

# EMS System Annual Report 2018

## Kern County Emergency Medical Services Program

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# A MESSAGE FROM OUR EMS MANAGER



Jeff Fariss began his career in EMS as an EMT in 1983 in Orange County California. After leaving the business for a short time he landed in Kern County in 1991 and became a paramedic in 1993. He has been a paramedic preceptor as well as a field supervisor. Jeff has received 2 awards from the California Ambulance Association for performing above and beyond the call of duty. In 2008, Jeff completed a MBA in health care. That same year he began his career with Kern County EMS as an EMS coordinator. He promoted to senior EMS coordinator in 2017 and most recently became the EMS program manager.

Since its inception, the Kern County Emergency Medical Services Program's mission has been to assure the safety and health of all Kern County residents. Our aim is to provide the best care possible for every patient by working collaboratively with public safety agencies, BLS and ALS providers, hospitals, educational partners, and our community members.

Our team recognizes that, like all areas of health care, pre-hospital emergency medicine is a constantly changing industry. In 2018, we were challenged in many ways to keep up with new and exciting changes within the EMS system of care. We created new protocols and procedures to improve response times, further developed our capacity for vigorous quality improvement, and forged stronger partnerships with all EMS stakeholders to provide life-saving educational campaigns for our communities.

But we know our work doesn't end there. We continually strive to improve our responses, treatments, transports, and emergency preparedness capabilities in an effort to improve patient outcomes. We already have several changes and opportunities planned for 2019 and are excited about the changes ahead.

We truly feel privileged to be a part of all Kern County communities. Thank you for your support and we look forward to assuring that you received the best care possible.

Sincerely,

Jeff Fariss, EMS Program Manager

# OUR MISSION

**Kern County EMS is committed to the safety and health of all residents.**



1

We work hard to make sure our system is working for you. This means updating our system, enforcing standards of care, and providing training for providers.

2

EMS is a constantly changing field. We are dedicated to continual data-driven quality improvement to meet national best care practices.

3

You should be prepared for any emergency. That is why we work with partners to provide life-saving education and training for our communities.

**Our services provide rapid response to and medical care for serious medical emergencies. These include:**



**Public safety dispatch**



**Fire, private ambulance, and law enforcement services**



**Hospitals and specialty care centers**

# OUR SERVICES



Emergency Medical Services is more than just an ambulance trip to the hospital. EMS is a highly collaborative system that connects public health, public safety, and health care. We partner with multiple agencies to ensure our communities receive the best emergency medical care possible. We also provide training for our providers and participate in citizen and medical advisory groups to make sure our system is responding to our communities' needs.

# 2018 HIGHLIGHTS

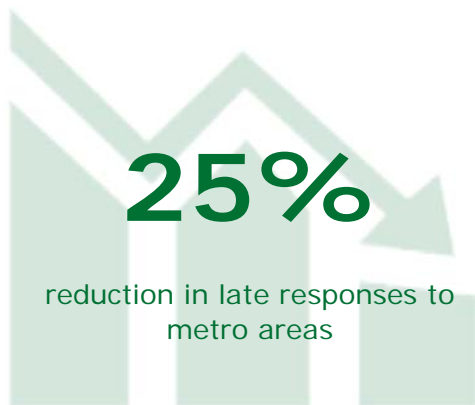
## OUR FOCUS

In 2018, our focus was improvement. Throughout the year, we continually accepted new challenges and expanded our capabilities while remaining committed to providing the best possible service for our residents. Here are the highlights from this year:

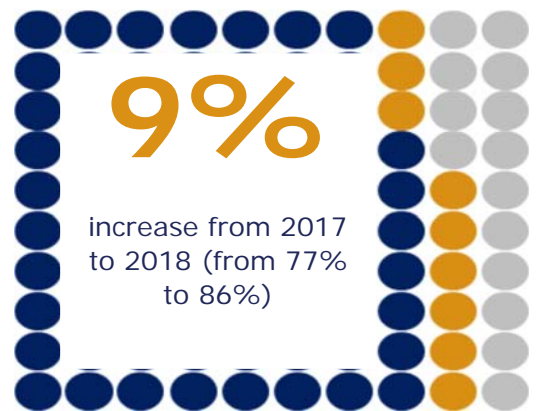
For the first time since 2006, our EMS Plan was approved by the state of California.



