

2023 ESO EMS INDEX

Insights and Best Practices for EMS Agencies

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CONTEXT FOR THE INDEX

It's 2023 – three years after the beginning of the COVID-19 pandemic and we are still feeling the effects, from ongoing COVID-related medical developments to an impact across the global economy.

However, we're also moving forward in this "new normal," leveraging what we've learned over the past three years to embrace an evolving approach to community care and care for our people. If nothing else, we know humans are a resilient bunch that adapt, adopt, and grow to survive and thrive in challenging circumstances.

While we don't focus specifically on COVID-related metrics in this year's EMS Index, we are mindful of COVID as a backdrop and catalyst that may be reflected in the measures we've identified. As we stated last year, we learned more about the effects of the pandemic on individual communities, and, more specifically, how those disparities were magnified. The goal of every healthcare provider is to give all patients the care they need when they need it. Nevertheless, a growing body of research indicates that there are differences in care received and patient outcomes across factors like patient gender, race, ethnicity, and socioeconomic status. It is important to identify and monitor where disparities exist so we can identify ways to overcome them. This year will be no different.



IT IS IMPORTANT TO ACKNOWLEDGE WHERE
DISPARITIES EXIST
SO WE CAN CHANGE OUR SYSTEMS TO
OVERCOME THEM.

In our sixth full year of producing the ESO EMS Index, we are taking a more comprehensive look at EMS data by continuing to explore insights related to equity in prehospital care for each measure where appropriate. In doing so, we hope to further

discussions that drive quality improvement while encouraging conversations about what it means to deliver equitable healthcare to the communities we serve as a routine part of quality management.

OVERVIEW

For the 2023 Index, in line with previous editions, we are revisiting a few key measures from the 2022 Index and adding some new measures. We are keeping lights and sirens use during transport, ketamine administration with weight recorded, documentation of end-tidal carbon dioxide (EtCO₂) when ketamine was administered, rates of documented 12-lead EKGs for patients with emergency department-diagnosed S-T Elevation Myocardial Infarction (STEMI) and Non-ST-Elevation Myocardial Infarction (NSTEMI). We are rotating out non-transport dispositions and encounters likely to involve death notification in lieu of new measures and deeper dives into the STEMI and stroke analyses. We are once again leveraging linked hospital data to look at the other side of the coin – this time examining how often stroke assessments are recorded for patients diagnosed with stroke at the emergency department. We've also added pediatric respiratory assessment, and bystander CPR. Keeping EMS clinician well-being as a central part of quality improvement work, we have also explored exposure to critical incidents.

In addition to performance measures, we present surveillance measures each year. This year, we take a deeper dive into encounters involving patients with suspected overdose – focusing specifically on overdose related to opioids.

One critical element to note as we evolve the EMS Index is the ability to connect data for multiple measures to hospital outcomes. This provides closed-loop, bidirectional insights across the entire patient journey.

INTENT

As always, the appropriate metrics for evaluating the success of your EMS organization will vary depending upon several factors, including, but not limited to, the size of the population served and the geographic location. However, we believe an objective look at aggregate data across the United States can provide a starting point or benchmark you can use to evaluate performance compared to your peers.

The purpose of this Index is to serve as a point of

reference for EMS organizations to identify which areas are in alignment and which areas represent opportunity for improvement, more intensive local monitoring, or at least further assessment and evaluation. This quantitative approach to measuring performance gives EMS organizations a framework to continually refine tactics, improve efficiency and outcomes, and allocate resources appropriately. To that end, here are some of the questions we hope the 2023 ESO EMS Index will help you ask and investigate using your own data:

Is my organization performing similarly to other organizations around the country when it comes to best practices surrounding time-sensitive clinical presentations, such as stroke and STEMI identification and assessment?

What best practices can my organization implement to help measure and address disparities in prehospital care?

Are we properly monitoring patients following our use of ketamine in emergent situations?

Are we practicing judicious use of lights and sirens?

Are we equipped and trained to assess and treat pediatric patients with respiratory distress?

What does the rate of bystander CPR look like in our community and could we provide public health outreach?

Does my organization have a culture of safety around encouraging EMS clinicians to report critical incidents?

Are we above or below the national average when it comes to responding to overdose events?

What are the best practices for each metric in this Index and how can I make sure we are following these at our organization?



The Index uses data from the ESO Data Collaborative, comprised of more than 2,600 agencies and departments across the country, representing more than 11 million EMS responses between January 1, 2022-December 31, 2022.



2,600+
AGENCIES

11,082,190
RECORDS

KEY METRICS



**STROKE ASSESSMENT
FOR PATIENTS WITH
ED-DIAGNOSED STROKE**



**12-LEAD EKG FOR PATIENTS
WITH ED-DIAGNOSED
STEMI/NSTEMI**



**KETAMINE ADMINISTRATION
WITH WEIGHT RECORDED
AND ET_{CO}₂ DOCUMENTED**



**TRANSPORTS WITHOUT
LIGHTS AND SIRENS**



**PEDIATRIC RESPIRATORY
ASSESSMENT**



BYSTANDER CPR



**CRITICAL INCIDENT
REPORTING**



OPIOID OVERDOSE

LIMITATIONS

This Index is retrospective and looks at aggregate data from 2022. There are no universal rules designed 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 this document serves as a body of literature that adds to the discussion and conversation around best practices and quality improvement efforts to improve positive patient outcomes.

KEY FINDINGS

Stroke assessment for patients with ED-diagnosed stroke:

A stroke assessment was formally documented

38%

of the time for patients that were ultimately diagnosed with a stroke at the emergency department.

Hispanic or Latino patients received a stroke assessment only 32% of the time.



12-lead EKG for patients with ED-diagnosed STEMI or NSTEMI: Of those patients ultimately diagnosed with STEMI, 83% had a formally documented 12-lead EKG in the field. Of those diagnosed with NSTEMI, 65% had such documentation of a 12-lead EKG.

