

A photograph of an Arizona desert landscape featuring numerous saguaro cacti of various sizes growing on a rocky, arid hillside under a clear blue sky. The cacti are green with characteristic ribbed patterns. The terrain is composed of light-colored rocks and sparse, dry vegetation.

# Arizona Rural EMS Advanced Telemedicine Demonstration Initiative (AzREADI)

Dr. Joshua Gaither  
Dr. Amber Rice  
Aileen Hardcastle

June 2022





# Purpose

- To develop a telemedical infrastructure that places rural EMS agencies at the cutting edge of medical care
- To connect rural EMS providers with board certified EM physicians in real-time utilizing two-way **video** communication.
- To demonstrate a sustainable model of rural EMS care by providing EMS medical direction at the time of patient care to assist BLS & ALS providers in the evaluation and triage of patients in rural communities.



# Partners

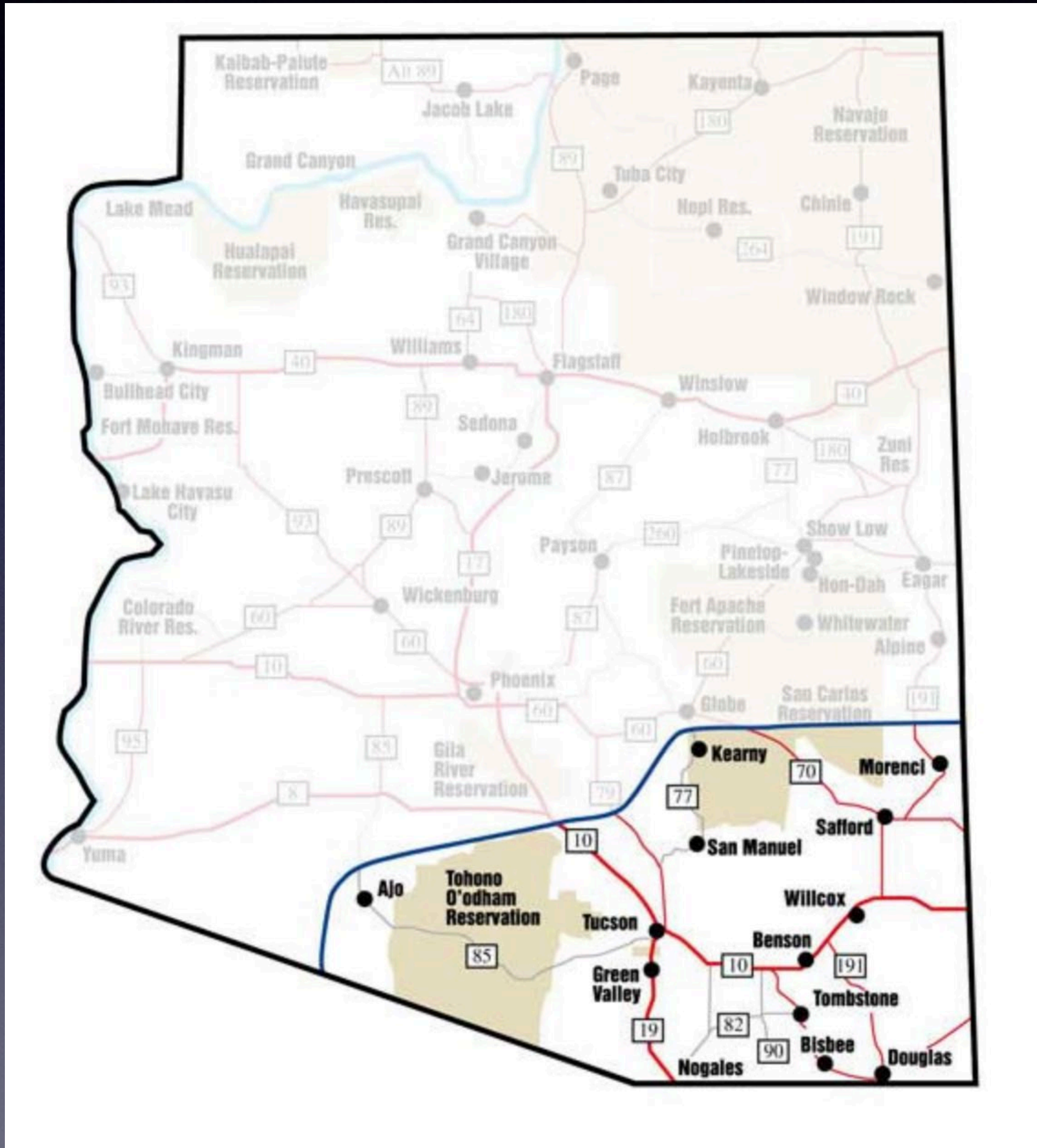
- Arizona Center for Rural Health - Mel & Enid Zuckerman College of Public Health
- Arizona Emergency Medicine Research Center
- General Devices
- FirstNet / AT&T
- Arizona Telemedicine Program
- HRSA Federal Office of Rural Health Policy
- Sonoita-Elgin Fire District
- Rio Rico Fire and Medical District
- Banner Health / University Medical Center Tucson
- AZ Department of Health Services