You shouldn't have to wait for emergency medical care. That's why we created changes to our system that reduced ambulance response times. In 2018, collaborative efforts lead to a



Patients suspected of experiencing a stroke should have their blood glucose tested during their ambulance transport. In 2018, we launched a quality improvement project to increase the percentage of patients tested. At the end of the project, we saw an overall



Preparing our residents for emergencies and disasters is one of our top priorities. That's why we partnered with hospitals, ambulance providers, and first responders to offer you life-saving education and training, including Hands-Only CPR and Stop the Bleed. Thanks to our partners, we were able reach over



# OUR EMS SYSTEM

## OVERVIEW

Kern County is situated at the southern end of the California Central Valley. The county covers over 8,000 square miles of mountainous areas, high desert, and the valley floor. The largest city within the county is Bakersfield. Here is a brief overview of our geography and EMS System components:



Population: **839,119**



Emergency Receiving Centers: **10**



EMS Practitioners: **3,796**



EMS Provider Agencies: **13**



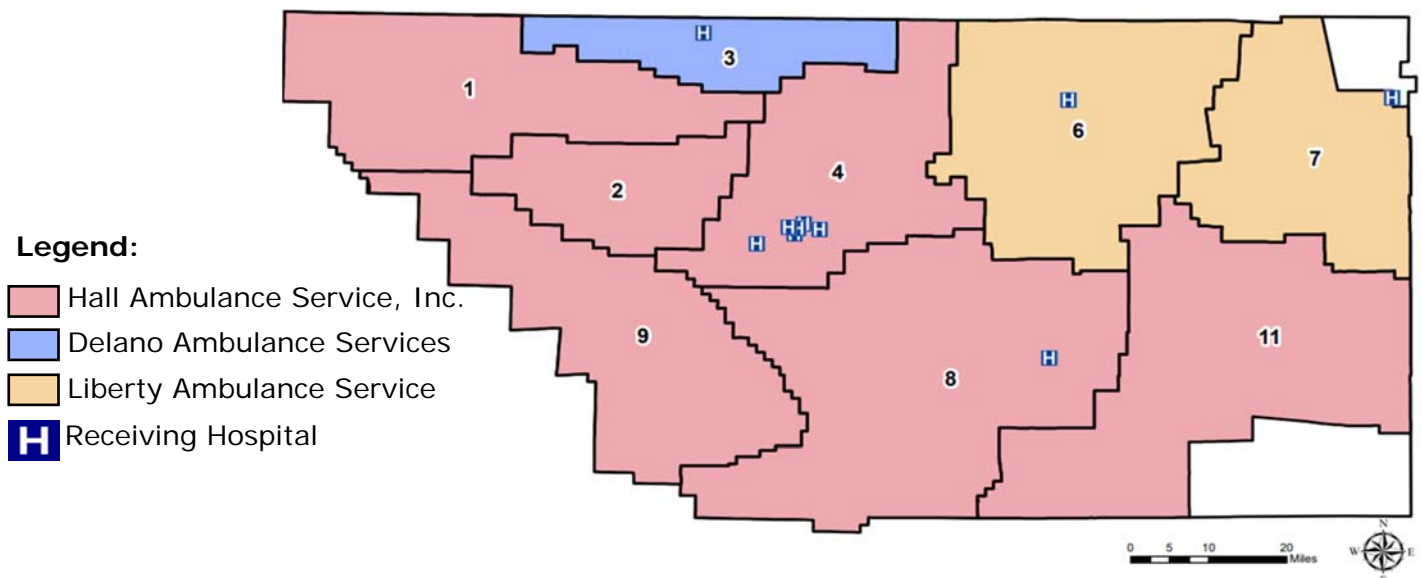
Kern County EMS Employees: **7**



Training Programs: **28**

## EMS PLAN

Every year, local EMS agencies submit their EMS plans to the State EMS Agency for approval. We are pleased to announce that, *for the first time in 12 years*, our submitted EMS plan was approved. Here is a map of our current ambulance exclusive operating areas (EOAs) and receiving hospitals:



# IMPROVING RESPONSE TIMES

## OVERVIEW

In 2017, we recognized that ambulance response time standards were not being met in metro Bakersfield. Working with hospitals and ambulance providers, we adopted a multi-pronged approach to decrease these response times. Here are the steps we took to ensure timely responses within this community:



**1**  
ALS to BLS Handoff: This protocol allows an ALS unit to transfer care of a patient to BLS crew, if appropriate and in the patients' best medical interest.

**2**  
Offload to Triage: This policy allows medics to transport patients directly to an emergency department and left in the care of a triage nurse.