83%

STEMI WITH DOCUMENTED 12-LEAD EKG

65%

NSTEMI WITH DOCUMENTED 12-LEAD EKG



2%

ENCOUNTERS FOR PATIENTS WITH SUSPECTED OPIOID OVERDOSE

Opioid overdose and treatment in place:

Overall, encounters for patients with suspected opioid overdose accounted for 2% of 9-1-1 records in 2022. Eight percent of patients given naloxone for suspected overdose were not transported by EMS either due to patient refusal or protocol allowing treatment in place.

Transports without lights and sirens:

The rate of transports without lights and sirens held steady at 83% compared to 2021. While it is good to see that this rate has not decreased, it also indicates that we need to do more to drive change in practice around judicious lights and sirens use.

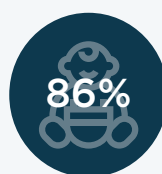
WITH L&S

17%



WITHOUT L&S

83%

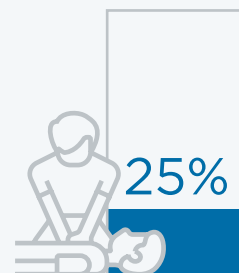


86%

Pediatric respiratory assessment:

Nearly 64,000 calls (or 0.6% of all calls) involved pediatric patients who and an impression indicating respiratory distress. Of those, 86% had both SpO₂ and a respiratory rate documented.

Bystander CPR: Approximately 86,000 patients suffered a cardiac arrest prior to EMS arrival. Of those, 25% received bystander CPR. **Black patients less frequently received bystander CPR (18%).**



25%

Critical incidents reporting:

There were more than 5,000 critical incidents reported by crews. The most common primary impression associated with these potentially psychologically traumatizing incidents was cardiac arrest.

5,045

80%

WEIGHT RECORDED



60%

ETCO₂ DOCUMENTED



Ketamine administration with weight recorded and EtCO₂ documented:

The rate of patient weight documentation slipped slightly in 2022, falling to 80%. Additionally, 60% of patients who received ketamine had documented EtCO₂ monitoring.

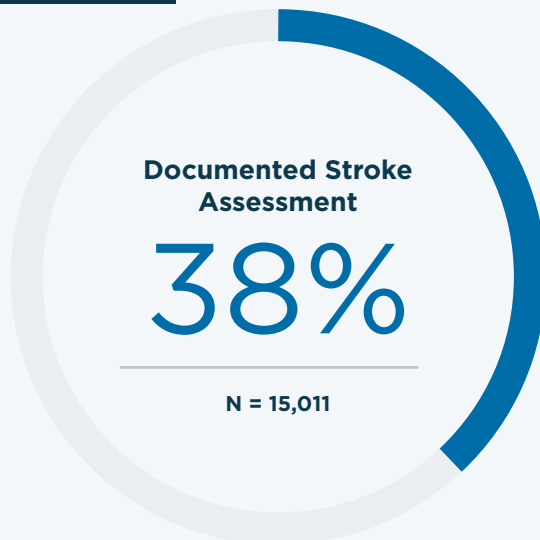
EMS INDEX

STROKE ASSESSMENT FOR PATIENTS WITH ED-DIAGNOSED STROKE

The stroke assessment performance metric looks at how many patients with an ED-diagnosed stroke received a formally documented stroke assessment as part of a 911 call (not interfacility transfers and other types of encounters). Determining if the patient is experiencing a stroke has important implications for treatment options and hospital destinations. Performing stroke assessments for all patients with a suspected stroke is an important part of ensuring the best possible outcome.

Chart 1 below shows there were 15,011 calls where stroke was diagnosed at the ED. Formal stroke screening occurred in only 38% of those calls.

Chart 1



The underperformance of stroke assessments can be partially explained by documentation practices. A review of patient care narratives for those who did not have a stroke assessment documented using any stroke form drop down elements found that 41% of reviewed narratives for patients with ED-diagnosed stroke did mention stroke assessment in the narrative. Thus, although not ideal, combining these informal documentation

practices in the free-text narrative with the completion rate using discrete data elements in stroke forms brings the estimated rate of evaluation for stroke to 63%. Among those with no stroke assessment, injury was a common EMS impression.

Chart 2 shows the breakdown of stroke assessment by patient gender and race. We see similar rates of documentation among male and female patients (38% vs. 37%); however, stroke assessment documentation for Hispanic or Latino and American Indian or Alaska Native are six percentage points below the overall rate at 32%.

Chart 2

Documented Stroke Assessment by Gender

FEMALE

37%

MALE

38%

Documented Stroke Assessment by Race/Ethnicity*

AMERICAN INDIAN OR ALASKA NATIVE

32%

ASIAN

41%

BLACK OR AFRICAN AMERICAN

37%

HISPANIC OR LATINO

32%

NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER

43%

WHITE

39%

*Data for multiracial patients are not included in these estimates.

STROKE ASSESSMENT FOR PATIENTS WITH ED-DIAGNOSED STROKE



BEST PRACTICES



Document the performance of a stroke assessment in discrete fields using a stroke form rather than just in the patient care narrative to facilitate clear reporting and quality improvement initiatives.



Review your agency's protocols for assessing patients with suspected stroke. The identification of a stroke in the prehospital setting leads to reduced time to CT and more rapid definitive care, increasing likelihood of a favorable patient outcome.



Subtle signs like dizziness or changes in vision may be missed, or injury from a fall may distract clinicians from identifying the underlying stroke.



Ensure that "Last Known Well Time" or "Time of Onset" is accurately documented, as this information plays an important role in determining treatment.



Use a validated stroke scale to perform complete assessments of suspected stroke patients. There are several different stroke scales, but the most important consideration is not which scale is used, but that a complete stroke assessment is performed. Research has shown that the Cincinnati Prehospital Stroke Scale performs as well as RACE, LAMS, or VAN for identifying large vessel occlusion stroke.



