

2024 ESO EMS INDEX

INSIGHTS AND BEST PRACTICES FOR EMS AGENCIES

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CONTEXT AND OVERVIEW FOR THE INDEX

At ESO, we believe in the power of aggregate data in not just telling the story of where the EMS industry collectively stands, but in its ability to offer data-driven solutions to improve our performance across the board.

One of the biggest concerns within healthcare is inequities in care, which are well-documented and prevalent throughout history. It is our duty to seek out where they exist to overcome them with system-level interventions. Data is a powerful tool in doing just that. In the EMS Index, we continue to investigate our blind spots using a data-driven lens and give organizations like yours a benchmark for seeing where you stand.

While some measures you'll recognize from years past, such as bystander CPR, critical incident reporting, and opioid overdose response, others are new, such as intramuscular sedation for patients with behavioral emergencies and analgesic administration. In choosing these metrics, we aimed to continue to shed light on the quality of evidence-based prehospital care across the United States, along with protecting the health and safety of those providing care. As we identify areas for performance improvement, we add insights to spark conversations around potential drivers and interventions to help organizations improve.

Here are some questions we hope the 2024 ESO EMS Index helps you answer using your own data:

What best practices can my organization implement to measure and address inequities in analgesic administration?

Is my organization on par with others in performing full care bundles for patients with stroke?

Are we properly assessing and monitoring patients who receive intramuscular sedation?

Are we on par with the national average regarding ambulance patient offload times?

What's our community's rate of bystander CPR and could we offer public health outreach?

Does my organization promote a culture of safety that encourages EMS clinicians to report critical incidents?

How do we compare to our peers in our response to patients with opioid use disorder?

What are the best practices for each metric and how do I ensure my organization follows them consistently?



Aggregate data offers a quantitative approach in measuring and refining tactics, improving outcomes, and better allocating resources. While the success of each individual organization rests upon a variety of factors including population size and geographic location, the metrics below can offer a starting point to evaluating your own performance compared to your peers across the United States.

The Index uses data from the ESO Data Collaborative, comprised of more than 3,016 departments across the country, representing more than 12 million EMS responses between January 1-December 31, 2023.



3,016
AGENCIES

12,075,385
RECORDS

KEY METRICS



**ANALGESIC ADMINISTRATION
FOR LONG BONE FRACTURES**



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



**EMERGENT INTRAMUSCULAR
SEDATION**



**AMBULANCE PATIENT OFFLOAD
TIMES**



BYSTANDER CPR



**CRITICAL INCIDENT
REPORTING**



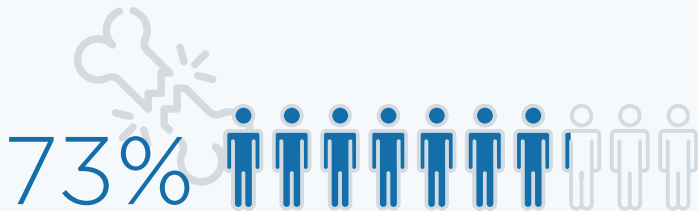
OPIOID OVERDOSE

LIMITATIONS

This Index is retrospective and looks at aggregate data from 2023. There are no universal rules designed around these measures. The purpose of the Index is to be informative and directional. It is not intended to be a scientific study nor 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

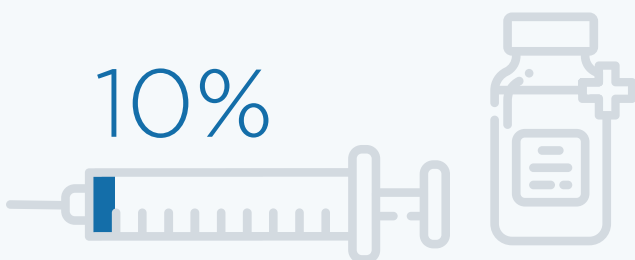
Analgesic administration for patients with long bone fractures and severe pain - Despite EMS documentation of severe pain, only 73% of patients with confirmed long bone fractures were administered prehospital analgesics with the number even lower for Black or African American patients at 63%.



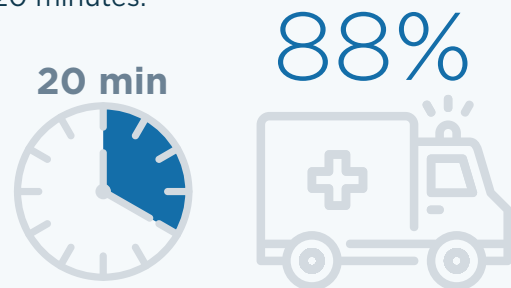
Full stroke bundles for patients with ED-diagnosed stroke: A stroke bundle was documented only 30% of the time for patients that were ultimately diagnosed with a stroke at the ED.



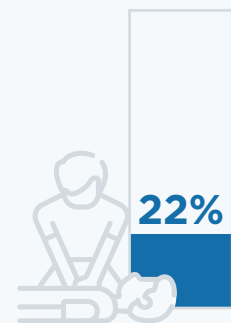
Intramuscular sedation: Only 10% of patients who were combative and needed intramuscular sedation had RASS documented.



Ambulance patient offload times: 88% of patient offload times fell within 20 minutes.



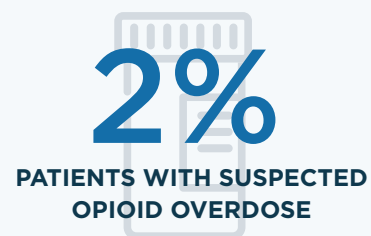
Bystander CPR: Out of the 112K patients who suffered a cardiac arrest prior to EMS arrival, only 22% received bystander CPR. Black patients received bystander CPR even less frequently at 17%.



Critical incidents reporting: There were more than 6.2K critical incidents reported by crews with the most common primary impression associated being cardiac arrest.



Opioid overdose and treatment: Nearly 2% of all 911 records in 2023 were for patients with suspected opioid overdose.



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ANALGESIC ADMINISTRATION FOR PATIENTS WITH LONG BONE FRACTURES

New to the Index this year, this metric looks at EMS analgesic administration for patients with diagnosed long bone fractures and a prehospital pain score indicating severe pain.