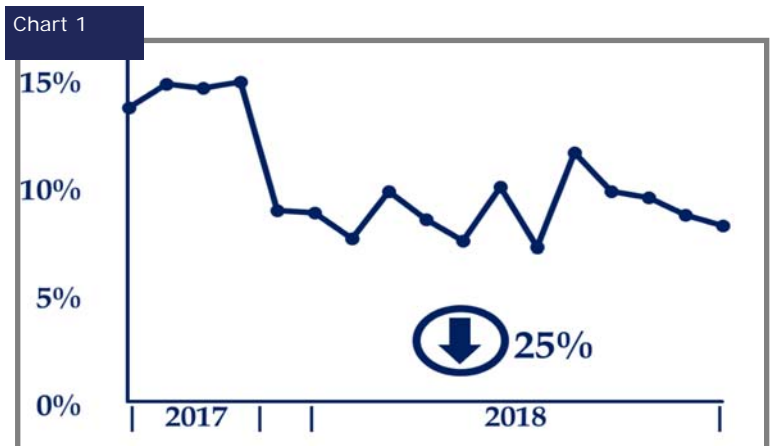
**3**  
Bravo Code Downgrade: Based on three years' worth of call data, this change allows ambulances to be dispatched at a lower priority level.

## THE IMPACT

To measure the impact of these policies and protocols, we compared 2018 data to 2017 data. Specifically, we analyzed the average percentage of high priority calls in metro Bakersfield that were considered late to arrive to their call destination.

As seen in **Chart 1**, we saw a 25% reduction in late responses for metro Bakersfield from 2017-2018.

We will continue to work with our partners to ensure our residents are receiving emergency medical care in a timely manner.



### Quick Definitions:

ALS: Advanced Life Support Unit. These units are any ambulances that are staffed by at least one paramedic.  
BLS: Basic Life Support Unit. These units are staffed by two emergency medical technicians (EMTs).

# QUALITY IMPROVEMENT: STROKE SYSTEM OF CARE

## OVERVIEW

It is important for field providers to quickly identify, properly manage, and appropriately transport stroke patients. One way to rule out a stroke mimic is through a blood glucose test. We set out to increase the percentage of suspected stroke patients receiving a blood glucose test.

Some symptoms of stroke, such as weakness and confusion, are also present in patients experiencing low blood sugar (hypoglycemia). Stroke patients and hypoglycemic patients are given vastly different medical treatment.

With stroke patients, time is of the essence. Brain cells can die rapidly after a stroke. In order to preserve as much brain tissue as possible, effective treatment must start as early as possible.

Therefore, it is important for paramedics to identify a stroke as quickly as possible and rule out other causes. A simple blood glucose check is the easiest way to do this.

In 2017, we noticed that 23% of suspected stroke patients were missing a blood glucose reading on their ePCR. Given the importance of a blood glucose check, we set out to improve this.

## INTERVENTIONS

Working with our partners, we took two steps to increase the percentage of stroke patients getting blood glucose tests:

### Education:

1

We educated our paramedics on the importance of blood glucose checks and how this vital sign is collected from a patient's ePCR.

### Closed Call Rule:

2

We worked with our ePCR vendor and our providers to implement a closed call rule for suspected stroke patients.

## IMPACT

After our interventions, we saw an overall

9%

increase from 2017 to  
2018 (from 77% to  
86%)



### Quick Definitions:

Electronic Patient Care Reports (ePCRs): a document used to collect all information about all care and important patient information during an ambulance transport. This also serves as a data collection tool for EMS and is submitted electronically.  
Suspected Stroke Patients: Patients that are identified by a medic as experiencing a stroke. Not all patients are truly stroke patients.  
Closed call rule: A provider cannot close a patient's ePCR without entering certain information about this patient.

