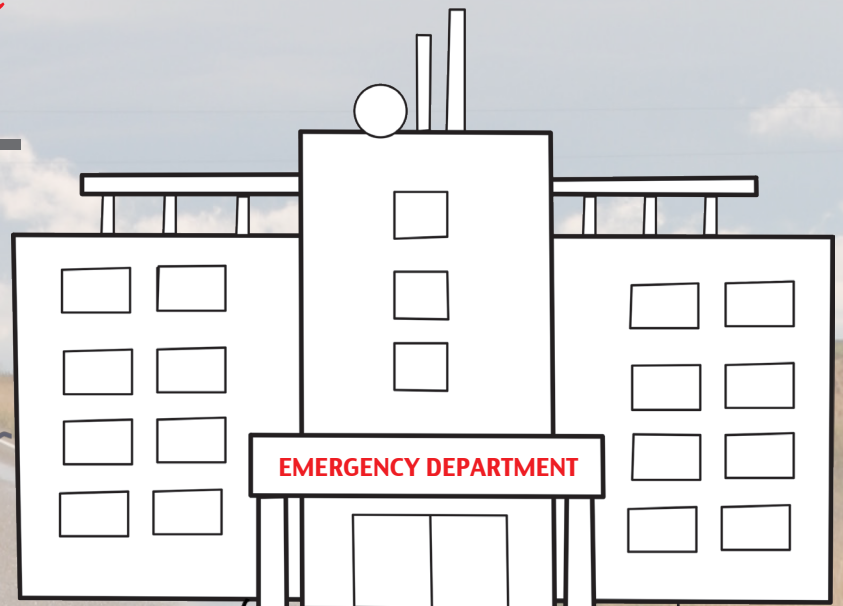


# How Telemedicine Can Help

## On-Call Specialist

Video-conferencing bridge capability to allow for a secure connection through laptop or ehealth device



## Trauma Center/ED

- Connect to ambulance via IP network & secure software
- Telemedicine unit to provide video-conferencing & medical data sharing
- Trained medical staff and healthcare providers



## "Golden Hour"

The first  
**60 MINUTES**  
after a trauma or  
cardiac event could  
mean the difference  
between life and  
death

Some Texans have to  
travel more than  
**100 MILES**  
to reach the nearest  
hospital

Ambulance

### Telemedicine unit with:

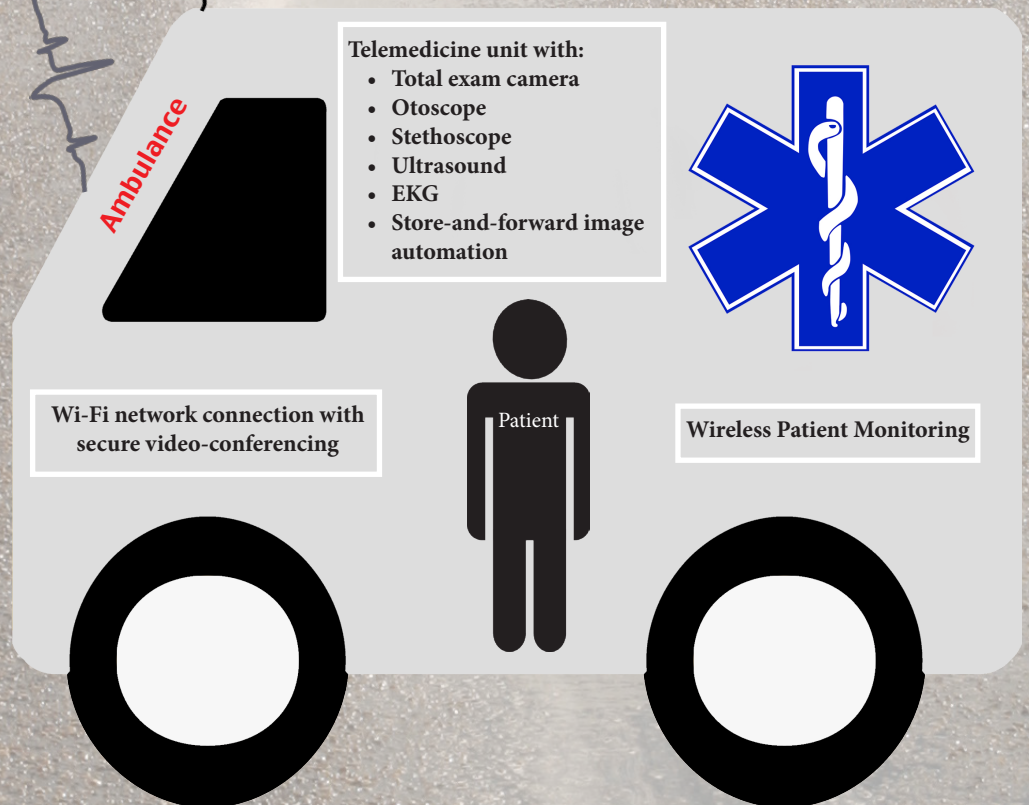
- Total exam camera
- Otoscope
- Stethoscope
- Ultrasound
- EKG
- Store-and-forward image automation



Wi-Fi network connection with  
secure video-conferencing

Patient

Wireless Patient Monitoring



# EMS Barriers in Texas

## Reported Average Run Times

Brewster County - **120 min.**

Castro County - **110 min.**

Glasscock County - **63 min.**

Kimble County - **120 min.**

Lubbock County - **30 min.**

Randall County - **35 min.**

Scurry County - **104 min.**

Ward County - **99 min.**

## Real Life Run Times

- » An hour and fifteen minutes for an ambulance to respond to a heart attack in the panhandle due to a lack of certified EMTs to respond to the call
- » Three-hour time period from the accident to get an injured repairman from the Eagle Ford Shale to a hospital in San Antonio
- » Three-hour time period from time of an accident at an oil rig in Culberson County until response due to a 180-mile drive to the oil rig site