Pain is a frequent presentation among prehospital patients, yet oligoanalgesia – the undertreatment of pain – remains common. In an effort to measure prehospital pain management practice among patients with objectively painful injuries, we used the Health Data Exchange (HDE) database to identify patients with diagnosed long bone fractures at the ED. Undertreatment of pain is disproportionately experienced by patients of racial and ethnic minorities and those in socioeconomically vulnerable communities.¹

For more information surrounding the evidence-base for this metric, request a free reprint of the peer-reviewed research published in *Annals of Emergency Medicine*, “Racial, Ethnic, and Socioeconomic Disparities in Out-of-Hospital Pain Management for Patients with Long Bone Fractures”, from the [ESO Data Collaborative](#).

MEASURE DEFINITION

Analgesic Administration for Patients with Long Bone Fractures

The percentage of encounters for 911 patients with ED-diagnosed long bone fractures (ICD-10 codes: S42.2X, S42.3X, S42.4X, S52.X, S72.X S82.X) who received prehospital analgesics. All analgesics by all routes were included. Patients with an AVPU of V, P, or U and responses by BLS units were excluded.



Charts 1, 2, and 3 below show a breakdown of analgesic administration for patients with long bone fractures and severe pain by patient characteristics. Overall, only 73% of patients received prehospital analgesics, meaning that one in four patients did not receive medication for their pain in the prehospital setting. Children below 18 years of age were slightly more likely to receive analgesics compared to adults (78% versus 72%). Analgesic administration was similar across patient genders. Consistent with previous research, an important racial and ethnic inequity in prehospital analgesics was identified with only 63% of Black or African American patients receiving analgesics compared to 74% of White patients.

Chart 1

Analgesic Administration by Age Group

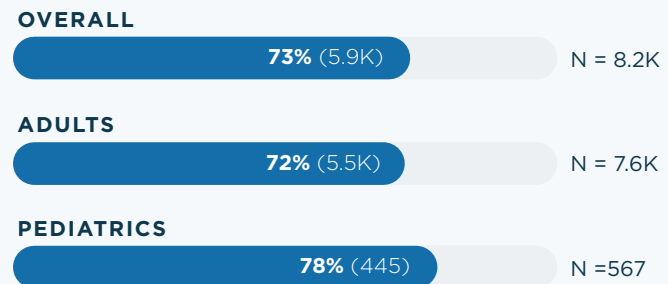
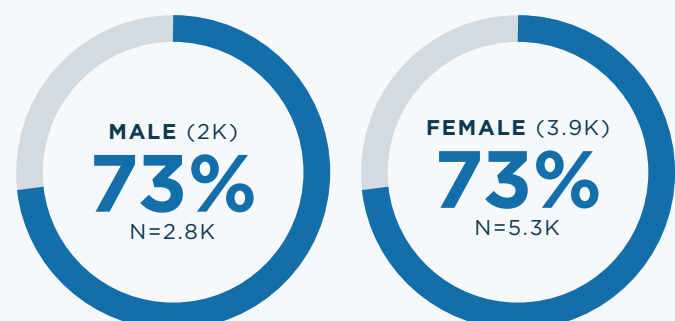


Chart 2

Analgesic Administration by Gender



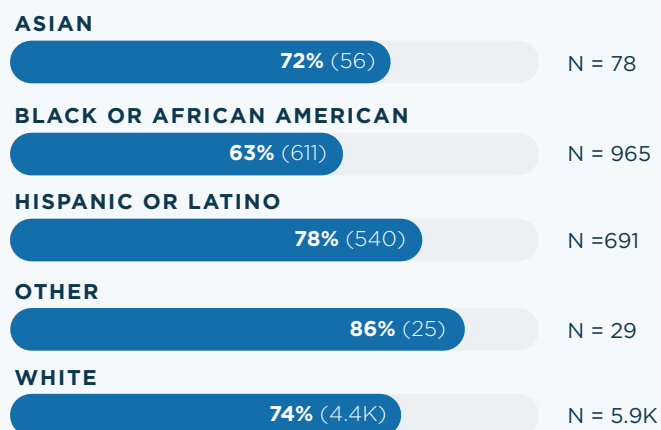
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ANALGESIC ADMINISTRATION FOR PATIENTS WITH LONG BONE FRACTURES



Chart 3

Analgesic Administration by Race and Ethnicity



**Please note: More than one race may be documented for a patient.*

BEST PRACTICES:



Follow evidence-based practices as outlined in the 2021 evidence-based guideline on prehospital pain management.² This guideline is also accompanied by a model EMS protocol.³



Consider what is in your EMS pain management toolkit and engage in shared decision making with patients. Do you have non-opioid options available? IV acetaminophen is becoming a more affordable option with a favorable analgesic and safety profile. Non-steroidal anti-inflammatory medications (NSAIDs) have also demonstrated effectiveness in pain management. Having non-IV options available to avoid the need to place an IV catheter can increase acceptance of the intervention offer among patients.



Disaggregate your data by patient characteristics like race, ethnicity, and age as part of your regular quality management practices. When treatment inequities are identified, work to identify drivers and create processes that lead to equitable high-quality care.



Don't fall for the five-minute rule! Even though the hospital may be nearby, on average patients wait more than 62 minutes for analgesics after ED arrival.⁴ EMS has the opportunity to alleviate pain early and kick off diagnostic momentum, especially considering patients given analgesics by EMS are more likely to get continued analgesics in the ED.⁵

EMS INDEX

FULL STROKE BUNDLE FOR PATIENTS WITH ED-DIAGNOSED ISCHEMIC STROKE



Last year, we took an overall look at stroke assessment performance for patients experiencing any type of stroke. This year, we're taking a deep dive on ischemic stroke specifically. This metric looks at how many patients with an ED-diagnosed ischemic stroke received a full stroke bundle as part of a 911 call (not interfacility transfers and other types of encounters). Full stroke bundles include the evidence-based practices of documentation of last known well, blood glucose, and a stroke screen.

It was found that in 2023, out of 1.45 million patients with ED diagnosis codes, a total of 15,479 patients were diagnosed with a stroke.

