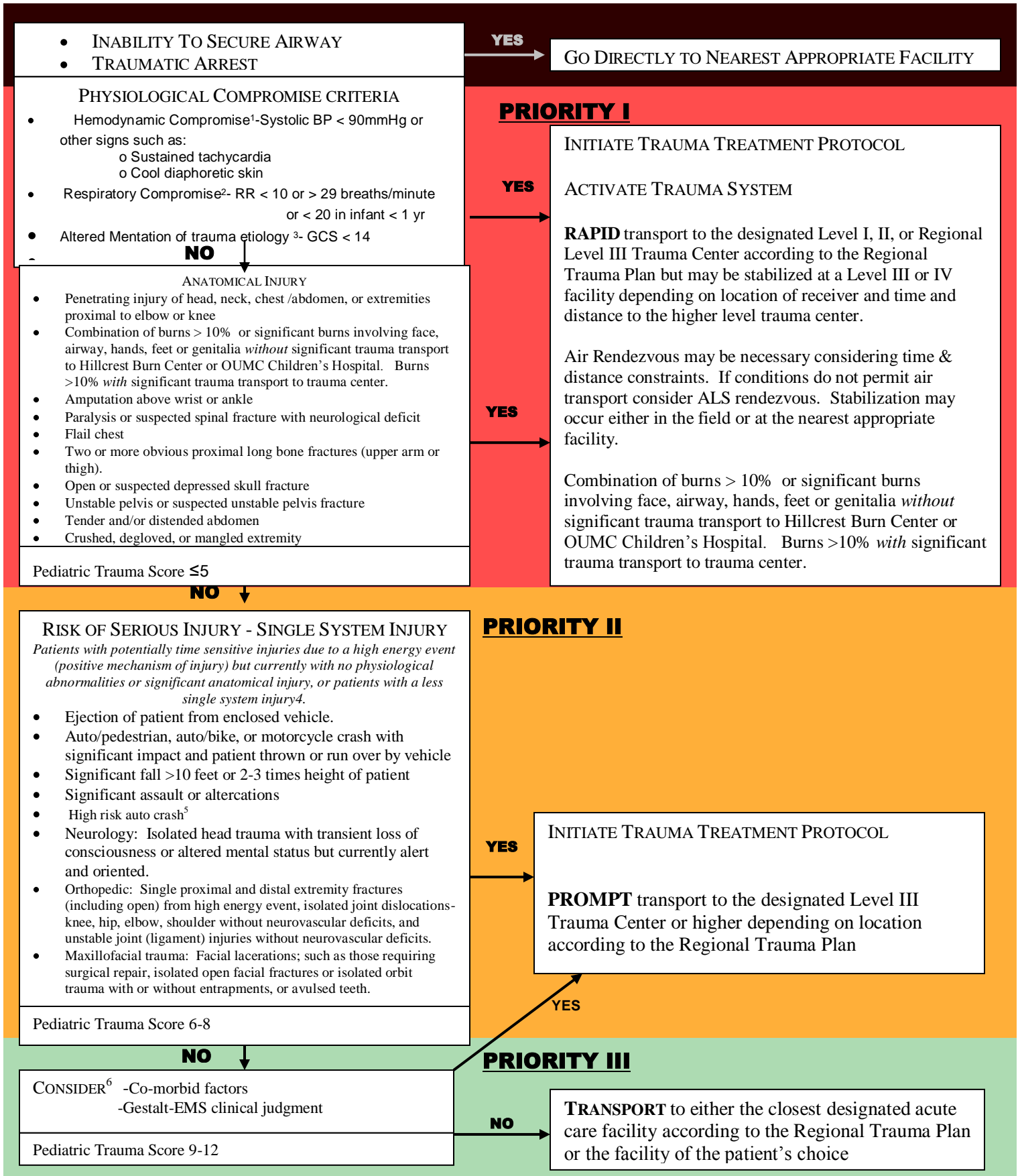
TRANSPORT to either the closest Level IV Trauma Center or higher depending on location according to the Regional Trauma Plan or the facility of the patient's choice