Prehospital stroke assessment is lower among Hispanic patients. Language challenges may represent a barrier for performing a stroke scale. Make sure your agency's language interpretation tools, interpreter policies (including issues of consent), charting standards, and quality assurance reporting is accounting for and tracking patients with limited English proficiency. Consider education outreach resources that are written in the predominant language of the community. For example, the "AHORA" stroke screening tool is a Spanish translation of the "BE-FAST" tool and was developed to improve awareness of stroke symptoms among Spanish-speaking communities.



Don't guess what barriers exist for racial and ethnic minorities in your community for activating 9-1-1 for suspected stroke. Create a paid community advisory board made up of racial and ethnic minority community members to help your agency understand the challenges and barriers they and their communities have when deciding to engage emergency medical services.

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12-LEAD EKG FOR PATIENTS WITH ED-DIAGNOSED STEMI OR NSTEMI

The 12-lead EKG for patients with ED-diagnosed STEMI or NSTEMI measure focuses on the number of patients who were diagnosed in the Emergency Department with STEMI (ICD-10 Codes: I21.01, I21.02, I21.09, I21.11, I21.19, I21.21, I21.29, I21.3, I22.0, I22.1, I22.8, I22.9) or NSTEMI (ICD-10 Codes: I21.4, I22.2) and had a documented 12-lead EKG performed by EMS. The 12-lead EKG represents an essential tool for early identification of STEMI. Detecting a possible STEMI or NSTEMI in the prehospital setting can ensure that the catheterization laboratory is activated by the time the patient arrives, saving precious minutes that can lead to a better outcome.

In Chart 3, we see that of patients diagnosed with STEMI (2,758), 83% had a documented 12-lead EKG performed by EMS. Among patients diagnosed with NSTEMI (6,423), 65% received a 12-lead EKG.

Chart 3

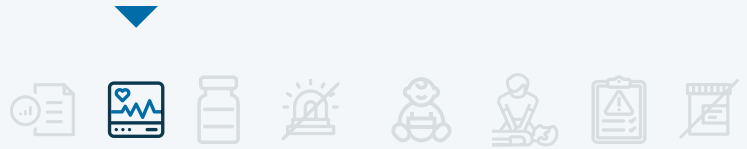
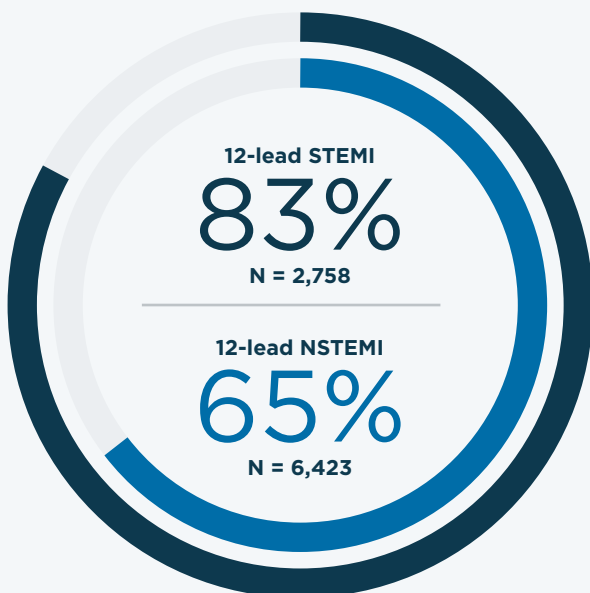
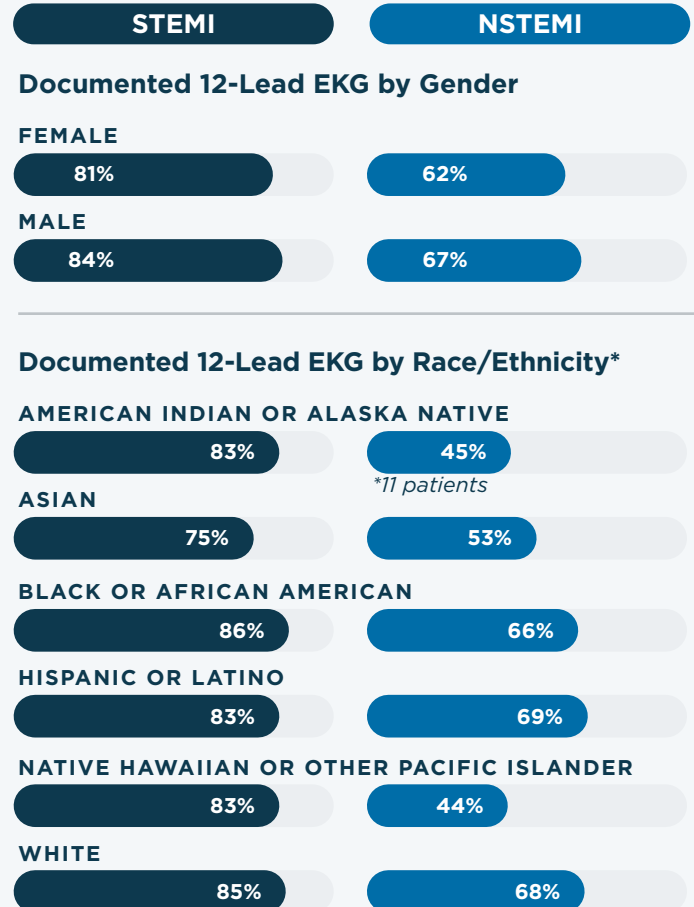


Chart 4 shows the documented 12-lead EKG broken down by gender and race/ethnicity for STEMI and NSTEMI. We see minimal difference between males and females for both STEMI and NSTEMI 12-lead EKG documentation, with greater variation in the documentation of a 12-lead EKG by race and ethnicity.