Arizona Emergency Medicine  
Research Center



# Southern Arizona

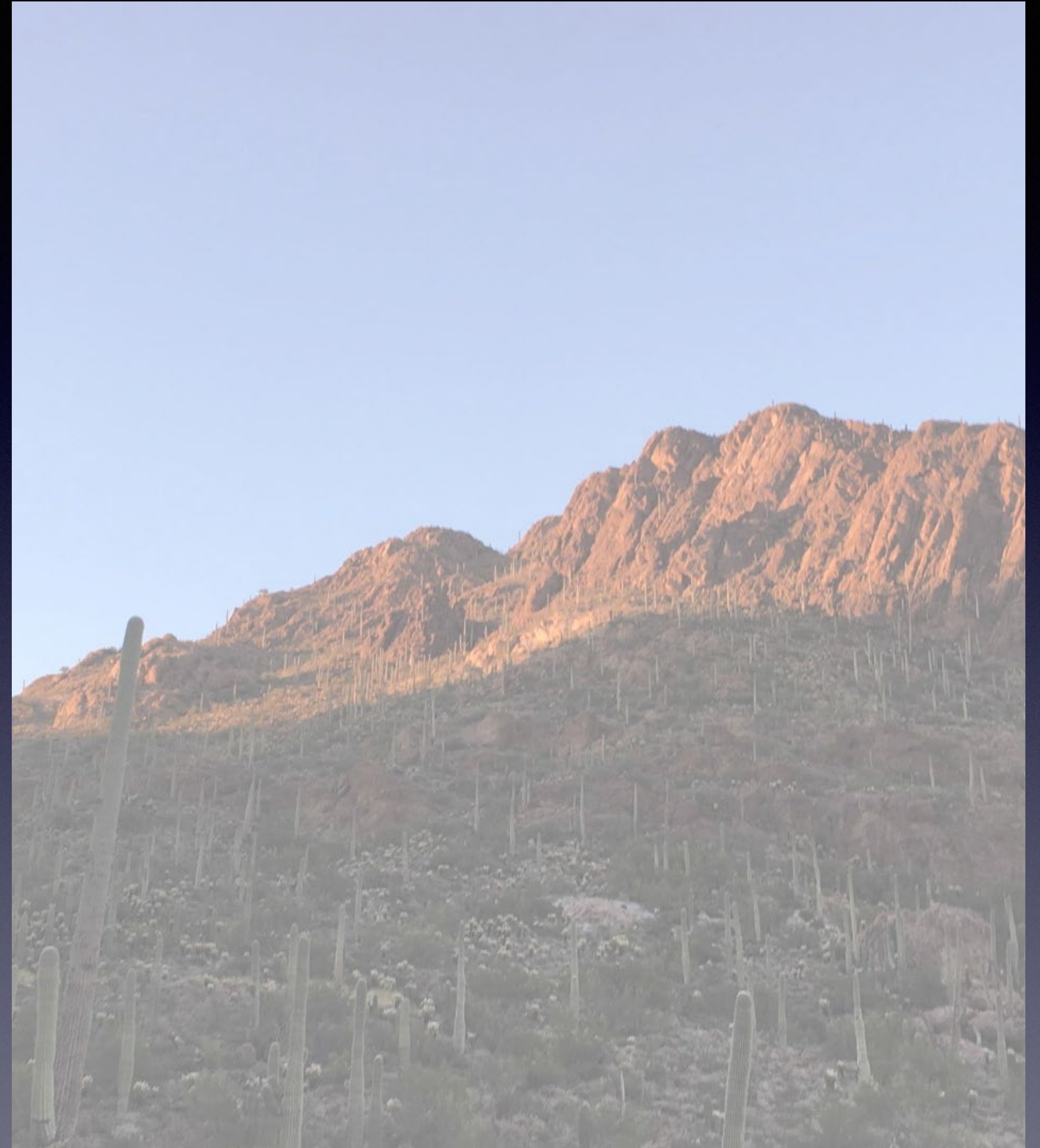




# FirstNet / AT&T

## AT&T First Responder Network Authority

- Priority 5G network backed by congress post 9/11 to ensure high priority broadband communication capability for first responders, EMS, Fire, and Police
- Dependable cellular service with excellent plans/rates inclusive of the hardware needed to support this type of service in the field (i.e. — phones, iPads, satellite kits, rapid deployment kits, cases, temporary towers to boost service in remote areas, etc)
- 
- 24/7 live support with remote dispatching capability