**ADULT PRE-HOSPITAL
TRIAGE AND TRANSPORT GUIDELINES**
Oklahoma Model Trauma Triage Algorithm

1. In addition to hypotension: pallor, tachycardia or diaphoresis may be early signs of hypovolemia
2. Tachypnea (hyperventilation) alone will not necessarily initiate this level of response.
3. Altered sensorium secondary to sedative-hypnotic will not necessarily initiate this level of response.
4. High Energy Event signifies a large release of uncontrolled energy. Patient is assumed injured until proven otherwise, and multisystem injuries may exist. Determinants to be considered by medical professionals are direction and velocity of impact, use of personal protection devices, patient kinematics and physical size and the residual signature of energy release (e.g. Major vehicle damage). Motor vehicle crashes when occupants are using personal safety restraint devices may not be considered a high energy event because the personal safety restraint will often protect the occupant from absorbing high amounts of energy.
5. The following motor vehicle crashes particularly when the patient has not used personal safety restraint devices:
 - a. Death in the same passenger compartment
 - b. Rollover
 - c. High speed auto crash
 - d. Compartment intrusion greater than 12 inches at occupant site or > 18 inches at any site
 - e. Vehicle telemetry data consistent with high risk of injury
6. Since trauma triage is an inexact science and patients differ in their response to injury, clinical judgment by the medic at the scene is an extremely important element in determining the destination of all patients. If the medic is concerned that a patient may have a severe injury which is not yet obvious, the patient may be upgraded in order to deliver that patient to the appropriate level Trauma Center. EMS provider suspicion for a severe injury may be raised by but not limited to the following factors:
 - Age greater than 55
 - Age less than 5
 - Extremes of environment
 - Patient's previous medical history such as:
 - Anticoagulation or bleeding disorders
 - End state renal disease on dialysis
 - Pregnancy (>20 weeks)

PEDIATRIC (≤ 16 YEARS) PRE-HOSPITAL TRIAGE AND TRANSPORT GUIDELINES

Oklahoma Model Trauma Triage Algorithm



Approved : OTSIDAC 02/01/06

Revised: OTSIDAC 08/01/07; 02/06/08, 08/06/08; 02/03/10

Clarification Revision by MAC: 11/19/08

**PEDIATRIC (≤ 16 YEARS) PRE-HOSPITAL
TRIAGE AND TRANSPORT GUIDELINES**

Oklahoma Model Trauma Triage Algorithm

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**PEDIATRIC (≤ 16 YEARS) PRE-HOSPITAL
TRIAGE AND TRANSPORT GUIDELINES**
Oklahoma Model Trauma Triage Algorithm

Pediatric Trauma Score (PTS)				
Components	+2	+1	-1	Score
Weight	>20 kg (44 lb)	10-20 kg (22-44 lb)	< 10 kg (< 22 lb)	
Airway	Patent *	Maintainable ^	Unmaintainable #	
Systolic (cuff) Or BP (pulses)	> 90 mm Hg Radial	50-90 mm Hg Femoral/Carotid	< 50 mm Hg None palpable	
CNS	Awake, no LOC	Obtunded Some LOC†	Comatose, unresponsive	
Fractures	None	Closed (or suspected)	Multiple open or closed	
Wounds	None	Minor	Major ‡, Burns or penetrating	
TOTAL	Range – 6 to +12			

Score: Possible Range –6 to +12, decreasing with increasing injury severity.

Generally:

- 9 to 12 = minor trauma
- 6 to 8 = potentially life threatening
- 0 to 5 = life threatening
- < 0 = usually fatal

* No assistance required.

^ Protected by patient but constant observation required for position, patency, or O₂ administration

Invasive techniques required for control (e.g., intubation).

† Responds to voice, pain, or temporary loss of consciousness.

‡ Abrasions or lacerations

Next Steps --STEMI

- Share Data with Working Groups (OTERAC Members)
- Report on EMResource Update (Brandon Bowen and Grace Pelley)
- Review Data from 12-lead Pilot Project (Jimmy Johnson)
- Identify EMS Agencies not Using 12-lead EKGs (OSDH Staff)
- Map Areas in Oklahoma Where EMS Agencies are not Using 12-lead EKGs (OSDH Staff)