# QUALITY IMPROVEMENT: STROKE SYSTEM OF CARE

## A CLOSER LOOK

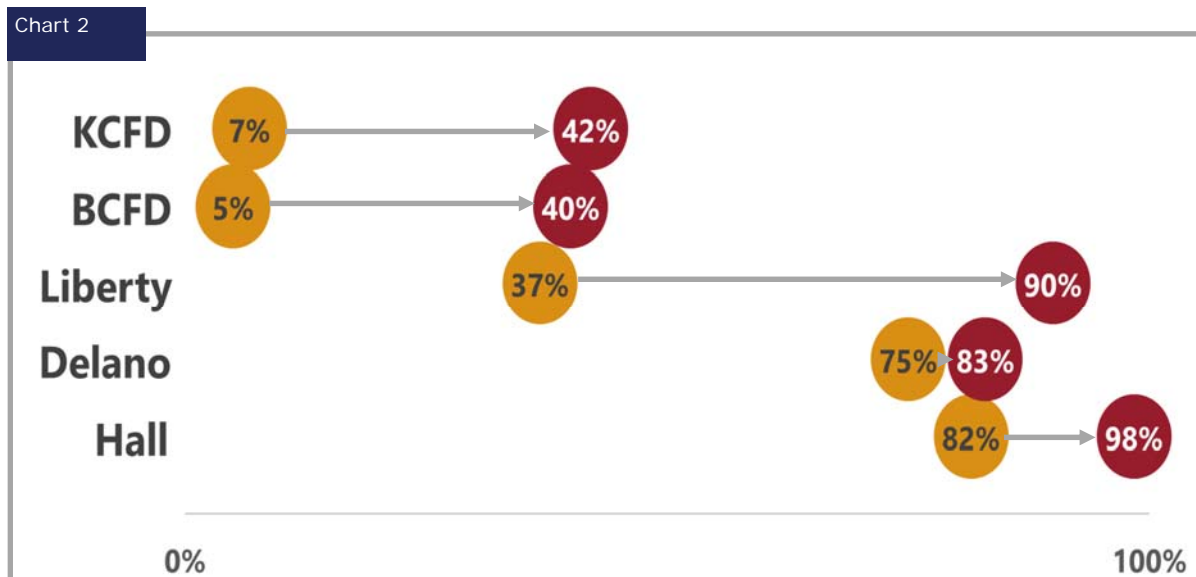
Although we did improve blood glucose checks, we did not reach our desired outcome. Our goal was to hit 95% of all suspected stroke patients receiving blood glucose checks.

After a closer look at the data, we noticed that our ambulance providers (transport agencies) were reporting blood glucose an average of 90% of the time after our interventions. In contrast, our first responder agencies (non-transport agencies) were reporting blood glucose an average of 41% of the time after our interventions.

This is to be expected, as first responders may not have time to check blood glucose before transferring care to the ambulance providers.

### The good news:

As seen in [Chart 2](#), we saw an increase for all of our providers between **Q1 2018** and **Q1 2019**.



### Transport Agencies vs. Non-Transport Agencies

Ambulance companies are transport agencies. This means that they transport patients to a hospital.

In Kern County, fire departments are non-transport agencies. This means they do not transport patients to a hospital and usually stop assessment of the patient once a transport agency arrives.

KCFD: Kern County Fire Department; BCFD: Bakersfield City Fire Department



# QUALITY IMPROVEMENT: STROKE SYSTEM OF CARE

## LESSONS LEARNED

EMS is a constantly changing field, so quality improvement is essential to any EMS system. This project taught us a lot about how to conduct QI projects and gave us a lot to think about for our next one. Here are some lessons learned:

1

### Collaboration:

Collaboration is key to a successful quality improvement project. Make sure to work with your partners and get them invested in the outcome.

2

### Data Management:

Knowing more about your data can help you determine the effectiveness of your interventions. Your changes may not be uniform across all groups. In some cases, that's to be expected.

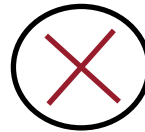
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### Persistence:

Sometimes, you don't reach your goal but that isn't a reason to give up. Changes will eventually occur, just maybe not on your timeline.

## STROKE AND YOU

In Kern County, stroke causes nearly



**300**

DEATHS ANNUALLY

According to the *Centers for Disease Control (CDC)*, stroke is the

**#1**

**CAUSE OF LONG-TERM DISABILITY**

for Americans

Strokes are **preventable** and **treatable**. Early identification is key to preventing death and disability. Protect yourself and your loved ones.

### Learn the signs.



**Face. Arms. Speech. Time to call 9-1-1.**

Source: <https://www.cdc.gov/stroke/>

For more information about stroke, check out these resources:

<https://www.cdc.gov/stroke/>

<https://www.stroke.org/understand-stroke/what-is-stroke/>

<https://www.strokeassociation.org/en/about-stroke>

# COMMUNITY OUTREACH

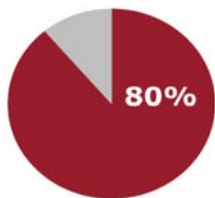
## OVERVIEW

Sometimes, medical emergencies happen when you least expect them. However, there are things you can learn today to help prepare you for these situations: Hands-Only CPR and Stop the Bleed. These are national campaigns that teach life-saving skills to citizens when they are most needed. Our goal is to teach each and every community member these skills so you can help create healthier, more prepared communities.

