

*2019 ESO EMS INDEX:*

# MID-YEAR UPDATE

## *AUTHORS*

**DR. BRENT MYERS, CHIEF MEDICAL OFFICER, ESO**

**ALLEN JOHNSON, SENIOR VICE PRESIDENT OF HEALTHCARE, ESO**

**DR. REMLE CROWE, RESEARCH SCIENTIST AND  
PERFORMANCE IMPROVEMENT MANAGER, ESO**

**eso**

# CONTEXT AND OVERVIEW FOR THE INDEX

At the beginning of the year, we released the 2019 ESO EMS Index. This Index looked at data across six metrics from January 1, 2018 – December 31, 2018:

For the Mid-Year Index, we look at the same metrics for the first half of 2019 (January 1, 2019 – June 30, 2019) to see how it compares to the 2018 numbers. Below are our findings.



**STROKE ASSESSMENT  
PERFORMANCE**



**ETCO<sub>2</sub> AFTER ADVANCED  
AIRWAY PROCEDURE**



**12-LEAD PERFORMANCE  
IN ADULT PATIENTS  
EXPERIENCING CHEST PAIN**



**ASPIRIN ADMINISTRATION  
IN ADULT PATIENTS  
EXPERIENCING CHEST PAIN**



**PERCENT OF PATIENTS  
SUFFERING FROM OVERDOSE**



**OPIOID SUBGROUP  
ANALYSIS**



**INFLUENZA-LIKE SURVEILLANCE**

## INTENT

To share updated, national, aggregate data across meaningful metrics in order to start quality improvement discussions that are informative and directional.

To showcase the power of data and analytics as a means to provide actionable insights.

To help EMS leaders across the country answer the following questions, among others:



**IS MY ORGANIZATION ALIGNED WITH  
OTHER ORGANIZATIONS WHEN IT  
COMES TO RESPONDING TO CERTAIN  
EVENTS, SUCH AS STROKE  
IDENTIFICATION AND ASSESSMENT?**



**IS OUR COMMUNITY EXPERIENCING  
SIMILAR TRENDS AS THOSE SEEN  
AROUND THE COUNTRY WHEN IT  
COMES TO PUBLIC HEALTH  
CONCERNS LIKE OVERDOSE EVENTS?**



**HOW DO WE COMPARE TO OTHER  
AGENCIES WHEN IT COMES TO  
12-LEAD EKG PERFORMANCE?**

We continue to hear from many of you about the value of the Index and how you are using the Index to drive internal process and procedure change, including when and how you perform stroke assessment, how you document aspirin administration, how you conduct training around 12-lead performance, and how you prepare for flu season.

JAN 1, 2019 - JUN 30, 2019

---



**3.8 MILLION  
PATIENT  
ENCOUNTERS**

---

#### UPDATE

We also heard from many of you that while the analysis provides valuable insight, the methods employed to screen EMS patients for the presence of stroke are changing, particularly as it relates to screening for large vessel occlusion (LVO) stroke.

We are constantly seeking to improve and refine our data analytics to provide the best insight possible, so, as a first step, we modified our stroke metric to account for the additional screening tools being employed. Additionally, we are focused only on 9-1-1 patients and not interfacility transfers and other types of patient encounters.

Over time, we have witnessed a great improvement in this metric. At first we observed a 51% documentation rate, which increased to the mid-60% range; in this update, we find a 69% documentation rate. While there is still room for improvement, this uptick demonstrates the commitment of EMS professionals to assist with early stroke detection, as well as evaluating the severity of a stroke. We are using prehospital data in combination with hospital outcomes in our research database to evaluate the ability of various stroke screens to predict the presence of LVO. We hope to release results in the coming months.


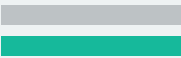

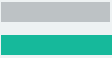


# MID-YEAR UPDATE

The table below compares results from all of 2018 to the first half of 2019. Overall, we've seen an improvement from 2018, with more frequent documentation of stroke assessment, more frequent documentation of 12-lead EKG use among patients with chest pain, and continued consistent documentation of ETCO<sub>2</sub> use following placement of an advanced airway. Documentation of aspirin administration for patients experiencing chest pain remained around 50%. The fluctuation observed in flu-like impressions is consistent with normal seasonal variation, which suggests that we are not experiencing an epidemic event as severe as what we experienced in late 2017, early 2018.

One metric that requires ongoing attention and conversation is overdose and, more specifically, opioid overdose. While the percentage of

overdose encounters decreased in the first half of 2019 (from 1.65% in 2018 to 1.59% in 2019), the percentage of opioid-related encounters actually increased.

Earlier this year, we stated we were hopeful that opioid overdoses were trending downward since they had fallen consistently in the second half of 2018, though the trend had not reached statistical significance. Unfortunately, the trend has not reached statistical significance and is not holding true for the first half of 2019. The proportion of all calls that are opioid overdoses is higher than what was observed last year.