EMTrack

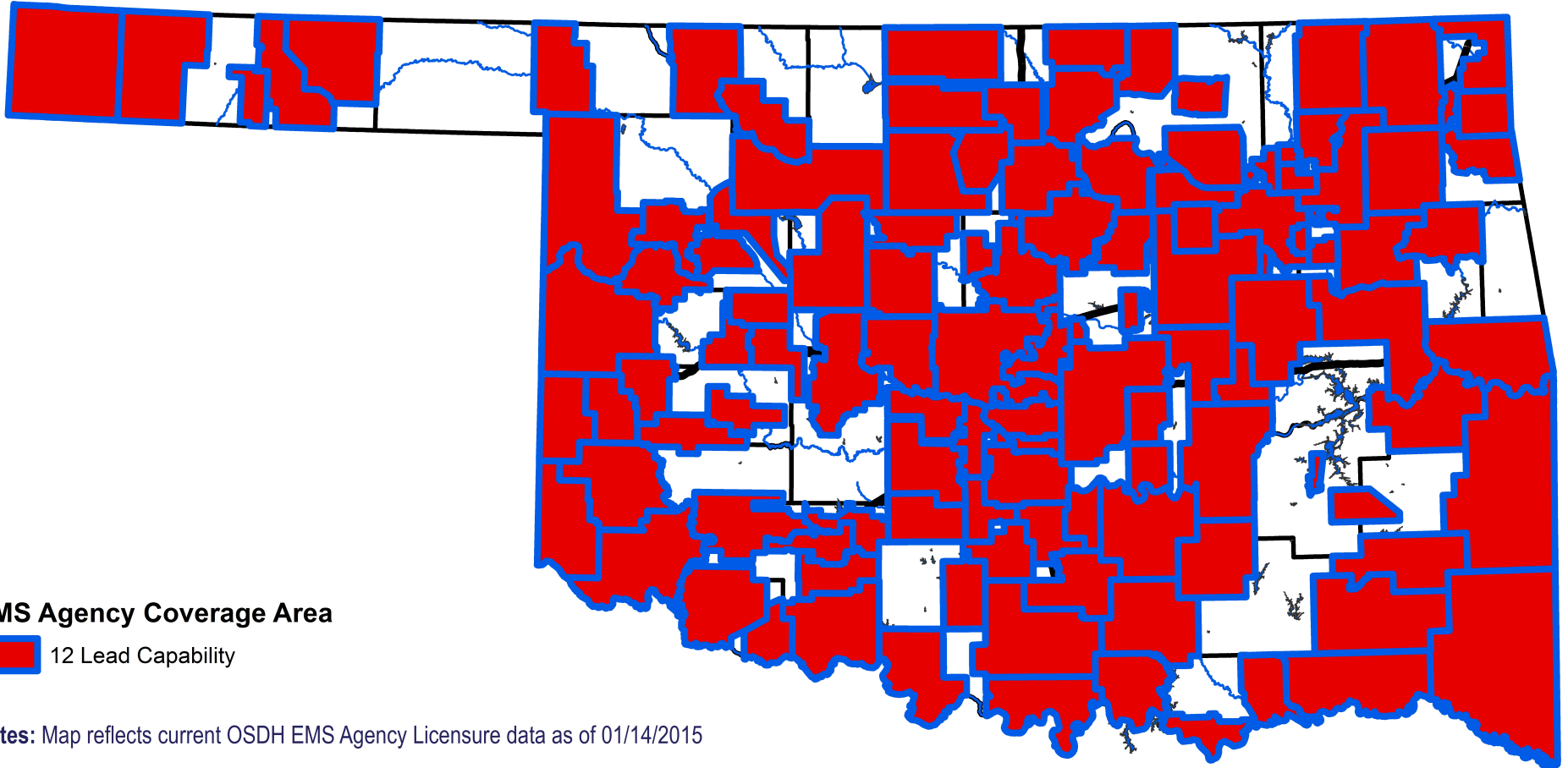
EMCredential

Setup **View** Other Regions Event Preferences Report Form Regional Info Instant Message User Links


Region Default print | refresh

OKC Area Hospitals	ED Status	Hosp Status	Stroke Center	CT Scan	Srg	Ortho	NeuSrg	MF	Hand	Card	NeoNat	OB/GYN
Community Hospital	Open	Open	Primary	Yes	Yes	Yes	N/A	N/A	No	N/A	N/A	N/A
Deaconess Hospital	Open	Open	Secondary	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Edmond Medical Center	Open	Open	Secondary	Yes	Yes	Yes	N/A	N/A	No	Yes	N/A	N/A
INTEGRIS Baptist Medical Center	Open	Open	Primary	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
INTEGRIS Canadian Village	Open	CAUTION	--	Yes	Yes	Yes	No	No	No	Yes	N/A	Yes
INTEGRIS Southwest Medical Center	Open	Open	--	Yes	Yes	Yes	No	No	N/A	Yes	N/A	Yes
McBride Clinic Orthopedic Hospital	Open	Open	--	Yes	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A
Mercy Health Center	Open	Open	--	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Midwest Regional Medical Center	Open	Open	--	Yes	Yes	Yes	No	N/A	Yes	Yes	N/A	Yes
Moore Medical Center	Open	Open	--	Yes	Yes	Yes	No	No	No	No	N/A	Yes
Norman Regional Hospital	Open	Open	--	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
OU MEDICAL CNTR - Children's	Open	Open	--	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Oklahoma EMS Agency Self-Reported 12 Lead Capability Coverage Areas, 2015