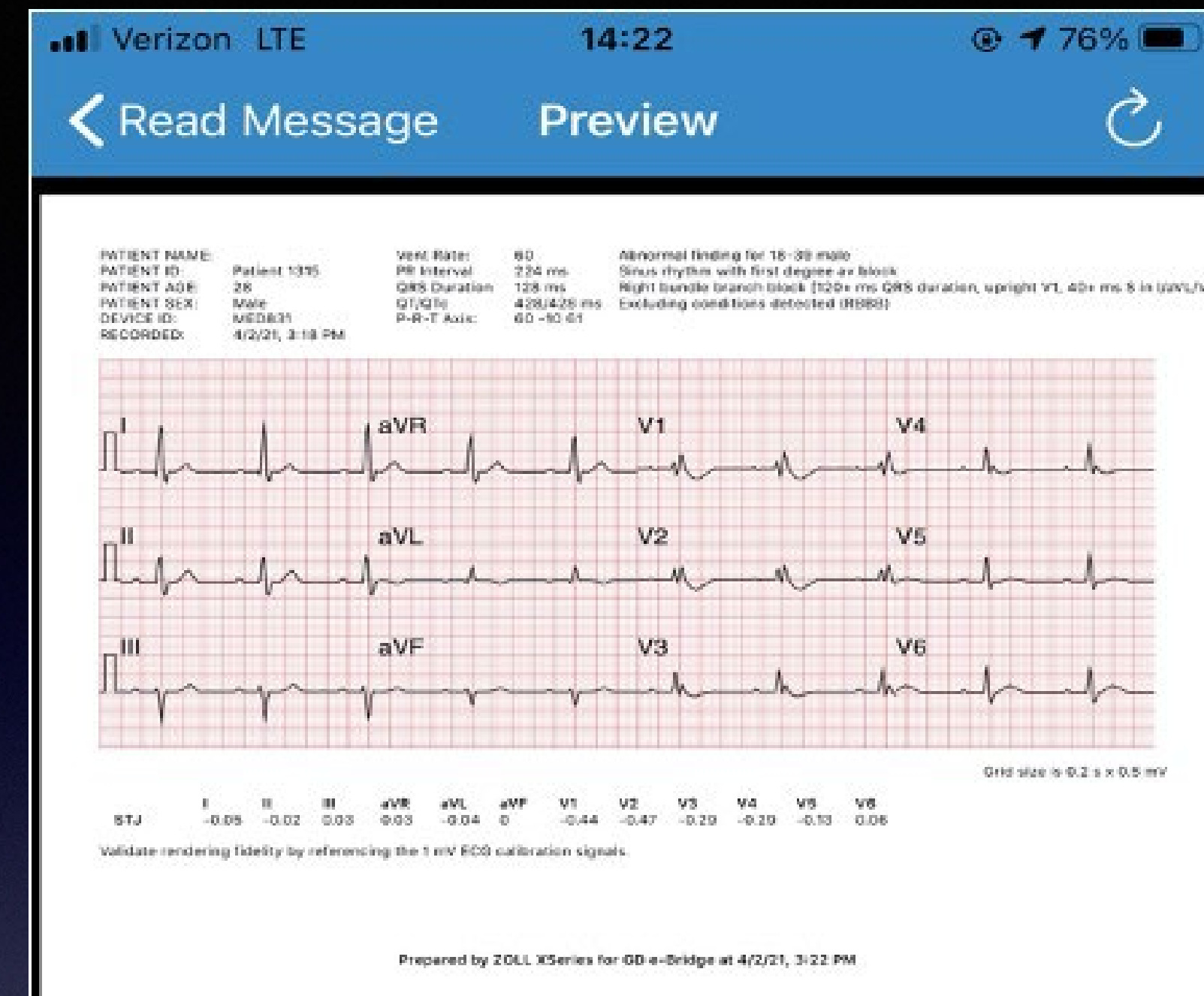
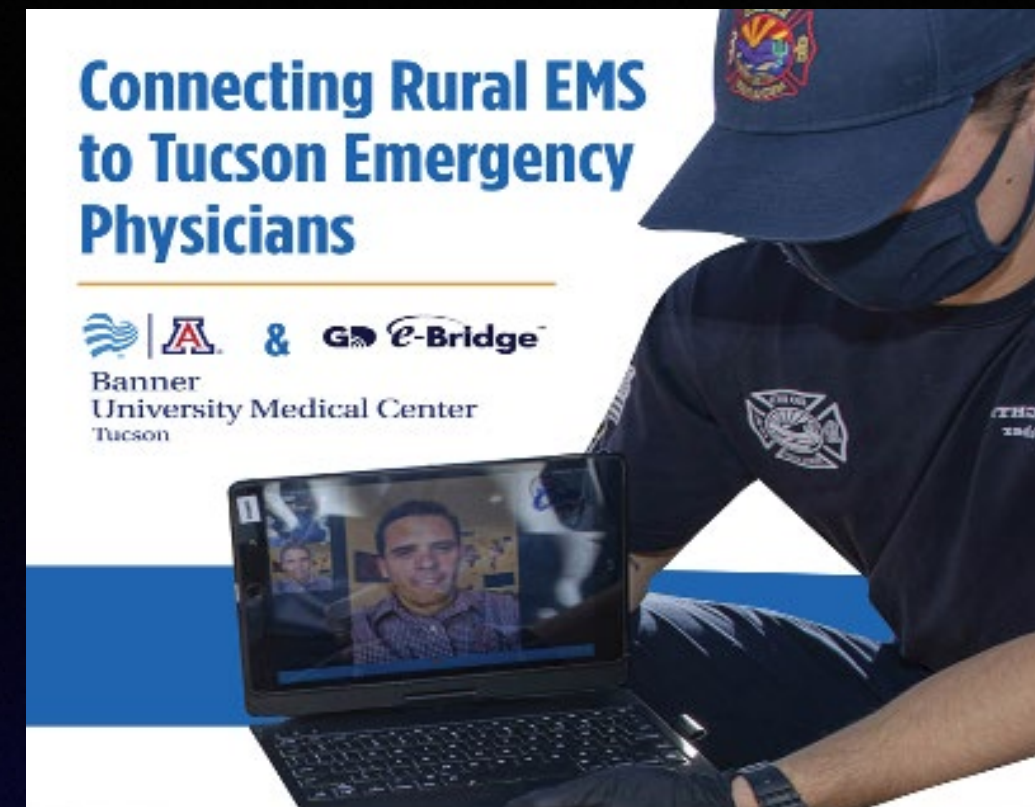