The underperformance of 12-lead EKGs for patients diagnosed with STEMI can be explained, somewhat, by documentation practices. A review of patient narratives for those who had an ED confirmed STEMI found that 80% had a 12-lead EKG documented in the narrative, meaning an EKG was obtained in appropriately 97% of cases.

Chart 4



*Data for multiracial patients are not included in this analysis.

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12-LEAD EKG FOR PATIENTS WITH ED-DIAGNOSED STEMI OR NSTEMI



BEST PRACTICES



Review your agency's protocols around 12-lead EKG use for patients with suspected STEMI or NSTEMI. Research indicates that the rate of false positive prehospital EKGs is low and that prehospital identification of STEMI or NSTEMI improves patient outcomes.



Ensure documentation of the 12-lead EKG in discrete data fields (e.g., as a procedure or under vital signs) rather than only in the free-text narrative to facilitate quality monitoring and improvement initiatives.



Ensure readiness to perform and transmit 12-lead EKGs for basic life support units as well as those with advanced life support capabilities.



Incorporating outcomes for all EMS patients who are diagnosed with STEMI or NSTEMI, not just feedback for EMS suspected STEMI or NSTEMI, is needed to identify prehospital diagnostic delays and improve care for all patients.



Conventional EMS education tends to center signs and symptoms of a STEMI or NSTEMI for males as “typical” and females as “atypical.” This may unintentionally serve to prioritize 12-lead EKGs in males and create a higher likelihood of failing to recognize STEMI or NSTEMI symptoms in females. Instead, resist prioritizing one set of symptoms as “normal” for a certain demographic and encourage consideration of atypical presentations across patient populations.



Prioritize hiring, investing in the development of, retaining, and promoting front-line employees, senior staff, and executive board members who reflect the demographics of the communities your agency serves.

EMS INDEX

KETAMINE ADMINISTRATION WITH DOCUMENTED PATIENT WEIGHT AND ET CO_2

The ketamine metric reviewed ketamine administration and whether patient weight was documented in the out-of-hospital record, as well as whether the patient's Et CO_2 was monitored and documented following ketamine administration at a sedation dose. For this analysis we defined a sedation dose as an administration of 200 mg or more of ketamine via the IM route.

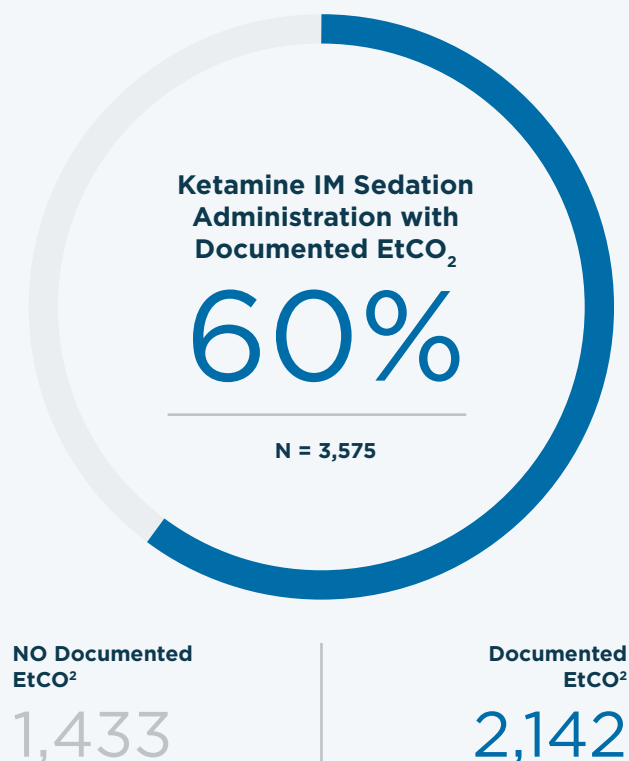
Chart 5 shows that of all patients who received ketamine, 80% had their weight documented in the EMS record.

Chart 5



In Chart 6, we see that just 60% of patients who received ketamine also had documented Et CO_2 monitoring.

Chart 6



KETAMINE ADMINISTRATION WITH DOCUMENTED PATIENT WEIGHT AND ETCO_2



INSIGHT

Ketamine is a potent analgesic and sedative medication that has many favorable characteristics for use in the out-of-hospital setting. As an analgesic agent, ketamine is an important non-opioid alternative. As a sedative agent, ketamine is used for patients presenting with severe agitation or combativeness that prevents safe assessment and treatment. Ketamine is also used in the prehospital setting to facilitate airway management. Like any medication, ketamine use is not without risk and requires close assessment and monitoring.



KETAMINE ADMINISTRATION REQUIRES

CLOSE ASSESSMENT AND MONITORING

Determining the patient's weight prior to medication administration is important for ensuring that an appropriate dose is administered within the therapeutic window based on the intended medication use (analgesia or sedation) and route. Documenting the patient's weight is critical to keeping a record that an appropriate dose was administered. Following a sedation dose of ketamine, subsequently monitoring the patient's ventilatory status is critical in ensuring patient safety. Monitoring the patient's EtCO_2 in addition to their oxygen saturation (SpO_2) provides rapid insight into changes in respiratory status. The ability to promptly identify changes in respiratory status enables clinicians to intervene before respiratory compromise worsens, potentially leading to hypoxia and hemodynamic instability. As the Index data indicate, there is opportunity for improvement in monitoring a patient's EtCO_2 following administration of ketamine.

Ketamine use in EMS has been a topic of interest in recent years due to patient safety concerns. As with any clinical intervention, selecting appropriate indications, dosage, and monitoring are foundational elements of patient safety. Recently, several national organizations have issued guidance as it relates to ketamine in particular, and out-of-hospital sedation more generally. Several national entities released [joint guidance on ketamine administration](#) as a way to standardize the way EMS agencies use ketamine in practice.