Chart 4 shows the percentage of calls for patients with ED-diagnosed stroke who received a stroke bundle. Overall, fewer than one in three patients with ED-diagnosed ischemic stroke received the full bundle of care. While blood glucose was most commonly performed at 86%, stroke scale and last known well were documented in less than half of patients.

MEASURE DEFINITION

Percentage of encounters for patients with ED-diagnosed ischemic stroke (ED ICD-10 codes: I63.X) who received a full stroke bundle consisting of documented last known well time, blood glucose, and a stroke scale. Children under 18 years of age were excluded as stroke is uncommon in this population.

Chart 4

% Patients with ED-Diagnosed Ischemic Stroke That Received a Stroke Bundle

FULL STROKE BUNDLE

34%

LAST KNOWN WELL

46%

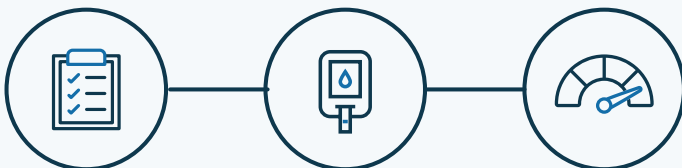
BLOOD GLUCOSE

86%

STROKE SCREEN

47%

STROKE BUNDLE OF CARE



DOCUMENTED
LAST KNOWN
WELL TIME

BLOOD
GLUCOSE

STROKE
SCALE

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FULL STROKE BUNDLE FOR PATIENTS WITH ED-DIAGNOSED ISCHEMIC STROKE



Chain of survival for emergency stroke care⁶

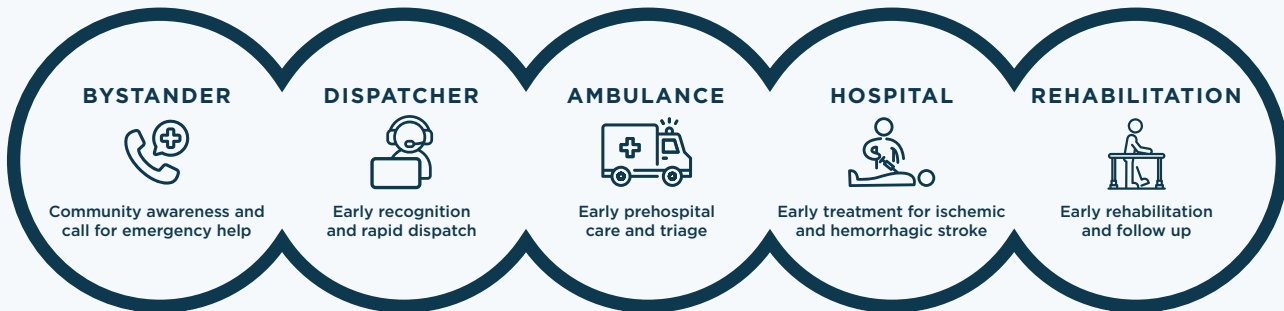
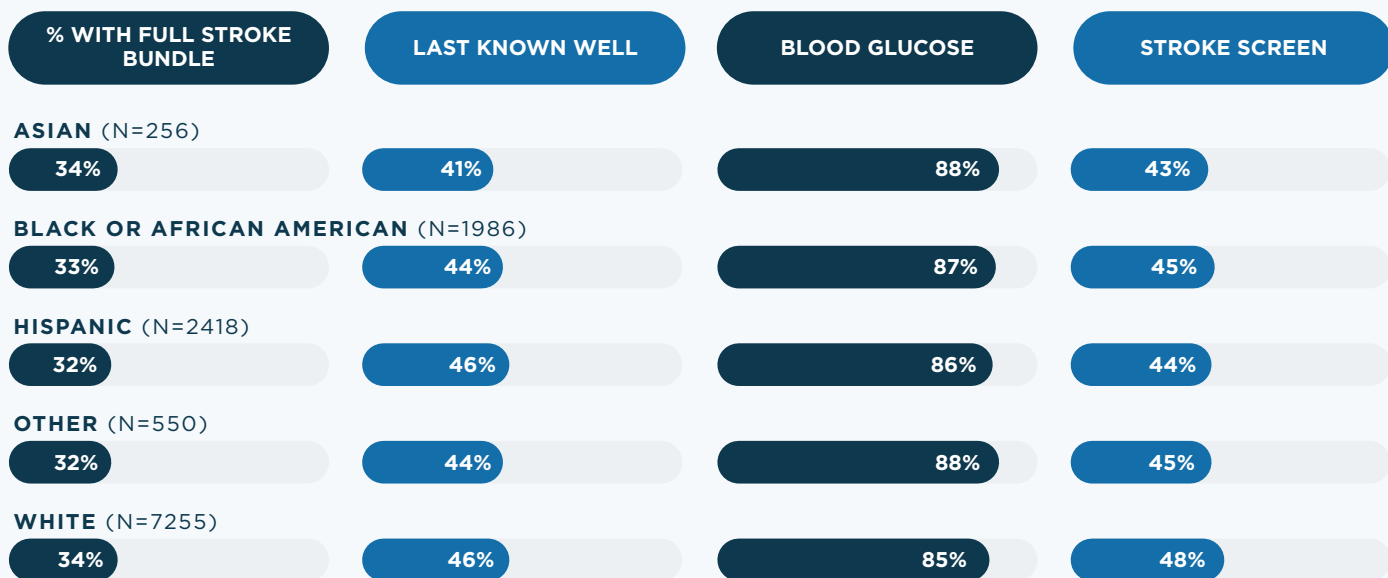


Chart 5 shows the breakdown of documented stroke bundles by patient race and ethnicity. The variability in documentation across different racial and ethnic groups emphasizes the need for standardized and equitable care practices.

Chart 5

% Patients with ED-Diagnosed Ischemic Stroke That Received a Stroke Bundle Broken Down by Race and Ethnicity



While some of the underperformance may reflect documentation in the free-text narrative rather than the discrete drop-down data fields, last year's review showed that this practice cannot fully explain the gap in care. To ensure the best outcomes for patients with suspected strokes, conducting and documenting the full stroke bundle is incredibly important.