# Real time connection to emergency medicine physicians

Patients (and their vitals) are connected with board certified EM physicians in real-time

- Fully HIPAA compliant
- 24/7 Support
- Ability to transmit vitals & 12-Lead EKG via Bluetooth from EMS providers to OLMD
- Works across various operating platforms (iOS & Android)



PATIENT NAME: Patient 1315		Manual Vitals						
PATIENT ID: 28	PATIENT AGE: 28	Recorded	BP	SpO2	Pulse	Temp	RR	ETCO2
		2021-04-02 22:18:00	128/82 mmHg	88 %	80 bpm	N/A	0 bpm	N/A
		2021-04-02 22:19:00	N/A	N/A	90 bpm	N/A	0 bpm	N/A
		2021-04-02 22:19:00	128/82 mmHg	87 %	90 bpm	N/A	N/A	N/A
		2021-04-02 22:19:00	128/82 mmHg	87 %	90 bpm	N/A	N/A	N/A



# Project Goals

Primary Goal: Right Patient, Right Destination via the Right Transport Modality

- When its safe transport patients with chest pain via BLS units, this leaves an ALS unit in district to respond to the next call
- When its safe to transport patients via ALS ground, rather than by air, both patient and provider save money.







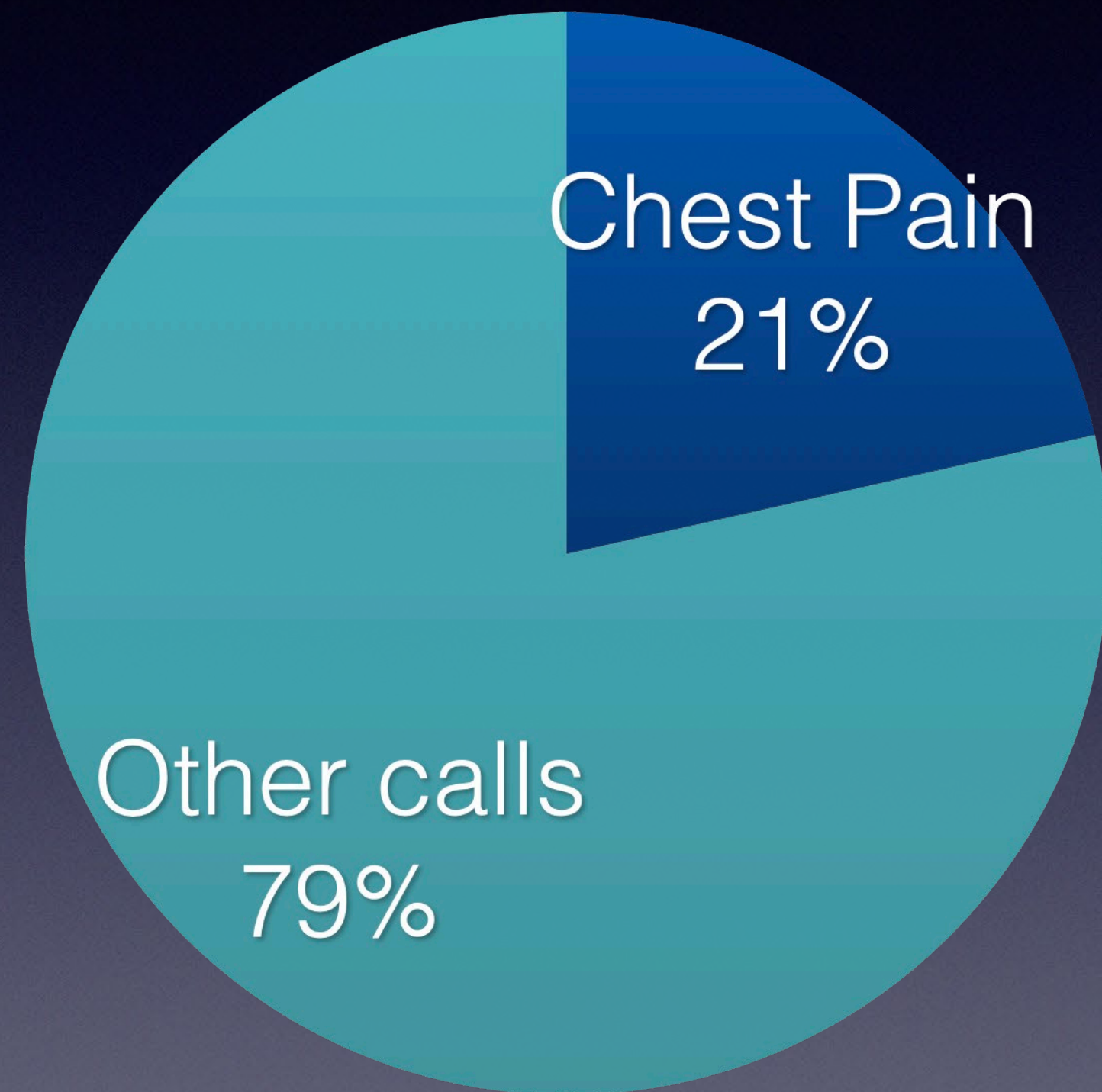
# Sonoita Elgin Fire District

- SEFD focused on innovative approaches into the management of rural chest pain patients.
- EMS crews contacted OLMD for every non-traumatic chest pain call.
- OLMD responds to crew via secure, live video conferencing through e-Bridge tele-health application
- EMS Transport decision is made (BLS, ALS, HEMS)
- EMS provider & OLMD submit REDCap survey at the end of each call for data collection & quality improvement