BEST PRACTICES



Record accurate patient weight estimates to guide dosing and serve as supportive documentation after the EMS encounter.



Monitor EtCO_2 in addition to SpO_2 as soon as practical after sedative-dose administration for a real-time view of changes in respiration and ventilation.



Review national publications and ensure your agency's protocols are in alignment.

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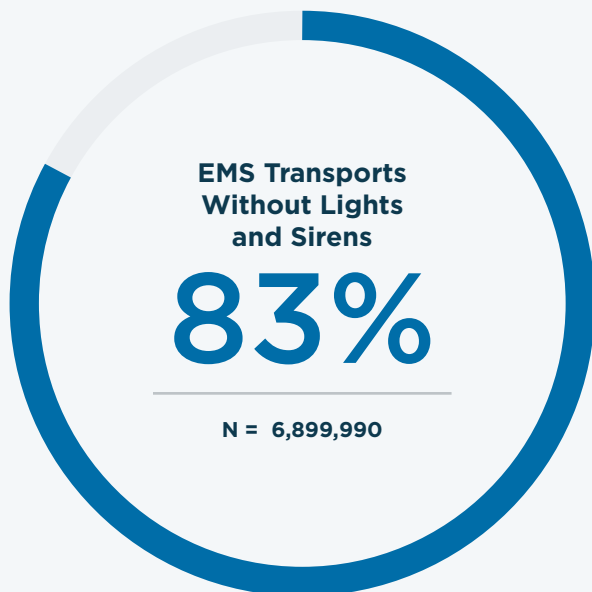
USE OF LIGHTS AND SIRENS FOR TRANSPORT

The lights and sirens (L&S) metric examines whether patient transports from the scene to the hospital occurred without the use of L&S. The use of L&S for transport is a safety measure defined by the National EMS Quality Alliance ([NEMSQA](#)). The NEMSQA measure uses standard scoring in which higher scores indicate better quality. To align with that measure, we are focusing on the percentage of calls in which lights and sirens were not used.

The [National Highway Traffic Safety Administration \(NHTSA\)](#) recommends using lights and sirens for less than 5% of transports. There are several factors that affect the use of L&S, including rural versus urban settings, type of encounter, and more. Not surprisingly, L&S usage also varies across agencies nationally.

Chart 7 below shows there were 6,899,990 patient transports included in the analysis for this metric. There were 5,710,343 documented patient transports that did not use lights and sirens, or 83% of transports.

Chart 7

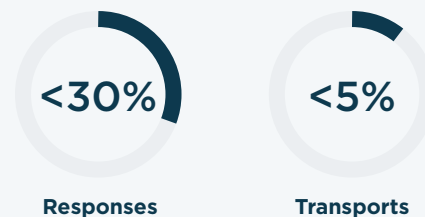


INSIGHT

Historically in EMS, lights and sirens have been associated with getting patients to life-saving care as quickly as possible. However, a growing body of research, EMS media, and now even the [national news](#) are highlighting how the potential risks associated with lights and sirens usage outweigh the time-saving benefits.

NEMSQA has spearheaded the development of industry metrics that evaluate the use of lights and sirens to protect patients, EMS clinicians, and the public. In February 2022, NEMSQA launched a first-of-its-kind [national performance improvement collaborative](#) to reduce lights and sirens use in EMS. The goal of the collaborative is to work with participating agencies to safely reduce lights and sirens use to less than 30% of responses and less than 5% of transports for 911 EMS calls.

GOAL L&S USAGE



With ample evidence to support a reduction in the use of lights and sirens during transport, it is time for the industry to adjust the perception of lights and sirens as more than an operational consideration. Instead, lights and sirens use should be considered with the same judicious process as a clinical procedure.

USE OF LIGHTS AND SIRENS FOR TRANSPORT



BEST PRACTICES



While it is recognized that the use of lights and sirens can be determined by state or local legislation/protocols, this metric is based on published guidance and national performance measures for safety with the intent to help drive data-informed improvement in this area. Agencies should strive to align with the national initiative and use recent evidence to advocate for policy change when appropriate.



Create policies and guidelines that empower EMS clinicians to make decisions on L&S use during patient transport based on the patient's medical condition vs. the potential time savings.



Target a usage rate of less than 5% for L&S during transport in accordance with NHTSA guidance.



Minimize L&S use to only critical situations where the estimated time saved may improve the patient's outcome.



Consider implementing mandatory L&S-specific EMS vehicle operator training and continuing education.

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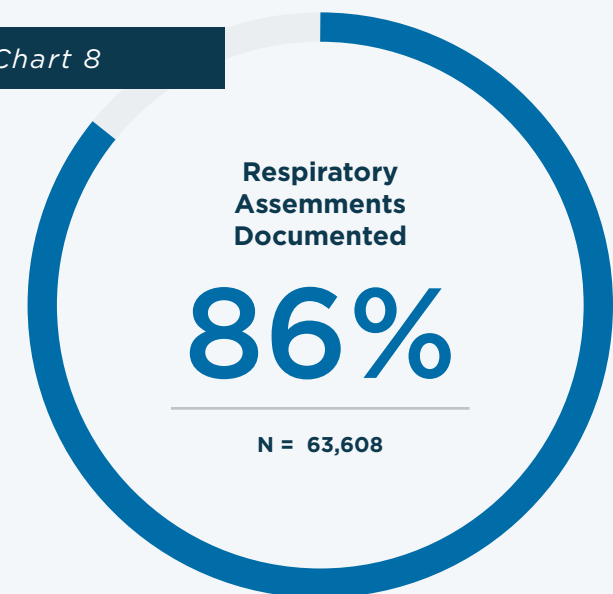
PEDIATRIC RESPIRATORY ASSESSMENT

This is a new measure for this year. Respiratory assessment for patients with respiratory distress is a clinical performance measure defined by NEMSQA. As respiratory distress is a common reason for EMS encounters among children, in this measure, we specifically look at how often clinicians documented oxygen saturation (SpO₂) and respiratory rate for pediatric patients with a primary or secondary EMS impression indicating respiratory distress.