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FULL STROKE BUNDLE FOR PATIENTS WITH ED-DIAGNOSED ISCHEMIC STROKE



BEST PRACTICES:



Document using discrete fields where possible, including last known well time, blood glucose value, and complete strokes scale.



Review your protocols for assessing patients with suspected stroke. The identification of a stroke in the prehospital setting is a key link in the stroke chain of survival (shown above)⁶ leading to better patient outcomes.



Routinely complete full assessments for stroke on patients with less common symptoms that could be missed. Subtle symptoms that may distract clinicians from identifying the underlying stroke can include: dizziness, changes in vision, or injuries from a fall.



Use a validated stroke scale to perform complete assessments of patients with suspected stroke. There are several different stroke scales, and 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.⁷



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



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 911 for a 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 that their communities face when deciding to engage emergency medical services.

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INTRAMUSCULAR SEDATION



In response to the evolving needs of prehospital care, this year's EMS Index expands the measure of intramuscular sedation beyond Ketamine, including the following additional medications: midazolam, lorazepam, haloperidol, and droperidol. This year, we also emphasize the importance of objectively measuring a patient's level of agitation pre and post sedation.

Emergent sedation administered by EMS clinicians is sometimes required when a patient, potentially suffering from a behavioral health emergency, becomes a danger to themselves or others. Unfortunately, encounters with patients exhibiting violent behaviors are common and de-escalation strategies are not always successful. When these situations arise, EMS must intervene by rapidly providing emergent sedation to facilitate assessment and treatment. Typically, the intramuscular route is used to administer emergent sedation.

Not all patients suffering from a behavioral health emergency require emergent sedation. In fact, a recent study found that less than 2% of patients presenting with a behavioral problem received emergent prehospital sedation.⁸ The low frequency and increased difficulty in managing these types of calls highlights the need for emergent sedation to be performed by EMS clinicians who are appropriately trained and supervised. To identify whether a patient with agitation or violent behavior may benefit from emergent sedation, use of validated scales like the Richmond Agitation Sedation Scale (RASS) or the Behavioral Activity Rating Scale (BARS) can be helpful. Using these scales pre and post sedation administration is key to monitoring use and effectiveness of treatments.

Serious adverse events following emergent sedation are rare. However, it is very important for EMS clinicians to monitor patients closely, including through post-sedation capnography, and be prepared to intervene if needed.

MEASURE DEFINITION

Patients who received intramuscular sedation (ketamine, midazolam, lorazepam, haloperidol, droperidol) as their first pharmaceutical treatment. Patients experiencing seizures were excluded. The RASS was incorporated into EHR on May 31, 2023. For the measure of RASS use, we only included records from June 1 to December 31, 2023. BARS was introduced in November of 2023. We will reserve monitoring of this tool for next year's index.

The following charts show that only 1-in-10 patients receiving emergent IM sedation had a documented RASS by EMS. This number varied slightly across patient characteristics.

Chart 6

% of Patients Receiving IM Sedation with RASS Documented (6/1/2023 to 12/31/2023 only) by age group

OVERALL (N=5.3K)

10%

ADULTS (N=3.9K)

10%

PEDS (N=321)

11%

EMS INDEX

INTRAMUSCULAR SEDATION



Chart 7

% of Patients Receiving IM Sedation with RASS Documented by Gender

(6/1/2023 to 12/31/2023 only)

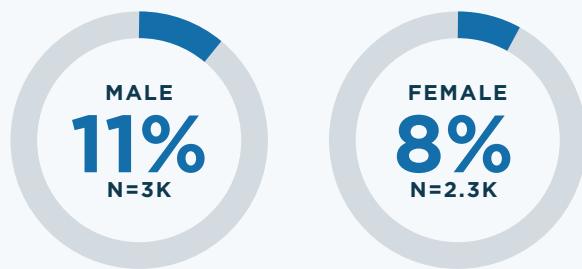
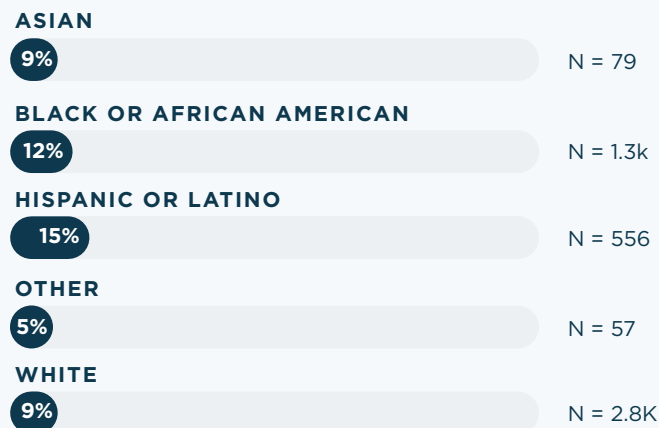


Chart 8

% of Patients Receiving IM Sedation with RASS Documented by Race and Ethnicity*

(6/1/2023 to 12/31/2023 only)



*More than one race may be documented for a patient

End-tidal CO₂ (EtCO₂) monitoring is another critical measure, acting as an early warning system to assess respiration and ventilation for patients administered emergent IM sedation. Concerningly, only about half of patients receiving emergent IM sedation had documented end-tidal CO₂ monitoring, suggesting a potential area for improvement in patient safety protocols.

The charts below show a breakdown of ETCO₂ monitoring in patients by demographic.

