2025 ESO EMS INDEX

INSIGHTS AND BEST PRACTICES FOR EMS AGENCIES

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CONTEXT AND OVERVIEW FOR THE INDEX

For EMS professionals, the mission is clear and consistent: deliver timely, high-quality care to every patient. Yet data shows that disparities in patient care and outcomes persist. The ESO EMS Index highlights progress, ongoing challenges, and growth opportunities in the industry by offering a wide lens on aggregate data from across the United States. Compiling data from 3,039 participating agencies and representing 12.5 million 911 records from January 1 – December 31, 2024, the 2025 ESO EMS Index is designed to help agencies benchmark and compare their performance. The data presented also offers insights into further conversations about equitable care and encourages innovation that enhances patient outcomes.

The data is not only informative but actionable. We believe that integrating accurate data reporting, systematic surveillance, and meaningful measures can propel EMS agencies to improve the health and safety of their communities.

Now in its eighth edition, the 2025 ESO EMS Index features two reoccurring metrics and introduces five new ones. The returning metrics include analgesic administration for patients with long bone fractures and EMS administration of naloxone for patients with suspected opioid overdose.

New measures include invasive airway confirmation with waveform capnography based on a measure from the National EMS Quality Alliance (NEMSQA), along with the exploration of prehospital management of obstetric emergencies.

The 2025 ESO EMS Index now also features additional surveillance metrics to help monitor trends over time. These include prehospital whole blood usage and encounters for behavioral health in pediatric patients.

Questions this white paper can answer

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

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

Are we consistently confirming and documenting invasive airway placements using waveform capnography?

Are we appropriately recognizing and treating hypertension and postpartum hemorrhage in pregnant and postpartum patients?

Should our agency adopt or expand a whole blood program to improve outcomes for patients with life-threatening hemorrhage?

How can we better prepare to assess and manage behavioral health and substance use emergencies in pediatric patients?

What strategies can we implement to identify and support high-utilization patients? How can we reduce repeat EMS activations and improve outcomes?

3,037
AGENCIES

12,527,211
RECORDS

LIMITATIONS

This Index is retrospective and looks at aggregate data from 2024. There are no universal rules designed around these measures. The purpose of the ESO EMS Index is to be informative and directional. This document is intended to serve as a body of literature that adds to the discussion about EMS best practices and quality improvement efforts to enhance patient outcomes. It is not meant as a scientific study nor comprehensive in nature.

KEY METRICS

ANALGESIC ADMINISTRATION FOR LONG BONE FRACTURES

PATIENTS WITH SUSPECTED OPIOID OVERDOSE

NEW!
INVASIVE AIRWAY CONFIRMATION

NEW!
OBSTETRIC EMERGENCIES

NEW!
PREHOSPITAL WHOLE BLOOD SURVEILLANCE

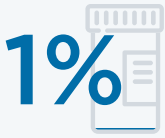
NEW!
BEHAVIORAL HEALTH EMERGENCIES IN PEDIATRIC PATIENTS

NEW!
HIGH UTILIZATION GROUPS

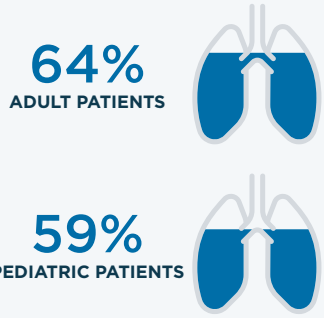
KEY FINDINGS

Despite EMS documentation of severe pain, nearly one in three patients with long bone fractures did not receive prehospital analgesics.

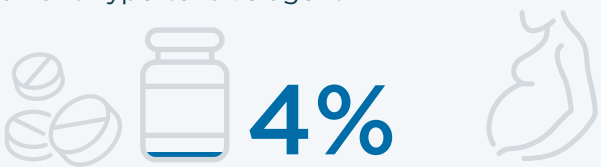
Patients with suspected opioid overdoses accounted for 1% of all EMS calls, down from 2% of all calls in the 2024 ESO EMS Index.

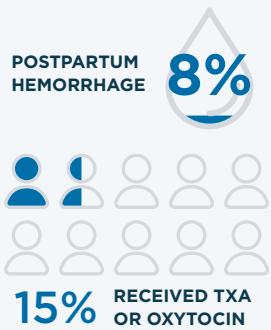


64% of invasive airway procedures in adult patients and 59% in pediatric patients include proper documentation of placement using waveform capnography, the gold standard.