### Hands-Only CPR

This is CPR without the mouth-to-mouth contact. It is used on people who suddenly collapse in an out-of-hospital setting when it could take almost 9 minutes for EMS to respond.

Did you know:



of out-of-hospital cardiac arrests occur at **home**?

It only takes 2 simple steps to save a life:

**1** Call 9-1-1 if you see someone suddenly collapse

**2** Push hard and fast in the center of the chest

It only takes 90 seconds to learn how to keep your family and friends safe. Contact us to learn more.

### Stop the Bleed

This program teaches community members how to identify life-threatening bleeding and basic ways to control it before EMS arrives.

Did you know:

Uncontrolled bleeding is the



cause of **preventable** death from trauma?

Learn the ABC's of bleeding control:

**A** Alert 9-1-1

**B** Bleed — identify the bleed

**C** Compress — apply pressure

Want us to teach you the ABC's of bleeding control? Contact us to learn more.

For more information, check out these resources:

[https://cpr.heart.org/AHA/ECC/Programs/HandsOnlyCPR/UCM\\_475516\\_Hands-Only-CPR-Training-Videos-and-Playlist.jsp](https://cpr.heart.org/AHA/ECC/Programs/HandsOnlyCPR/UCM_475516_Hands-Only-CPR-Training-Videos-and-Playlist.jsp)

<https://www.redcross.org/get-help/how-to-prepare-for-emergencies/hands-only-cpr.html>

<https://www.bleedingcontrol.org/~media/bleedingcontrol/files/stop%20the%20bleed%20booklet.ashx>

# KERN COUNTY EMS STAFF



Kristopher Lyon is a Board Certified Emergency Medicine and EMS physician. He is the EMS Medical Director and interim Health Officer for the Kern County Public Health Services Department. He is responsible for guiding the program in reviewing and updating protocols, assessing the quality of care provided, and providing recommendations for future system advances.



Kimberly Tollison was a Kern County paramedic for 15 years, where she was a paramedic supervisor, paramedic preceptor, and emergency medical dispatcher. She joined the Kern County EMS Program in 2016 and is responsible for coordinating the stroke system of care and emergency medical dispatch program. In 2018, Kimberly also took over the Kern Medical Reserve Corps and is responsible for recruitment and training. In her spare time, she enjoys spending time with her family.



George Baker has been a paramedic for 24 years and was a paramedic preceptor for 14 years. Due to his heroic efforts in the field, he was awarded the California Star of Life and American Red Cross Real Heroes award in 2011. George joined the Kern County EMS Program in 2016 and since has been promoted to Senior EMS Coordinator. George is responsible for enforcement coordinates the pediatric system of care for Kern County.



Margaret Mysz earned her Master's degree in Public Health Epidemiology from the University of Minnesota. She is a public health epidemiologist for the Kern County Public Health Services Department. In this role, she works closely with the EMS program to analyze trends in the county's EMS and hospital data with the hope of improving patient outcomes. In her spare time, she trains for and runs anything from 5Ks to 50 milers.



Nick Lidgett started working for Kern County as an EMT in 2006 and became a paramedic in 2008. Nick joined the Kern County EMS Program in 2016 as the Regional Disaster Medical Health Specialist (RDMHS) for California Mutual Aid Region V. Nick's focus is on disaster preparedness for Region V. Additionally, he coordinates the burn system of care for Kern County and participates in public safety trainings.



Charles Brockett II was a paramedic for 30 years, practicing in California, Arizona, and Texas. Charles also obtained a Bachelor's degree in Healthcare Administration and Emergency Management. In 2018, Charles joined the Kern County EMS Program team as the Kern County Healthcare Coalition Coordinator. In addition to his emergency preparedness role, he coordinates EMS training programs and is the EMS trauma coordinator. In his spare time, he enjoys activities with his son and wife, golfing, and bicycling.

# Thank You to Our Providers

Adventist Health Bakersfield  
Adventist Health Tehachapi  
Bakersfield Heart Hospital  
Bakersfield Memorial Hospital  
Delano Regional Medical Center  
Kern Medical  
Kern Valley Healthcare District  
Mercy Hospital  
Mercy Southwest Hospital  
Ridgecrest Regional Hospital

Bakersfield City Fire Department  
California City Fire  
China Lake Naval Weapons Station  
Delano Ambulance Service  
Edwards Air Force Base  
Hall Ambulance Service, Inc.  
Kern County Fire Department  
Kern County Sheriff Office  
Liberty Ambulance Service  
Mercy Air Service  
US Borax

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