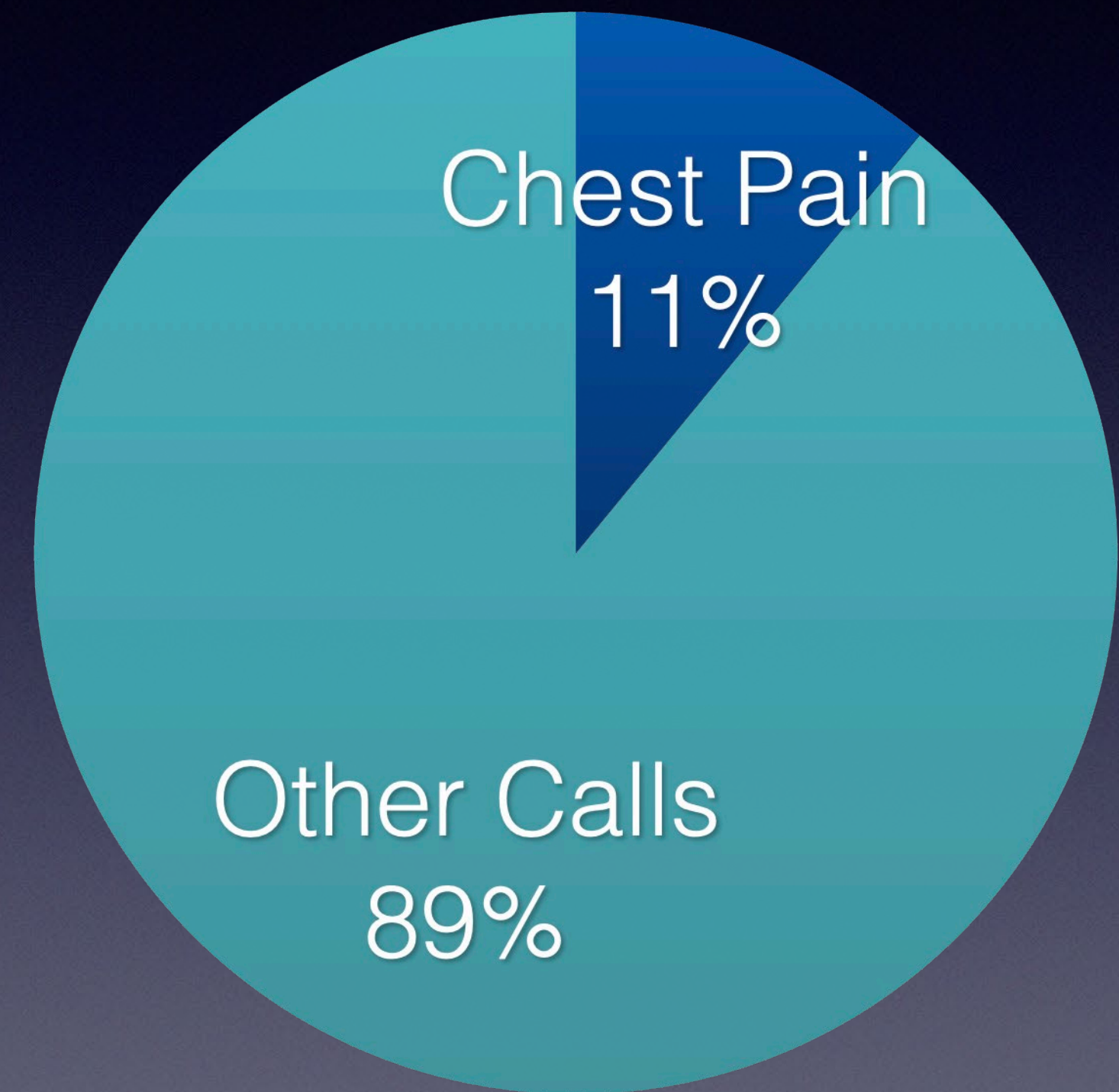




# Chest Pain Calls