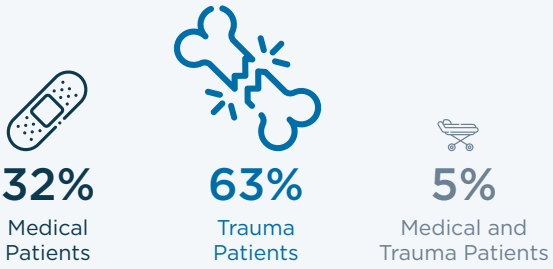
4% of advanced life support (ALS) obstetric patients with documented pregnancy of 20 weeks or greater and severe hypertension (SBP => 160 or DBP >= 110) received prehospital magnesium sulfate or an antihypertensive agent.





Among EMS responses for labor and delivery, 8% had a primary or secondary impression of postpartum or immediate postpartum hemorrhage. Nearly 15% of those patients received TXA or oxytocin.

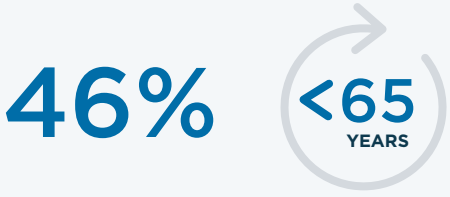
Out of 1.9K patients who received prehospital blood administration, 32% were medical patients, 63% were trauma patients, and 5% were both medical and trauma patients.



Most EMS-transported children with behavioral health emergencies were discharged from the Emergency Department (ED), highlighting an opportunity to evaluate optimal alternative care settings.

One in five patients (20%) had two or more EMS encounters in the same year, and about 2% of patients had six or more EMS encounters.

Almost half (46%) of the patients who used EMS two or more times were under 65 years of age.



METRIC 1

PREHOSPITAL ANALGESIC ADMINISTRATION FOR PATIENTS WITH LONG BONE FRACTURES

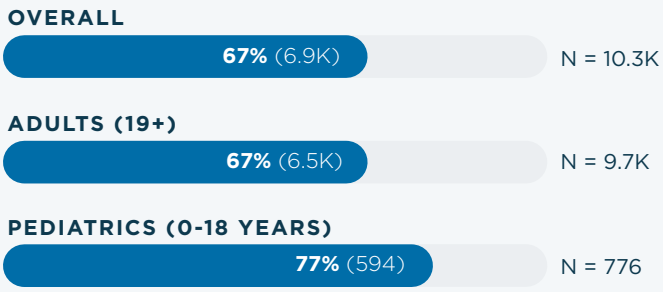
Pain is a frequent presentation among prehospital patients, yet undertreating pain remains common. In 2022, a technical expert panel released an evidence-based guideline for prehospital pain management.[1] These guidelines highlighted a variety of effective options – in addition to opioids – for treating patients suffering from acute moderate to severe pain.[2]

Treating pain in the prehospital setting is critical, as EMS can alleviate pain early and kick off diagnostic momentum. Plus, we know that patients given analgesics by EMS are more likely to get continued analgesics in the ED.[3] Despite increased attention and promotion of equitable pain management, undertreatment of pain continues, and it is disproportionately experienced by patients of racial and ethnic minorities.[4]

This is the second year the ESO EMS Index has explored analgesic administration for patients with long bone fractures. Specifically, this metric looks at EMS analgesic administration for patients diagnosed with long bone fractures and a prehospital pain score indicating severe pain (7 or more on the 0-10 scale).

Chart 1

Analgesic Administration for Long Bone Fractures and Severe Pain by Age Group



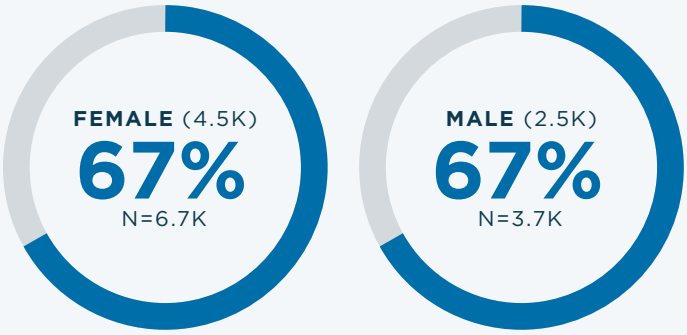
The 2025 ESO EMS Index findings showed a drop in pain medication administration. Despite EMS documentation of severe pain, analgesics provided to adult patients in this category decreased by 6%, from 73% in the 2024 ESO EMS Index to 67% in the 2025 ESO EMS Index. For pediatric patients, it fell by a comparatively lower percentage of 2%.

Children below 18 years of age were slightly more likely to receive analgesics compared to adults (77% versus 67%).

To read more on the evidence 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," and learn more about the **ESO Data Collaborative**.