Chart 9

% of ETCO₂ Monitoring in Patients

OVERALL (N=8.9K)



ADULTS (N=8.3K)



PEDS (N=571)



Chart 10

% of ETCO₂ Monitoring in Patients by Gender

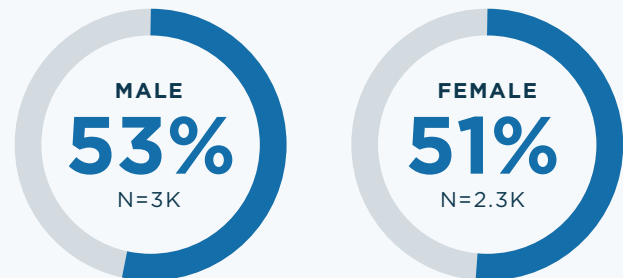
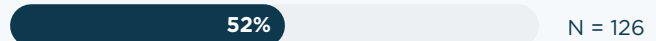


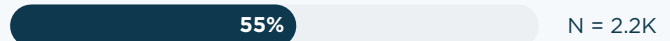
Chart 11

% of ETCO₂ Monitoring in Patients by Race and Ethnicity*

ASIAN



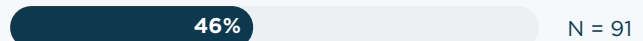
BLACK OR AFRICAN AMERICAN



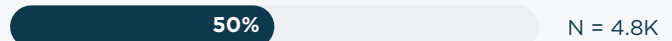
HISPANIC OR LATINO



OTHER



WHITE



*More than one race may be documented for a patient

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INTRAMUSCULAR SEDATION



BEST PRACTICES



Ensure your processes include rapid assessment of the patient's level of agitation. Activate the capability to measure agitation and sedation levels using RASS or BARS within your Electronic Health Record (EHR) system. Encourage their routine use to objectively assess and document the sedation level of patients requiring emergent intramuscular sedation. Clearly outline whose care should be prioritized based on the severity of agitation and potential risks to the patient and EMS clinicians.



Evaluate for underlying medical causes - conduct thorough assessments to identify conditions that may contribute to agitation, such as hypoxia, hypoglycemia, or head injury. Address reversible factors and weigh this into your decision of whether sedation is needed.



Select the appropriate medication based on the patient's clinical presentation, comorbidities, and desired level of sedation.



Assess and Reassess! Ensure comprehensive monitoring of patients administered sedative medications by capturing EtCO₂ levels. This practice is vital for detecting early signs of respiratory distress and ensuring the timely management of potential sedation-related complications.



Regularly review and update sedation protocols. Tailor these protocols to ensure they meet the needs of different patient populations and clinical scenarios.

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AMBULANCE PATIENT OFFLOAD TIME (APOT)

Introduced in the 2024 EMS Index, Ambulance Patient Offload Time (APOT) is a metric that measures the duration from when an ambulance arrives at a destination to when the care of the patient is transferred to hospital personnel. This metric was developed in response to industry discussions about the delays patients sometimes face at hospitals before they can be handed over to emergency department staff. Often referred to as “wall time,” APOT provides a more formalized approach to understanding these delays.

MEASURE DEFINITION

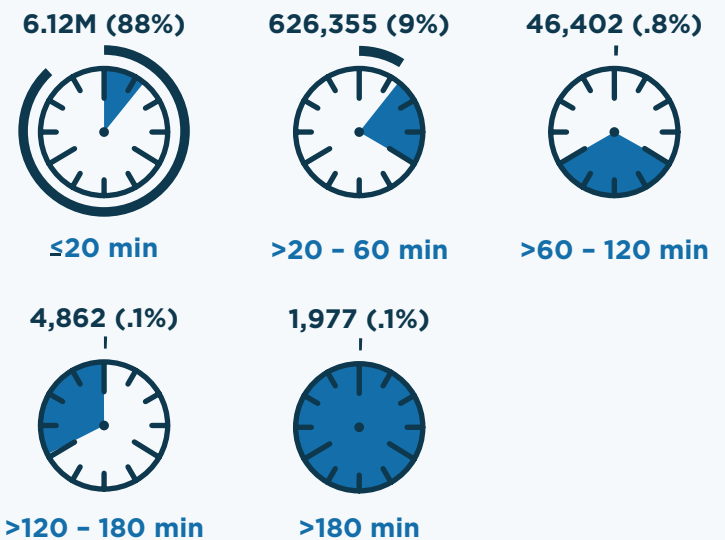
This measure is calculated as the time from the At Destination timestamp to the Transfer of Care timestamp.



Chart 12

Breakdown of the APOT by Minute

TOTAL PATIENT TRANSPORTS **6.9 MILLION**
90TH PERCENTILE APOT-1 TIME **20 MIN**



The data shows that the vast majority of patient transfers are completed within an acceptable time frame. Specifically, 88% of all patient transfers documented have an offload time of 20 minutes or less. Nearly 10% of patients, however, wait up to an hour, which can impact patient safety and satisfaction as well as create resource constraints within the EMS system. Most importantly, 1% of patients experience offload delays of one hour or greater. Although infrequent, this can have significant impacts for all parties involved and may have implications with respect to a draft CMS policy that specifically focuses on ED times, including any patient who waits more than one hour to be evaluated.⁹

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AMBULANCE PATIENT OFFLOAD TIME (APOT)



BEST PRACTICES



Streamline hospital processes by collaborating with receiving hospitals. Hospitals can implement processes to expedite the admission and transfer of patients from ambulances at the ED. By scanning driver's licenses, EMS can reliably transfer patient information to hospital registration prior to arrival.



Utilize Mobile Integrated Healthcare (MIH) Programs. MIH programs involve providing healthcare services, such as assessment, treatment, and referrals, at the scene or during transport, rather than solely focusing on transport to the ED. By providing alternative care pathways for patients with non-life-threatening conditions, MIH programs can reduce the burden on EDs and ambulance offload times.



Integrate telemedicine capabilities into EMS systems to allow paramedics and emergency medical technicians (EMTs) to consult with physicians or specialists remotely, enabling real-time medical guidance, decision-making support, and treatment recommendations. Nurse triage at the point of dispatch can also reduce EMS response and direct patients to the appropriate resources for their needs. These systems help avoid unnecessary transport to the ED and expedite patient care.

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BYSTANDER CPR



Early CPR is a vital component in the cardiac “Chain of Survival”,⁶ developed by the American Heart Association, which highlights the importance of (1) early recognition of symptoms and engagement of 911 services, (2) early CPR, (3) early defibrillation and (4) post-resuscitation care following an out of hospital cardiac arrest (OHCA).



Activation of
Emergency
Response

High-Quality
CPR

Defibrillation

Advanced
Resuscitation

Post-Cardiac
Arrest Care

Recovery

With CPR, we know the earlier it’s performed, the better. Bystander CPR, of any kind, has been repeatedly shown to increase survival rates by at least 2-fold,¹⁰ when compared to cases with no bystander-initiated CPR.