Chart 8 shows that there were 63,608 pediatric patients with respiratory distress (representing 0.6% of EMS encounters), and a respiratory assessment were documented 86% of the time.

Chart 9 highlights the percent of patients by age group that had a documented respiratory assessment. Importantly, younger children were less likely to receive respiratory assessments compared to older children.

Chart 8



Respiratory Assessments
Not Documented

8,906

Respiratory Assessments
Documented

54,702



Chart 9

Documented Respiratory Assessment by Age

ADULT (≥18)

94%

ADOLESCENT (13-17 YEARS)

93%

SCHOOL AGE (5-12 YEARS)

93%

TODDLER/PRESCHOOL (1-4 YEARS)

86%

INFANT (<1 YEAR)

77%

BEST PRACTICES



Agencies should ensure pediatric readiness and access to appropriately sized equipment to include devices for monitoring oxygen saturation in very young children.



Focus training to generate EMS clinician comfort and confidence in assessing and treating respiratory distress particularly with very young children. Emphasize avoidance of scoop and run approaches.



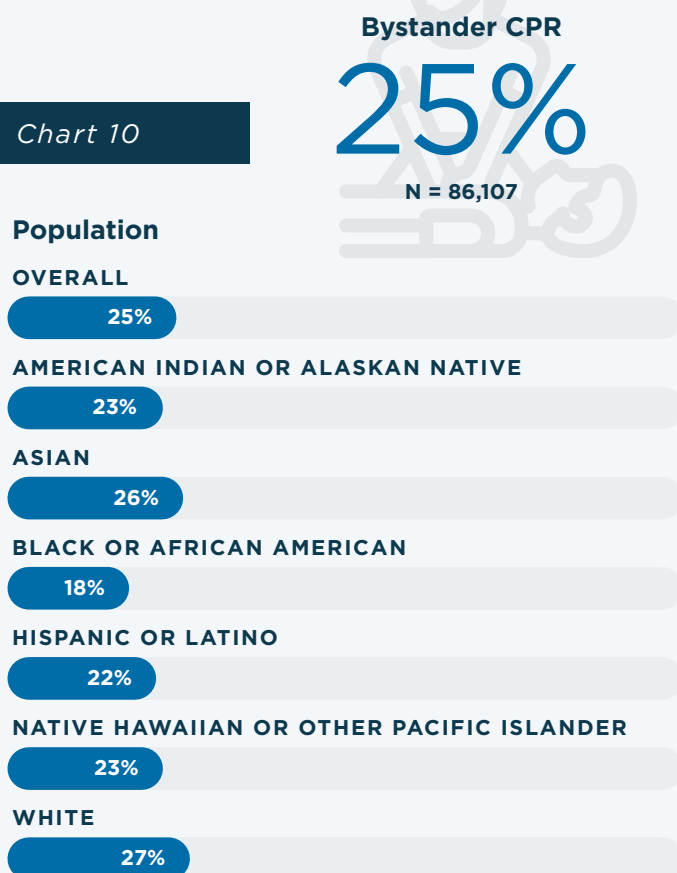
Ensure adequate education and training to help EMS clinicians distinguish upper versus lower airway problems in young children in order to select the appropriate treatment.



Last year, we began digging deeper into the racial and ethnic disparities around patient care – from the prehospital setting into the hospital. We continue exploring this important topic by looking at data for bystander CPR. For this particular metric, we look at how often CPR was administered to a patient who suffered a cardiac arrest prior to EMS arrival, as well as the breakdown by race of those receiving bystander CPR.

Chart 10 shows that nearly 25% of all patients in this group received some sort of CPR from bystanders prior to EMS arrival; however, if we look by race, Black or African American patients received bystander CPR least often at 18%, followed by Hispanic or Latino patients at 22%.

Chart 10



*Data for multiracial patients are not included in this analysis.

INSIGHT

Racial and ethnic disparities are longstanding and well documented. To quote quality improvement guru Mike Taigman, “There are two types of EMS agencies: Those that are improving their racial treatment disparities and those that haven’t looked for racial disparities in their data yet.” We see evidence in multiple places as indicated by this [story](#) and this [peer-reviewed article](#). In many ways, addressing racial and ethnic (and gender) disparities requires deep introspection and an honest assessment of our own built-in system biases to ensure we provide equitable care to all peoples. The journey isn’t always easy, but it’s a necessary one.

“

THERE ARE TWO TYPES OF EMS AGENCIES: THOSE THAT ARE IMPROVING THEIR RACIAL TREATMENT DISPARITIES AND THOSE THAT HAVEN’T LOOKED FOR RACIAL DISPARITIES IN THEIR DATA YET.

- Mike Taigman



Emergency Medical Services should consider partnering with organizations like the American Heart Association to provide community education about CPR. Offering CPR training to the community can have many benefits for EMS services, including faster CPR response times, increased survival rates, improved community health, and positive community relations.



Organizations should consider using geospatial analysis to identify the communities with low rates of bystander CPR and provide outreach initiatives such as public CPR and AED training. Also consider working with your local high schools to train students in CPR and AED use.



Partner with local places of community gathering (e.g. grocery stores, places of worship, athletic facilities) to increase presence of public access AEDs.