Chart 2

Analgesic Administration for Long Bone Fractures and Severe Pain by Gender

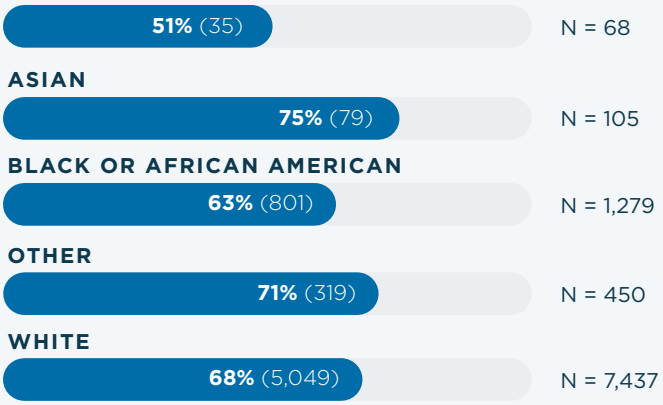


METRIC 1

PREHOSPITAL ANALGESIC ADMINISTRATION FOR PATIENTS WITH LONG BONE FRACTURES

Chart 3

Analgesic Administration for Long Bone Fractures and Severe Pain by Race and Ethnicity*



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

Charts 2 and 3 show a breakdown of analgesic administration for patients with long bone fractures and severe pain by patient characteristics. Overall, only 67% of patients received analgesics by EMS, meaning that nearly one in three patients did not receive medication for their pain in the prehospital setting.

Prehospital analgesic administration was similar across patient genders. Consistent with previous research, racial and ethnic differences emerged, with only 51% of Native American or Alaskan Native patients receiving analgesics compared to 68% of White patients.

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) and a documented pain score of seven or higher 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.

METRIC 1

PREHOSPITAL ANALGESIC ADMINISTRATION FOR PATIENTS WITH LONG BONE FRACTURES

BEST PRACTICES:

Follow evidence-based practices as outlined in the 2022 guidelines on prehospital pain management.[5] Compare your existing protocols with its recommended model EMS protocol.

Keep non-IV options available to avoid needing to place an IV catheter. Intranasal and oral options can increase the likelihood of a patient accepting the intervention.[6]

Engage in shared decision-making with patients and consider non-opioid medications. For instance, 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.

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

Don't wait to administer pain medication. Even though a hospital may be nearby, on average, patients wait more than 62 minutes for analgesics after ED arrival.[7] Patients given analgesics by EMS are more likely to get continued analgesics in the ED.[8]

METRIC 2

PATIENTS WITH SUSPECTED OPIOID OVERDOSE

Opioid use disorder (OUD) remains a significant and widespread public health concern in the U.S., with more than 84K overdose deaths annually.[9] However, for the first time since 2018, the Centers for Disease Prevention (CDC) reported a 10% decline in overdose-related deaths from 2022 to 2023.[10] This news is long-awaited and encouraging. While the decrease is likely due to a number of reasons, increased access to naloxone may play an important role.

In the 2025 EMS Index, ESO continued to monitor EMS encounters involving a suspected opioid overdose, including the administration of naloxone. EMS responded to 136.3K calls for patients with suspected opioid overdoses, accounting for 1% of all EMS calls, a decrease from 2% of all EMS calls in the 2024 ESO EMS Index.

Chart 4

Patients with Suspected Opioid Overdose by Gender

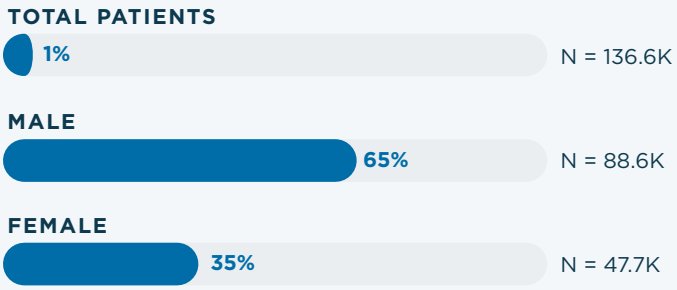
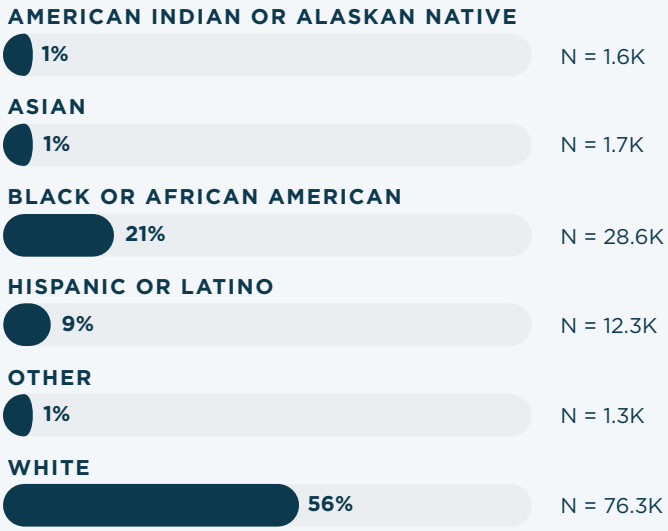