Chart 13 shows that 22% of all OHCA patients received some form of bystander CPR prior to EMS arrival. While Asian and White patients received similar rates of bystander CPR at 23%, followed by Hispanic or Latino patients at 22%, and Black or African American patients received bystander CPR least often at 17%. This is similar to the findings in the 2023 EMS index and highlights a continued disparity particularly for our Black and African American patients.

The vast majority of OHCA happens in adult populations, however OHCA is not unheard of in pediatric patients. Chart 14 shows that while rare, 35% of OHCA patients under the age of 18-year-old received bystander CPR prior to EMS arrival.

Chart 15 highlights the difference in bystander CPR by patient gender, with women receiving bystander CPR less frequently at 21%, compared to men who received bystander CPR 23% of the time. The impact that a patient’s gender has on the initiation of bystander CPR has been explored in previous research, where findings suggest potential barriers regarding the willingness to initiate CPR on women including the sexualization of women’s bodies, women being perceived as weak and frail and therefore prone to injury, and misperceptions about women in acute medical distress.¹¹

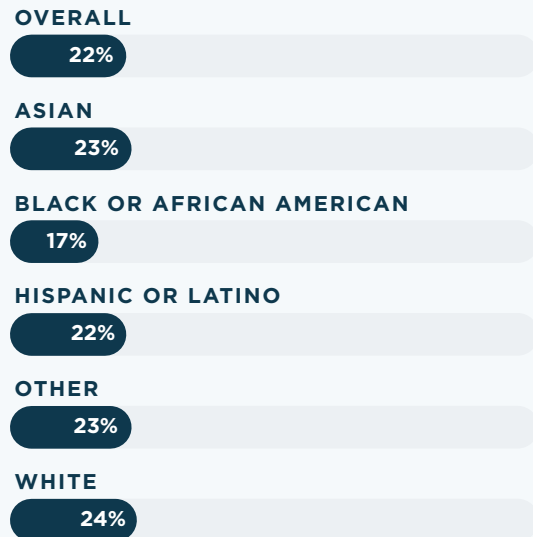
EMS INDEX BYSTANDER CPR



Chart 13

% of Bystander CPR Received by Race and Ethnicity*

Total PATIENTS (N) = 112K
CPR PERFORMED= 25.35K



*More than one race may be documented for a patient.

Chart 14

% of Bystander CPR Received by Age Group

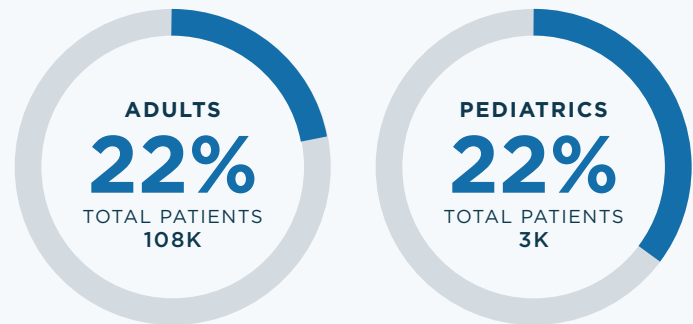
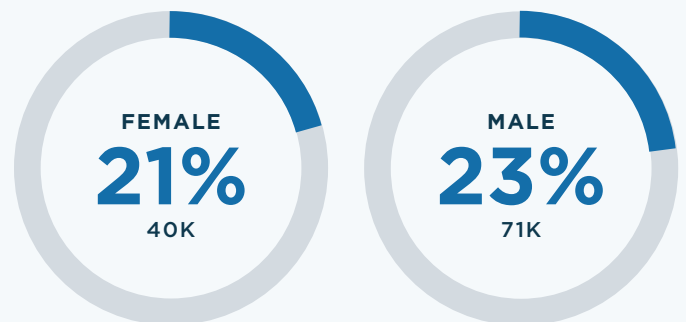


Chart 15

% of Bystander CPR Received by Gender



Emergency telecommunicators play a key role in recognition and early initiation of CPR. The American Heart Association (AHA) developed the “No, No, Go” CPR procedure which is an initiative aimed at simplifying the steps bystanders are instructed to take by dispatchers.

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BYSTANDER CPR



BEST PRACTICES



Compressions-only CPR, often called hands-only CPR, is as effective as conventional CPR and presents a low barrier community education opportunity. Use geospatial analysis to identify communities with low rates of bystander CPR then provide outreach initiatives such as public hands-only CPR and AED training, along with partnering with local high schools to train students in hands-only CPR and AED use.



Incorporate the AHA's "No, No, Go" CPR guidelines into community education and outreach programs to encourage an easy-to-remember CPR response to promote quick action by bystanders.



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



Reexamine how you connect with your community and consider partnering with the American Heart Association or similar organizations to provide community CPR training. Doing so has many benefits for EMS services, including faster CPR response times, increased survival rates, improved community health, and positive community relations.



Increase the use of female and racially diverse mannequins in CPR training to address biases and improve the relatability of training materials.

CRITICAL INCIDENTS REPORTING



“Trauma is not the event itself. Trauma is the wound that occurs from the event.”

- Dr. Gabor Maté

The importance of clinician wellbeing cannot be overstated, which is why the critical incidents reporting metric has been brought back again this year. This metric evaluates incidents where the EMS clinician indicated that the encounter represented a critical incident. In an effort to align with the current evidence related to critical incidents, ESO EHR allows the tracking of nine circumstances (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) collectively representing potentially psychologically traumatizing events, considered critical incidents. The word “potentially” in the previous sentence is important because an incident that could be particularly stressful and traumatizing to one individual may not impact another individual to the same extent. The nine critical incident circumstances tracked represent events that have the potential to cause emotional

distress and other trauma-related mental health conditions. However, it should be noted that this is not an exhaustive list and there are many other situations EMS clinicians face that may lead to undue stress, mental health conditions, and/or burnout. This metric gives us some insight into the frequency that EMS clinicians experience these types of events when working in the prehospital environment. The results should be viewed with the understanding that there is still a stigma in EMS, and elsewhere in life, with accepting that a stressful event can impact mental health, which can prevent the reporting of such events and reaching out for assistance. However, it is unrealistic to expect EMS clinicians to “just get over it”. The rising incidence of suicide among EMS professionals is a flashing red light warning sign that we must not ignore. The mental health of our colleagues must be prioritized and protected. Tracking of critical incidents is one of many important steps towards the goal of a healthy workforce.