EMS Agency Coverage Area

 12 Lead Capability

Notes: Map reflects current OSDH EMS Agency Licensure data as of 01/14/2015

Data Source: OSDH Emergency Systems EMS Agency Licensure data

Created: 11.13.2015

Created by: Johnnie.L.Gilpen Jr. MS NREMT-I (johnnieg@health.ok.gov)

Projection/Coordinate System: NAD 1983 State Plane Oklahoma North FIPS 3501

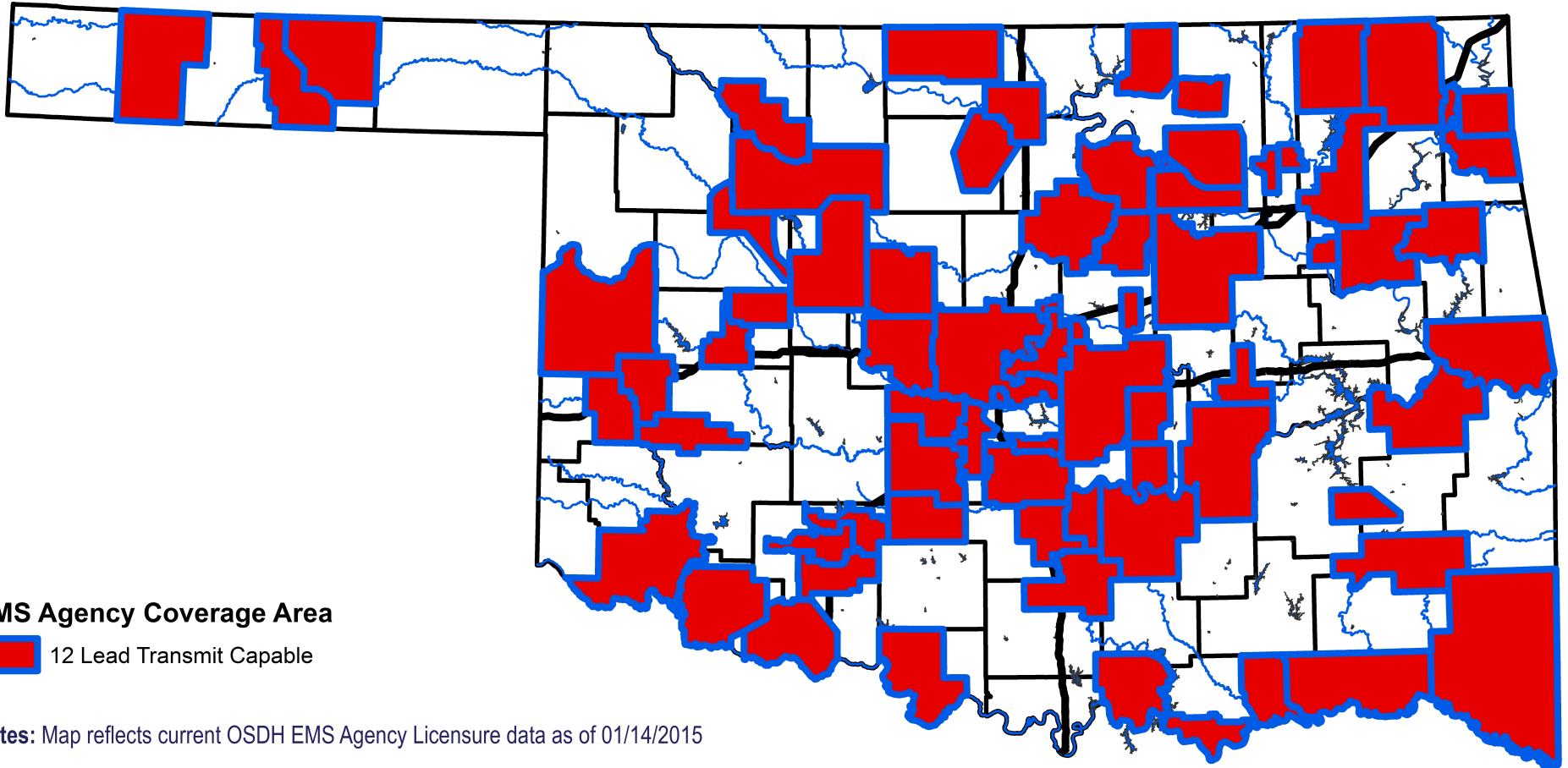


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Oklahoma EMS Agency Self-Reported 12 Lead Transmit Capable Coverage Areas, 2015