<b>DOCUMENTED STROKE ASSESSMENT COMPLETION RATE</b>		65% 69%	4.0%
<b>ETCO<sub>2</sub> USE DOCUMENTATION RATE</b>		96% 96%	0.0%
<b>12-LEAD EKG USE</b>		77% 79%	2.0%
<b>ASPIRIN ADMINISTRATION DOCUMENTATION</b>		52% 53%	1.0%
<b>OVERDOSE RATE</b>		1.65% 1.59%	-.06%
<b>INFLUENZA-LIKE ILLNESS</b>		1.00% 1.07%	.07%

% POINT CHANGE YEAR OVER YEAR

 2019 EMS INDEX  
 MID-YEAR UPDATE



## STROKE

We continue to see an upward trend around stroke assessment and documentation, rising four percentage points from 2018 through the middle of 2019.



A complete and appropriately documented stroke assessment has never been more important. Given extended treatment windows and the introduction of emergent thrombectomy, the EMS evaluation can be the difference between a successful or unsuccessful patient outcome.



## ETCO<sub>2</sub>

Great news here. ETCO<sub>2</sub> continues to be a valuable tool for EMS providers and, by and large, providers are following best practices.



Establish the expectation that if a patient has an advanced airway, continuous ETCO<sub>2</sub> monitoring is in place as well.



## 12-LEAD EKG

12-lead EKG is a powerful tool that can help get patients to the right hospital to receive the right treatment more quickly. While there is still room for improvement, we are seeing a steady increase in 12-lead EKG use year-over-year.



Consider expanding performance metrics to include other patients that should receive 12-lead assessments, including adults 35 and older experiencing syncope, abdominal pain, respiratory distress, altered level of consciousness, and generalized weakness.



## ASPIRIN

There is still work to be done, especially around documentation of aspirin administration to patients with chest pain. We know the important role aspirin can play in acute coronary syndrome.



Ensure appropriate documentation of aspirin administered by patient, bystander, or first responders prior to EMS arrival and documentation of aspirin allergies. Also, making sure the primary impression used for chest pain accurately reflects the etiology, utilizing “Chest Pain, Other (Non-Cardiac)” as the impression when clinically appropriate (e.g., traumatic mechanism) and consistent with local medical direction requirements.



## OVERDOSE

While overall overdose numbers are trending downward, opioid overdoses do not appear to be on the decline. Identifying and documenting opioid encounters is an essential element to combat this public health epidemic.



Monitor incidences and prepare according to trends.



## FLU

We are seeing flu numbers remain steady and consistent with seasonal variations. Our estimates align well with what the CDC and other healthcare organizations are reporting.



Begin planning for flu early in the year (by September/October) to ensure proper supplies are readily available for flu season. Utilize local trends, as well as [ESO Index Flu surveillance](#), to determine when best to modify practice such as enhanced utilization of PPE and utilizing influenza-specific screening in the dispatch center.

# METHODOLOGY

The dataset for the ESO EMS Index is real-world data, compiled and aggregated from more than 1,200 agencies across the United States that use ESO's products and services and volunteered their de-identified data for analysis. The data for the mid-year update are based on 3.8 million anonymized EMS encounters between January 1, 2019 and June 30, 2019.



**THERE IS A 95%  
CONFIDENCE  
LEVEL IN THE  
NUMBERS USED  
IN THIS REPORT  
WITHIN A  
1% +/- RANGE.**

## OK, NOW WHAT?

So, where do we go from here? Similar to what we recommended earlier this year, organizations should continue to use this information to understand why metrics are important and which metrics and drivers can have the biggest effect on the organization and the patients served. With the rich data from the Index as a foundation, you can perform your own analyses as a starting point for other modeling and outcomes.

The metrics shown in this study are by no means exhaustive. Every organization is unique and has its own strengths, structure, and goals. Because of these attributes, results achieved by one organization may not be attainable by another for a variety of reasons. However, these metrics should provide a foundation to compare your measurements and outcomes to others across the nation.

## LIMITATIONS

This Index report is retrospective and looks at aggregate data from the first half of 2019. There are no universal rules around these measures. The purpose of the Index is to be informative and directional, but it is not intended to be a scientific study. Nor is it intended to be comprehensive in nature. We hope it serves as a body of literature that adds to the discussion and conversation around best practices for each of the measures identified in this Index to improve positive patient outcomes.

## COMING IN 2020

We will continue to enhance and refine the Index going forward. In 2020, we plan to expand the ETCO<sub>2</sub> metric to include the actual value(s) of ETCO<sub>2</sub> recorded and the number of associated observations. Additionally, we'll look at lights and sirens as a metric as it pertains to hospital transport.

**IF YOU HAVE FURTHER QUESTIONS, DON'T HESITATE  
TO REACH OUT TO ESO ABOUT HOW TO BEST USE AND  
INTERPRET THIS DATA FOR YOUR ORGANIZATION AT**



**[WWW.ESO.COM/EHR-DEMO](http://WWW.ESO.COM/EHR-DEMO)**

# ABOUT ESO

ESO is dedicated to improving community health and safety through the power of data. Since its founding in 2004, the company continues to pioneer innovative, user-friendly software to meet the changing needs of today's EMS agencies, fire departments, and hospitals. ESO currently serves more than 10,000 customers throughout North America with a broad software portfolio, including the industry-leading ESO Electronic Health Record (EHR), the next generation ePCR; ESO Health Data Exchange (HDE), the first-of-its-kind healthcare interoperability platform; ESO Fire and ESO FIREHOUSE Software for fire departments; and ambulance revenue recovery/billing software. ESO is headquartered in Austin, Texas. For more information, visit [www.eso.com](http://www.eso.com).