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CRITICAL INCIDENTS REPORTING



Chart 16 below shows that there were 6.2K critical incidents reported from EMS clinicians. Chart 17 shows the top three primary impressions associated with encounters identified as critical incidents were: cardiac arrest, injury, and obvious death.

Chart 16

Breakdown of Critical Incidents Reported

CRITICAL INCIDENTS

TOTAL CRITICAL INCIDENTS: 5,045

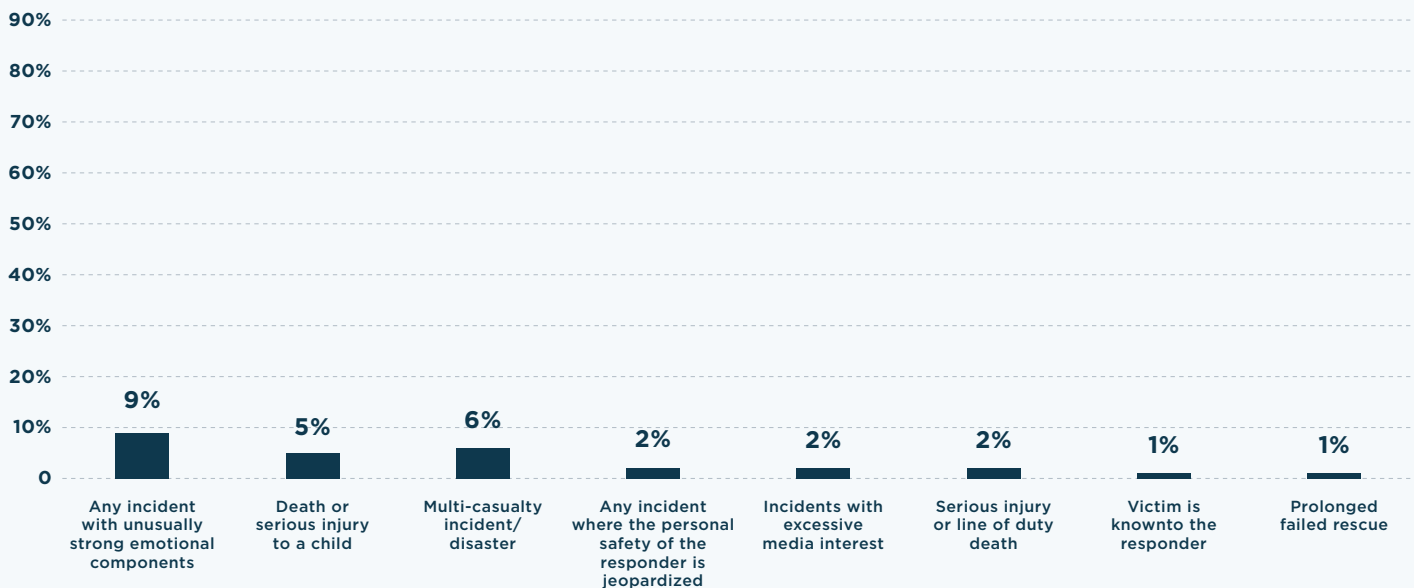
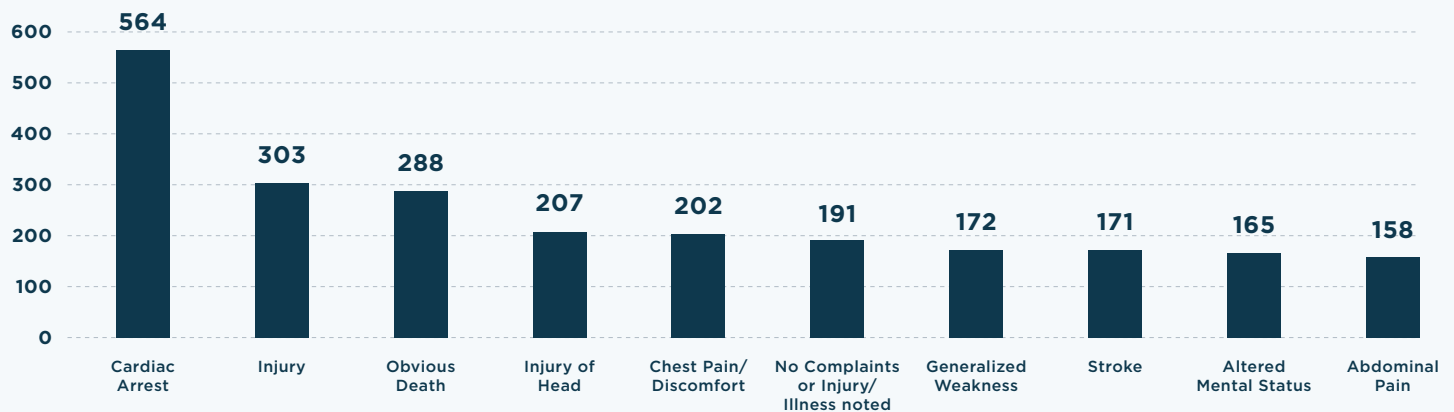


Chart 17

Top Primary Impressions Among Critical Incidents



CRITICAL INCIDENTS REPORTING



BEST PRACTICES



Enable tracking of critical incidents and make sure that your organization is set up with the appropriate culture of safety and resources to monitor and take action when critical incidents are documented. There is no one-size-fits-all model, but engaging front-line clinicians in the design of programs related to critical incidents is an important step in the right direction. Ask clinicians how they prefer to be contacted when critical incidents occur.



Consult the 2022 Public Safety Officer Support Act, which provides line-of-duty benefits for EMS clinicians who experience PTSD due to exposure to critical incidents. Documenting exposure to critical incidents is key. Read the FAQ [here](#).



Keep in mind that a critical incident differs for everyone as it is the individual's feelings and reaction to the event rather than the event itself that define an exposure. Providing training to EMS clinicians based on the latest evidence for potentially psychologically traumatizing events helps them to better recognize PTSD in themselves and their peers.