**"If you're going to have a heart attack, you better be first."**

## Texas Facts

- » Texas population: **26,448,193**
- » Out of 254 counties, **177** are rural
- » Within rural counties:
  - 21 do not have any licensed EMS organization
  - 54 have First Responder organizations
  - 22 have basic life support
  - Only 5 have advanced life support
- » There is an average of one responding agency for every 6,333 people, or one agency per 422 square miles
- » In some Texas counties, EMS is not uniformly available at any level and in other counties, Basic Life Support (BLS) services exist at least 50% of the time, but the services available at other times may be very limited and not reliable

## Distance Between Oil Shales to a Trauma Center

- Robert Lee, Coke County - 156 miles to a Trauma I facility and 124 miles to a Trauma II Facility
- Mertzon, Irion County - 215 miles to a Trauma I facility and 134 miles to a Trauma II facility
- Mentone, Loving County - 186 miles to a Trauma I facility and 76 miles to a Trauma II facility
- Ft. Davis, Jeff Davis County - 197 miles to a Trauma I facility and 148 miles to a Trauma II facility
- Barnett Shale, Jones County - 139 miles to a Trauma I facility and 107 miles to a Trauma II facility

## Common Issues

- Location of call
- New oil and gas wells
- Unfamiliar territory
- Distance to site
- Getting to the closest facility that can treat the perceived issue the patient is facing
- Only two Level One Trauma Centers in West Texas
- Road Conditions
- Lack of trained EMS personnel for patient condition being treated
- Poor equipment and/or no equipment
- Only one vehicle and two calls

- » Texas is one of five states with the most interstate mileage with an estimated 17 routes, consisting of **3,233.45** miles
- » 37% of all injuries reported to trauma centers in Texas are caused by motor vehicle accidents
- » In 2013, there were **444,468** motor vehicle crashes in Texas, out of which **24.9%** were located in rural areas
- » Statewide, there were **3,039** fatal crashes, with **54.3%** in rural areas - it has been observed that response time is believed to be a critical factor as to why more fatalities occur in crashed located in rural areas

**60%** of all injury deaths in the U.S. occur in rural areas

# Texas Emergency Medical Services

## Personnel

- 62,764 Emergency Medical Providers in Texas
- Limited number of paramedics in rural areas - approximately only 20 percent of paramedics practice in areas designated as rural or frontier
- Difficult to maintain volunteers due to apathy and lack of time
- Lack of competitive wages for EMS Personnel
- Paramedics and other EMS workers are filling in gaps of service for many of the remote and frontier communities
- Population of personnel is limited and aging

## Funding

- Tobacco Settlement, 911 Equalization Surcharge, Driver's Responsibility Act, DUI/DWI Conviction Surcharge, Traffic and signal fines
- Extraordinary Emergency Account
- DSHS receives funds and disperses them to Regional Advisory Councils (RACs)
- 135 received RAC funds
- 21 received TEEX funding and LPG grant funds
- Limited Oil and gas company donations
- Local farmers aid in fuel costs

## Education & Training

- January 1, 2013, Texas mandated that all paramedics go through a two-year college accredited program
- Paramedic training is often too far away for people in the rural areas to attend
- Many rural areas depend on paramedics for primary care

## Communication Issues

- EMS may travel at least 77 to 100 miles to a trauma facility
- Some ambulances run five to six hours round-trip
- West Texas lacks communication towers, support of 4G communications, inaccurate mapping, geography, and shortage of well-known dispersed landmarks
- Some counties in West Texas have "dead areas" and some lack a 911 service due to the lack of 24-hour EMS coverage
- Rural areas depend on adjacent counties to take calls and page responders who lack 911 services

## Providers

- Emergency Care Attendant (ECA)
- Emergency Medical Technician (EMT)
- EMT - Intermediate (EMT-I)
- EMT - Paramedic (EMT-P)
- Licensed Paramedic (LP)

## Service Type

- Private EMS Services
- Fire Department
- Volunteer
- Hospital District based
- Municipal and Volunteer

## Ambulances & Equipment

- 539 ambulances in the 108 TTUHSC counties in West Texas (production years 1986 to 2013).
- A lack of funds for vehicle maintenance is cause for concern with EMS services
- A combination of distance and lack of vehicle maintenance leads to breakdown issues during transport
- Rural area paramedics are not always readily available
- Border Patrol Search, Trauma, and Rescue's (BORSTAR) industrial ambulance aids the border and assists in hazardous road conditions

## Air Medical Transport

- Vital to EMS coverage or when driving time to a facility is more than an hour
- Helicopters cannot cover all of West Texas due to fuel constraints
- It may take a helicopter an hour from time of the launch to a facility
- Weather can affect the transport time
- There are approximately only 29 Heliports in West Texas

## Emergency Medical Task Force

- Mass casualty incidents happen in rural areas
- TTUHSC region is covered by seven Ambuses and four MMUs, located in Arlington, San Antonio, El Paso, and Lubbock
- Distance to an accident scene could be more than two hours
- Response time is critical and coverage area is vast



TEXAS TECH UNIVERSITY  
HEALTH SCIENCES CENTER

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Rural and Community Health



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# 4G/LTE Coverage in Texas

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