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CRITICAL INCIDENTS REPORTING

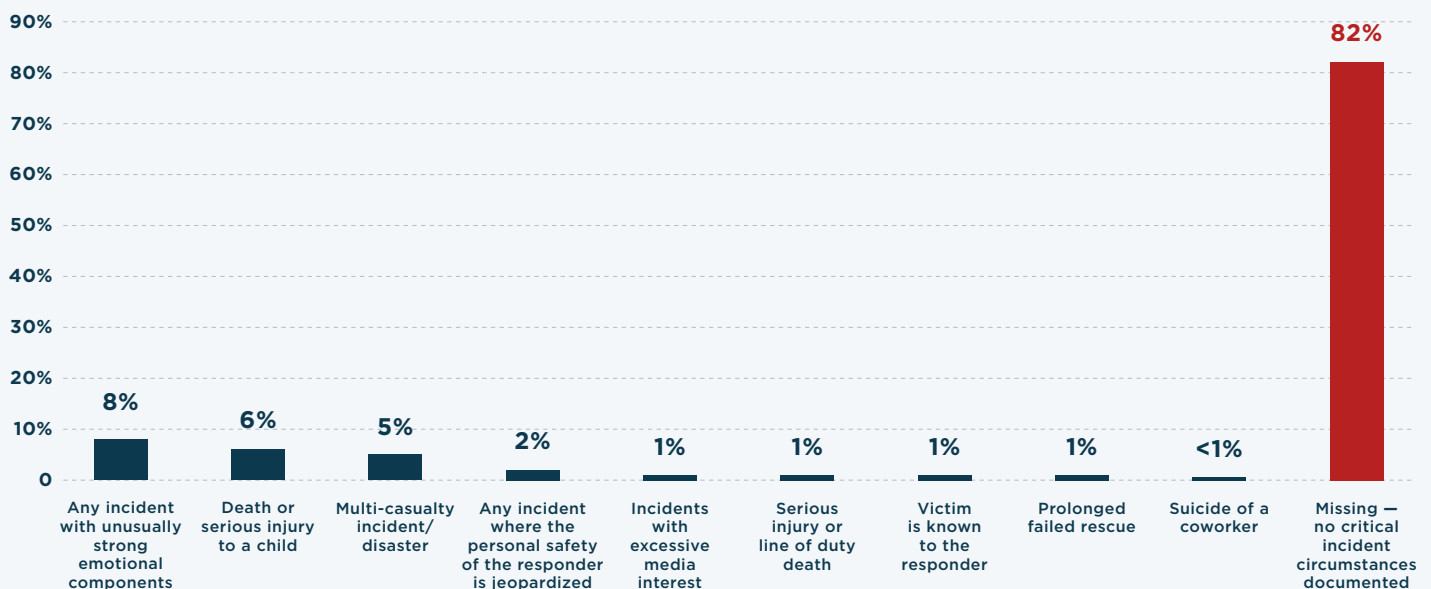


Critical incidents is a new metric this year focusing on a key variable related to EMS clinician well-being. The critical incident component in ESO EHR allows reporting of 9 circumstances collectively representing potentially psychologically traumatizing events: serious injury or line of duty death, suicide of a co-worker, death or serious injury to a child, prolonged failed rescue, multi-casualty incident disaster, victim is known to the responder, any incident where personal safety of the responder is jeopardized, incidents with excessive media interest, and any incident with unusually strong emotional components. This last option is especially key as there is no one set of criteria to define a critical incident, but rather the responder's feeling and reaction to the event are what truly defines an exposure. The term psychologically traumatizing event (PTE) is also used to recognize this distinction. This metric looks at the number of encounters where EMS clinicians indicated exposure to a critical incident.

Chart 11 shows that there were 5,045 critical incidents reported from EMS clinicians at 297 different agencies. However, underreporting of critical incidents and stigma around mental health are important considerations. The top 3 primary impressions associated with encounters identified as critical incidents were: cardiac arrest, injury, and obvious death.

Chart 11

CRITICAL INCIDENTS TOTAL CRITICAL INCIDENTS: 5,045



*Percentages will not add to 100% as more than one circumstance may be associated with each critical incident encounter.

CRITICAL INCIDENTS REPORTING



BEST PRACTICES



Consult the Public Safety Officer Support Act that passed in August of 2022, which provides line of duty benefits for EMS clinicians who experience PTSD as a result of exposure to critical incidents. Documenting exposure to critical incidents is an important part of this. Read the FAQ [here](#).



Cultivate a supportive organizational culture where it is safe for clinicians to report exposure to critical incidents. Make sure that organizational procedures, including clear policies around bullying and harassment, exist to promote a positive atmosphere of respect, fairness, and employee appreciation.



Keep in mind that a critical incident for one person may not be the same for another person as it is the individual's feelings and reaction to the event rather than the event itself that define an exposure. Provide training to EMS clinicians based on the latest evidence for potentially psychologically traumatizing events.



Follow up when EMS clinicians report critical incidents. There is no one-size-fits-all model for an appropriate way to follow up. Survey your clinicians on preferences and consider outreach through e-mail that allows clinicians to remain anonymous.



Events involving cardiac arrest or obvious death were common among incidents identified as potentially psychologically traumatizing events. Invest in training and continuing education on delivering death notifications for all levels of EMS clinicians to ease the stress associated with performing this difficult task



Ensure access to appropriate mental health resources. Establish relationships with local mental health clinicians with experience or training in working with EMS clinicians. Consider establishing peer support teams.

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PATIENTS WITH SUSPECTED OPIOID OVERDOSE



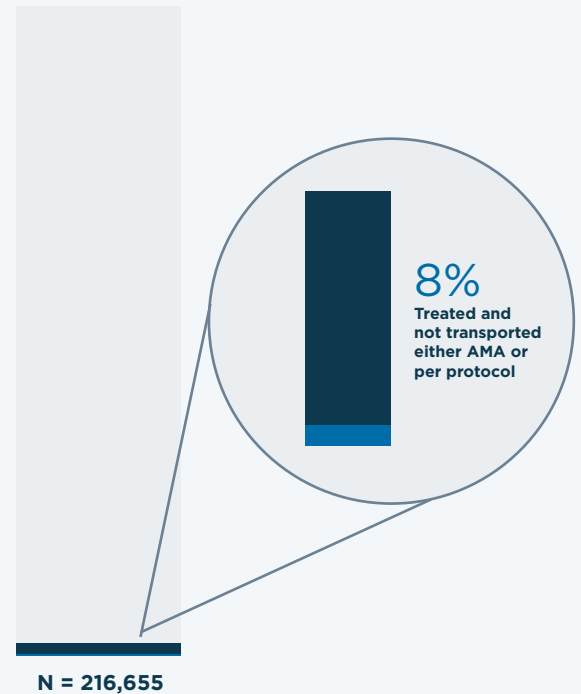
The patients with suspected overdose measure this year looks at the number of patients with an EMS impression related to opioid overdose and how many were not transported, and how many were treated on scene and not transported against medical advice or per protocol.