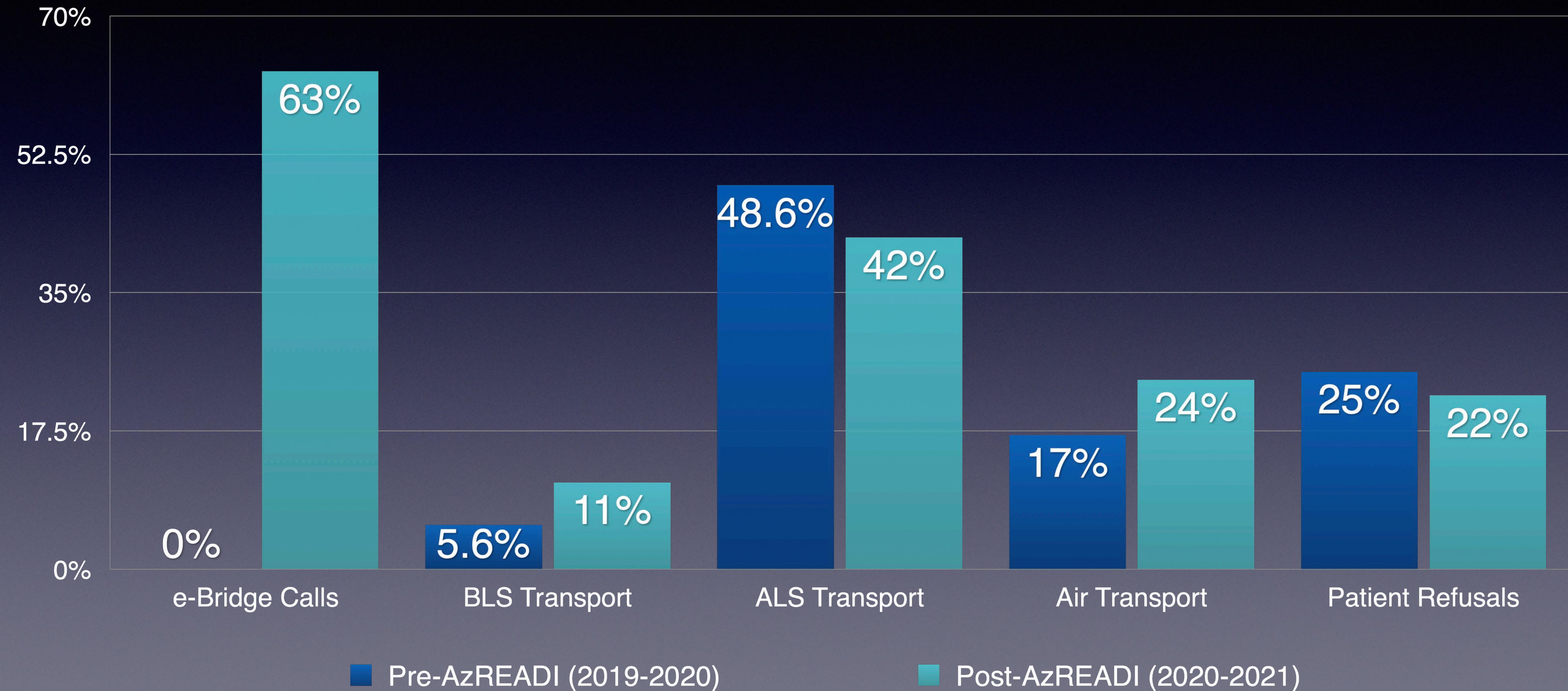
Baseline Data  
(09/09/2019 – 09/09/2020)