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.



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.



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 email to allow clinicians to remain anonymous.



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.

EMS INDEX

PATIENTS WITH SUSPECTED OPIOID OVERDOSE



Opioid use disorder (OUD) remains a growing and widespread public health concern throughout the United States. In 2023, we reported the number of patients with suspected overdose who were treated and subsequently not transported by EMS. This year, we took a closer look and examined EMS treatment interventions, specifically focusing on the administration of naloxone.

EMS responded to 236K calls for patients with suspected opioid overdoses, accounting for nearly 2% of all EMS calls. Chart 18 shows an overview of the total responses for patients with suspected opioid overdose by patient characteristics. Among these patients, the median age was 39 years and approximately two-thirds (65%) of patients were male.

Overall, 63% of responses involved patients documented as White non-Hispanic followed by 24% of responses for patients who were Black or African American, non-Hispanic.

Chart 18

Demographic Distribution of Responses for Patients with Suspected Opioid Overdose

Total N = 236K



Chart 19

Demographic Distribution of Responses for Patients with Suspected Opioid Overdose by Race and Ethnicity

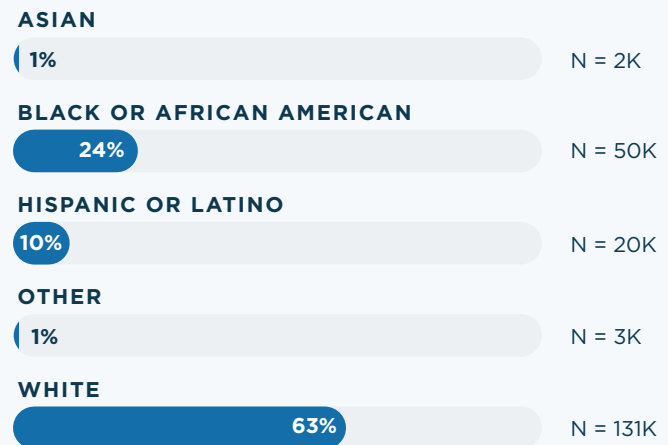
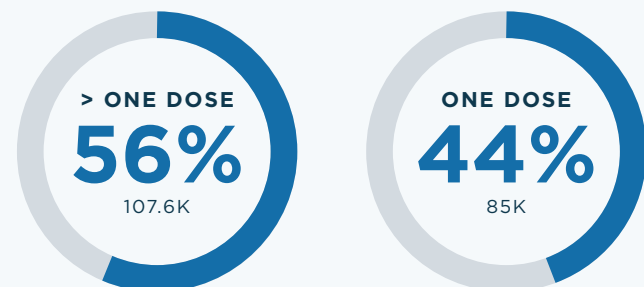


Chart 20 describes naloxone administration. In total - 82% of patients with suspected opioid overdose received at least one dose of naloxone (n=192,694). Of those who received naloxone, 56% received more than one dose.

Chart 20

Breakdown of Naloxone Administration by Number of Doses

N = 192,694



The administration of multiple doses warrants continued monitoring as this practice may reflect larger quantities or more potent opioids.

EMS INDEX

PATIENTS WITH SUSPECTED OPIOID OVERDOSE



BEST PRACTICES



Continuously monitor suspected overdose incidents to identify and anticipate trends.



Develop harm reduction strategies through geospatial analysis to target areas most affected by opioid misuse. This includes promoting the availability of take-home naloxone kits and fentanyl test strips. Create community access to follow-up services and referrals for patients treated for opioid overdose who are not transported by EMS.



Stay updated on the current evidence-based recommendations for EMS administration of naloxone in patients with suspected opioid overdose and work on protocols that ensure comprehensive care for patients post-naloxone administration. Include guidance related to titration of naloxone to avoid inducing severe withdrawal symptoms.



Use the clinical opiate withdrawal scale (COWS) to measure and monitor symptoms for patients experiencing withdrawal. Consider partnering with EDs to offer early buprenorphine initiation, which is often effective for treating withdrawal symptoms and can result in higher rates of engagement and retention in recovery treatment programs.



Align treatment protocols with the latest evidence for patient safety following opioid overdose. Encourage clinicians to practice therapeutic communication and avoid high-risk refusal for patients who would benefit from ED transport.

CONCLUSION

SO, WHAT DOES THIS MEAN?

This index scratches the surface of all the variables that contribute to the industry providing high-quality prehospital care for all. Through continued research and data-driven discussions, we can work towards eliminating disparities and providing more equitable healthcare across the board.

There are racial disparities in the analgesic administration for long-bone fractures. Standardizing practices and incorporating disaggregated data into quality management processes can be powerful tools for reducing inequities and improving care delivery.

Documented stroke bundles for patients with ED-diagnosed stroke is particularly troubling at approximately one in three patients. Use this opportunity to review your policies and training toward stroke assessment and documentation.

Only 10% of combative patients needing intramuscular sedation had RASS documented. Removing barriers in documentation and mandating within practices is a good start in increasing this number.

If your hospital partner isn't hitting the 20-minute marker that nearly 88% of patient offload times hit, work together to find ways to improve on this number.

With fewer than one in four patients who suffered cardiac arrest receiving CPR prior to EMS arrival, it's vital to start community outreach programs that improve these numbers.

Creating a culture of safety around reporting critical incidents, ensuring appropriate follow up, and improving access to resources is key to supporting the mental well-being of your team.

About 2% of EMS calls were for patients with suspected overdoses. Having processes and training in place to ensure your clinicians are set up for success in treating patients with overdose will help set the course to patient recovery.

Racial and ethnic disparities in care are common across a variety of metrics. Routine monitoring and root cause analysis are key to designing effective 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 3,016 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 more than 12 million anonymized 911 calls between January 1, and December 31, 2023, representing a full calendar year.

HOW SHOULD YOU USE THIS INFORMATION?

Use the 2024 ESO EMS Index as a guide for better analyzing and understanding your own data in the selected areas. While the metrics are not meant to be exhaustive, they are a good benchmark for creating your own goals for your organization. It's important to note that your agency is unique in its own strengths and structure, so hitting the national average may not be attainable for every metric.

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ESO'S MISSION

ESO's 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.

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