Chart 12 indicates that nearly 2% of all calls were related to opioid overdose (216,655 calls), and 8% of the 216,655 calls involved patients who were treated and not subsequently transported by EMS against medical advice or per protocol.

Chart 12

Patients with Suspected
Opioid Overdose

2%



INSIGHT

PATIENTS TREATED FOR A SUSPECTED
OVERDOSE SHOULD BE

**CAREFULLY ASSESSED
AND MONITORED.**

PATIENTS WITH SUSPECTED OPIOID OVERDOSE



BEST PRACTICES



Monitor incidents involving patients with suspected overdose in your community and anticipate trends. Use geospatial analysis in your community (based on data from your ePCR) to create preventative and harm reduction programs in areas with greatest need.



Review current evidence-based recommendations for EMS administration of naloxone in patients with suspected opioid overdose.



Ensure that prehospital care following use of naloxone to treat opioid overdose includes treatment for withdrawal symptoms. Fear of intolerable withdrawal symptoms represents an important barrier for patients accepting transport to an ED for continued care. Use the clinical opiate withdrawal scale (COWS) to measure and monitor symptoms for patients who are experiencing withdrawal. Consider partnering with emergency departments to offer a pathway for early buprenorphine initiation, which is often effective for treating withdrawal symptoms and is associated with higher rates of engagement and retention in recovery treatment programs.



Align protocols for treatment in place with the latest evidence for patient safety following opioid overdose. Encourage EMS clinicians to practice therapeutic communication and avoid high-risk refusal for patients who would benefit from transport to an ED. Look to create access within your community to appropriate follow-up services and referrals for patients treated for opioid overdose who are not transported by EMS.

CONCLUSION

SO, WHAT DOES THIS MEAN?



The measures explored in this Index are a fraction of all the variables that contribute to providing the highest quality of care to all patients. Through research and data-driven discussions, we can continue to drive innovations in quality improvement and in delivering equitable healthcare.

Formally documented Stroke Assessments for patients with ED-diagnosed stroke is particularly troubling at 38%. Use this opportunity to review your own policies and training toward stroke assessment and documentation.

Formally documented 12-lead EKG for patients with ED-diagnosed STEMI or NSTEMI measure shows that only 83% of patients with a diagnosed STEMI and 65% of patients with a diagnosed NSTEMI had a documented 12-lead EKG. Every second counts when it comes to a possible STEMI or NSTEMI, so it is crucial to understand how to encourage widespread adoption of this potentially life-saving tool in the prehospital setting.

Ketamine administration with patient weight recorded held steady at 80%. However, the EtCO₂ monitoring following an IM sedation dose measure at 60% shows there is room for improvement in ensuring patient safety when it comes to ketamine administration.

Lights and sirens use did not change from last year's Index. This indicates that more work needs to be done to create a culture of judicious L&S use across EMS agencies (and the regulatory bodies that create policies for EMS agencies) based on the benefits vs. risks of lights and sirens use during transport.

Respiratory assessments were less frequently performed in younger children with respiratory distress suggesting an opportunity for quality improvement initiatives to identify underlying causes, address readiness concerns and increase training and education.

Creating a culture of safety to report incidents that result in a strong emotional reaction for EMS clinicians and ensuring appropriate follow up and access to resources is key to supporting the mental well-being of the workforce.

About 8% of patients who were treated by EMS for opioid overdose were not transported to an ED, which means there is an opportunity to focus post-overdose care on mitigation of withdrawal symptoms and immediate access to recovery resources. Some EMS agencies have created programs for early initiation of buprenorphine either in the field or at the ED to help patients with opioid use disorder enter and remain in recovery.

Disparities in care by patient demographic characteristics are common across a variety of metrics. Routine monitoring and root cause analysis at the local level are key to designing effective change strategies to reduce inequities.

METHODOLOGY

The dataset from the ESO Data Collaborative used for the ESO EMS Index is real-world, de-identified data, compiled and aggregated from 2,670 agencies across the United States that use ESO's products and services and agreed to have their data used for research purposes. These data are based on 11 million anonymized 911 calls between January 1, 2022 and December 31, 2022, representing a full calendar year.

OK, NOW WHAT?

Organizations should use this information to understand why metrics are important and which metrics and drivers can have the biggest effect on your organization and the patients you serve. With this Index as a foundation, you can do your own analysis to serve as the basis for other modeling and outcomes. The metrics shown in this Index 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 what we are seeing nationally.

ESO'S MISSION

ESO mission is to improve community health and safety through the power of data. That is why we produce our suite of Indices—the Fire Service Index, the EMS Index, and the Trauma Index—annually. Our mission drives which metrics we analyze, whether tied to quality and process improvement, community health, or provider safety. We make the Indices publicly available at no cost because we believe it is the right thing to do to not only fulfill our mission, but to help improve the industries that we serve.

ABOUT ESO

ESO (ESO Solutions, Inc.) 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, hospitals, and state EMS offices. ESO currently serves thousands of 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 RMS](#), the modern fire Record Management System; [ESO Patient Registry](#) (trauma, burn and stroke registry software); and [ESO State Repository](#). ESO is headquartered in Austin, Texas. For more information, visit www.eso.com.

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