Post Implementation  
(09/10/2020 – 12/5/2021)



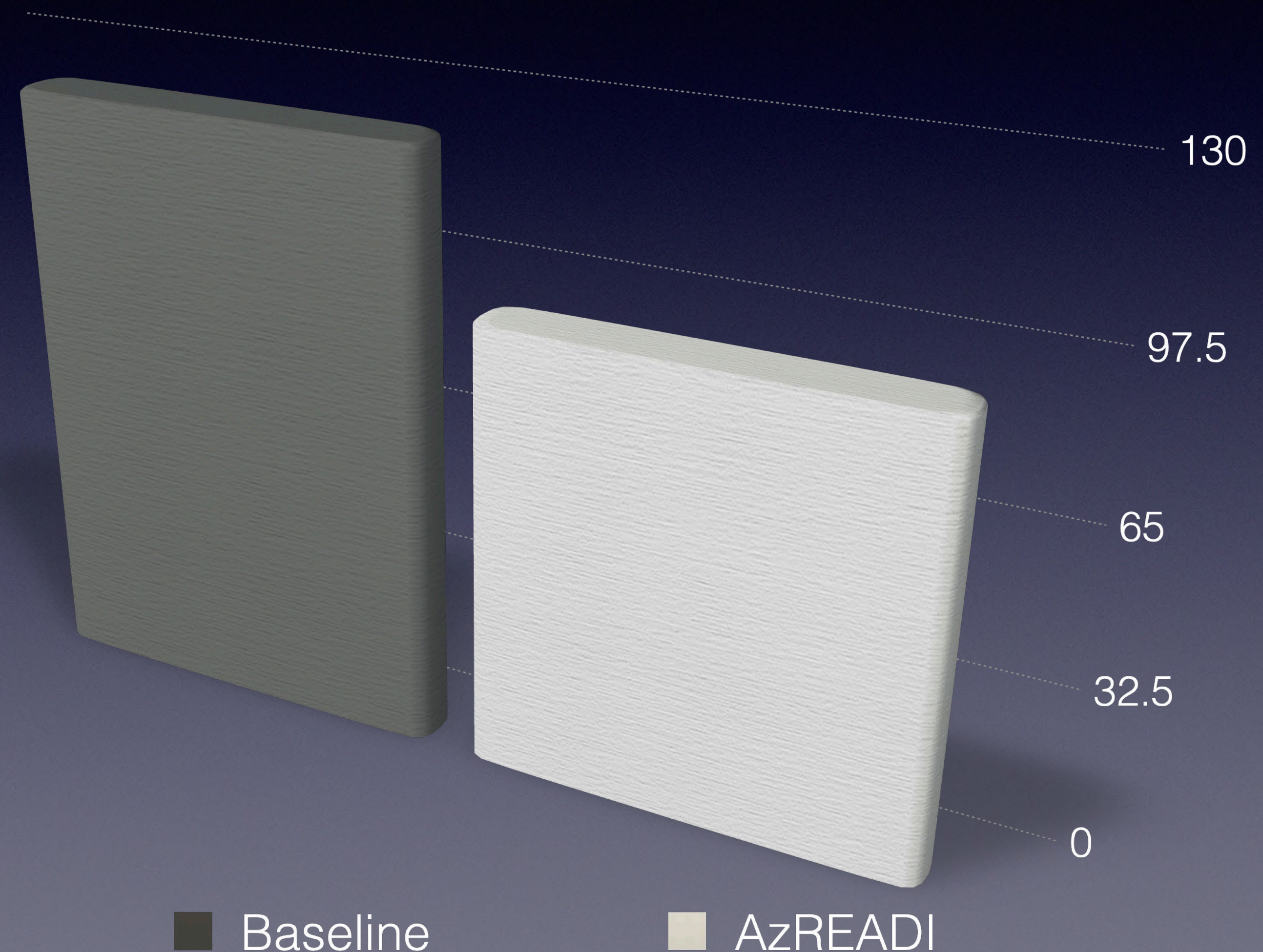
# In Patients with Chest Pain - EMS Call Volume & Transport Statistics





# EMS total out of service times for chest pain calls

- Baseline 122 minutes
- AzREADI 91 minutes





# Data Summary

- **Program effectively implemented; more than 50% of patients with chest pain received care from a telemedicine EMS Physician**
- **Program resulted in small, non-significant changes in mode of transport and time on scene**