EMS Agency Coverage Area

 12 Lead Transmit Capable

Notes: Map reflects current OSDH EMS Agency Licensure data as of 01/14/2015

Data Source: OSDH Emergency Systems EMS Agency Licensure data

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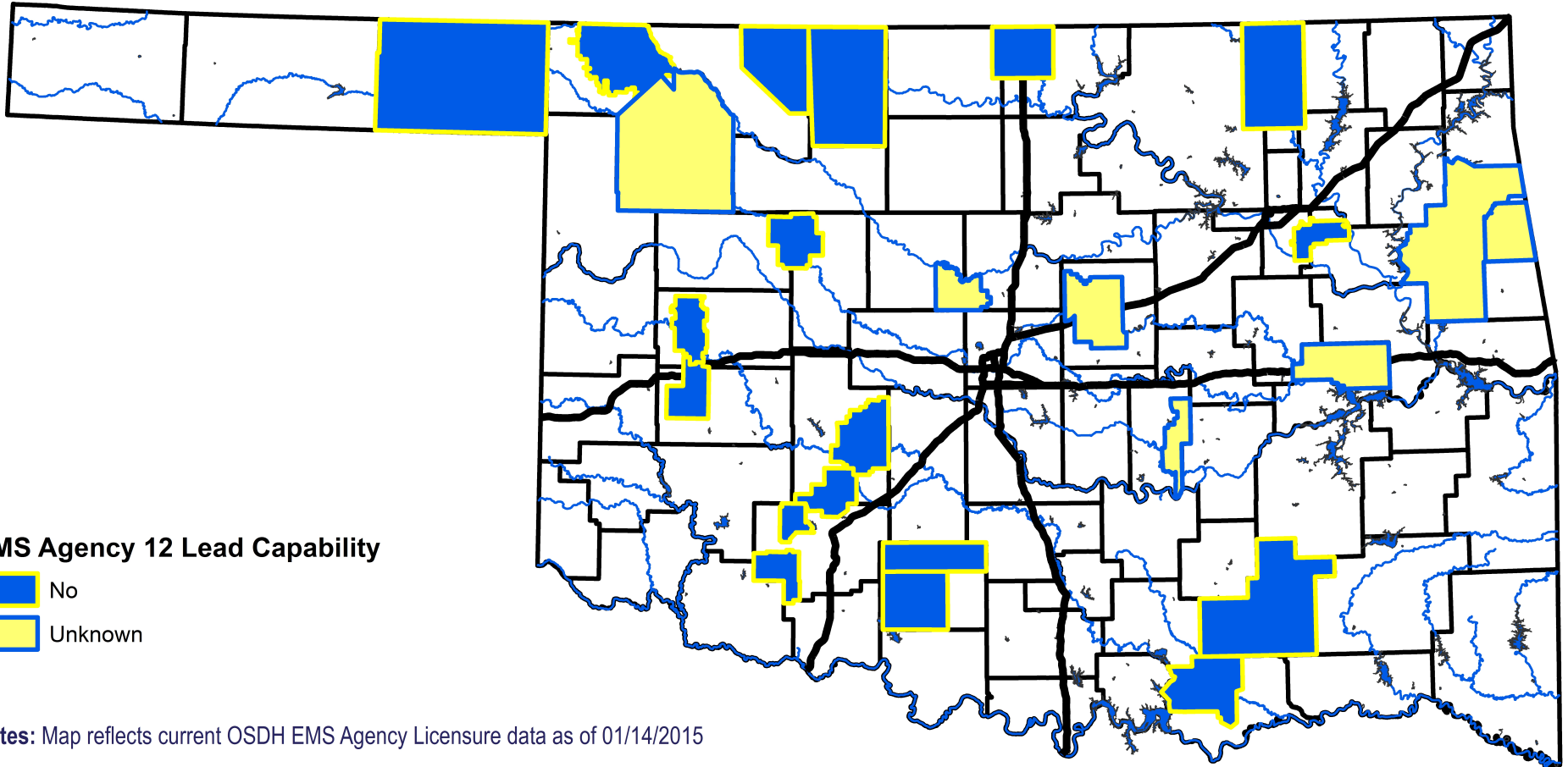


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Oklahoma EMS Agency Self-Reported 12 Lead Capable Coverage Areas, 2015



EMS Agency 12 Lead Capability

-  No
-  Unknown

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Summary

- Review Barriers and Critical Questions
- Progress Update on Next Steps
 - Stroke
 - Trauma
 - STEMI