# Barriers & Lessons Learned

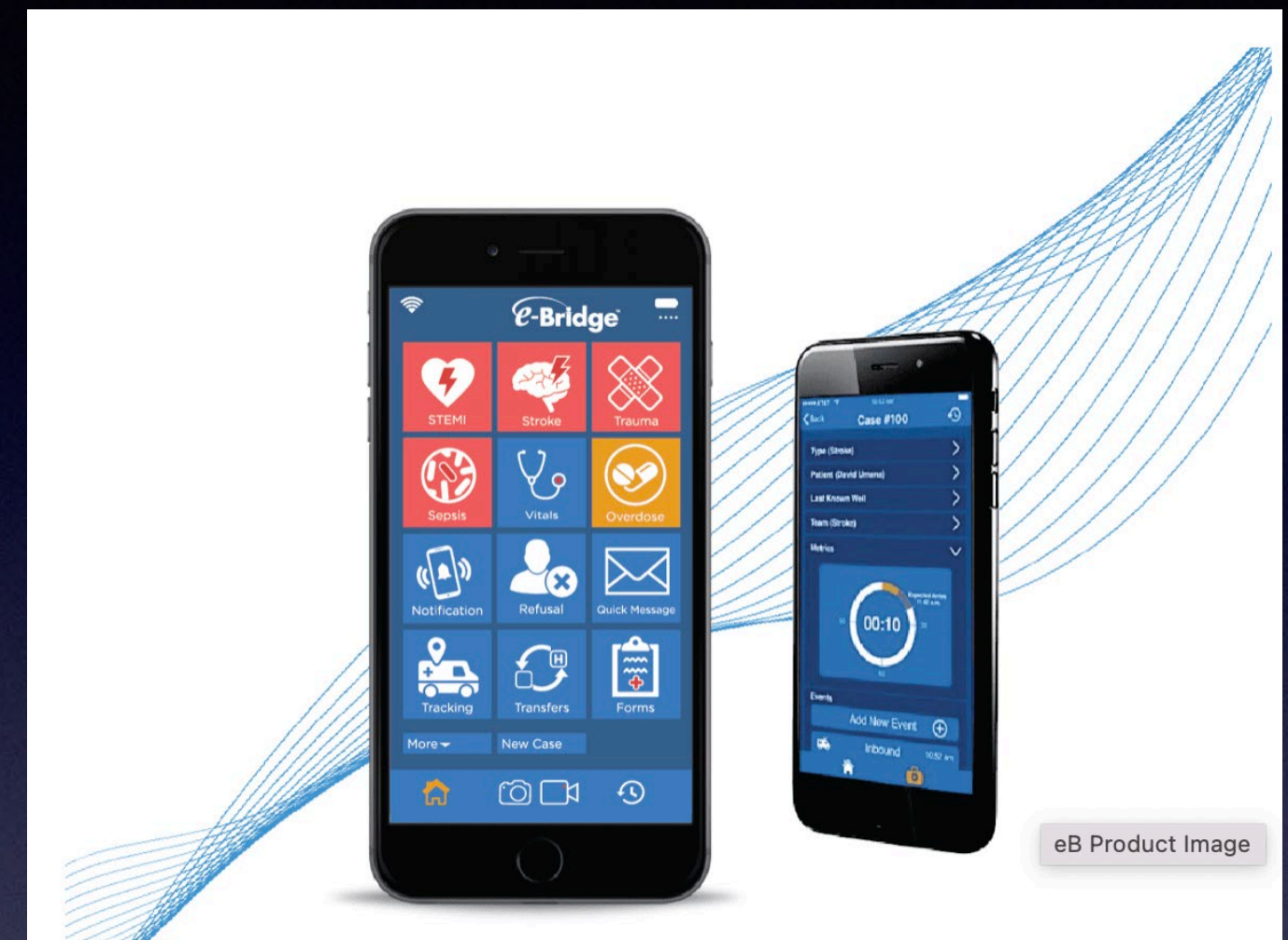
- Engaged and unengaged users
- Ongoing training and technological user interface challenges
- Rural EMS agency electronic medical record systems difficult to access and navigate
- Physician availability





# Cost

- Infrastructure
  - Software: ~\$15,000/year
  - Hardware: phones and iPads relatively affordable
  - Connectivity: (FirstNet / AT&T) ~ \$40/month per unit
- Physician Hours
  - 24/7 on-call pay for OLMD ~ \$0-300 / day
- EMS Agency EMS Agency Cost - potential for lost transport revenue: need to be a treat and refer agency with the state / ET3 program to cover cost of devices and recover transport cost





# Sustainability

- Enhanced communications
- Opportunity to provide additional services
- Improved Preparedness
- Community Partnership





# Questions & Comments







Arizona Emergency Medicine  
Research Center

---

The University of Arizona  
College of Medicine - Department of Emergency Medicine

Dr. Amber Rice - [arice@aemrc.arizona.edu](mailto:arice@aemrc.arizona.edu)  
Dr. Joshua B. Gaither - [jgaither@aemrc.arizona.edu](mailto:jgaither@aemrc.arizona.edu)