Chart 5

Patients with Suspected Opioid Overdose by Race and Ethnicity*



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

Charts 4 and 5 show the total 911 responses for patients with suspected opioid overdose by characteristics. The median age was 42 years, and approximately two-thirds (65%) of patients were male. Overall, 56% of EMS responses involved patients documented as White, non-Hispanic, followed by 21% of patients who were Black or African American, non-Hispanic.

METRIC 2

PATIENTS WITH SUSPECTED OPIOID OVERDOSE

Chart 6

Naloxone Dosage Administrations Per Patient

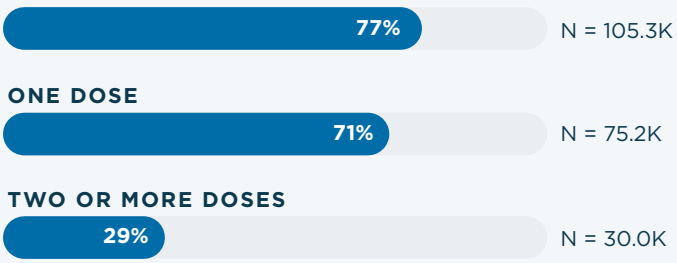


Chart 6 describes naloxone administration. In total, 77% of patients with suspected opioid overdose received naloxone. Of those who received naloxone, 29% received two or more doses.

Medication for OUD has been shown to be a safe and effective treatment. Increasingly, EMS agencies are adopting protocols to initiate buprenorphine in the prehospital setting as it treats withdrawal symptoms and can result in higher rates of engagement and retention in recovery treatment programs.[11] In the 2025 ESO EMS Index, 291 patients received buprenorphine from EMS.

BEST PRACTICES:

- Continuously monitor the volume of suspected overdose incidents to identify and anticipate trends.
- Use data to better understand and visualize your community's specific patient population. Develop harm reduction strategies through geospatial analysis to identify the areas most affected by OUD and better target resources for your community. This includes promoting the availability of take-home naloxone kits and fentanyl test strips as legal.
- Create community access to follow-up services and referrals for patients treated for opioid overdose who were 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 after 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.[12]
- Consider partnering with EDs to offer prehospital buprenorphine. A 2025 scoping review and consensus recommendation provides important guidance for those seeking prehospital buprenorphine programs.[13]
- Align treatment protocols with the latest evidence for patient safety following opioid overdose. Encourage professionals to practice therapeutic communication and avoid high-risk non-transport for patients who would benefit from ED transport.

METRIC 3

INVASIVE AIRWAY CONFIRMATION USING WAVEFORM CAPNOGRAPHY

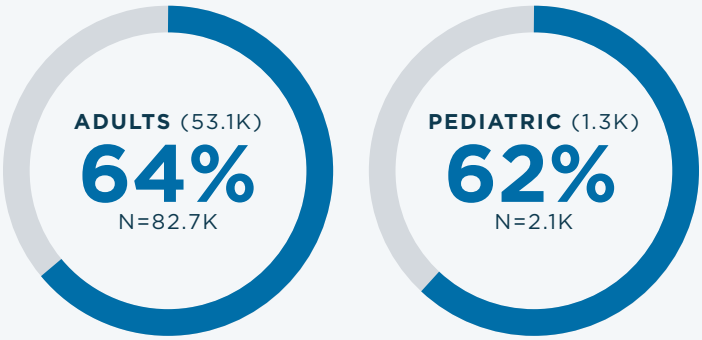
New to the 2025 ESO EMS Index, ESO examined invasive airway confirmation. In October 2024, the National EMS Quality Alliance (NEMSQA) released a report to help EMS agencies evaluate airway placement performance for better patient outcomes.[14] However, this NEMSQA measure could not be calculated in the report as the variables were unavailable in the NEMSIS dataset. The ESO data can help set the national benchmark.

Ensuring the correct placement of invasive airways, including endotracheal tubes (ETTs) and supraglottic airways (SGAs), is crucial for patient safety. Unrecognized esophageal intubation significantly increases mortality rates.[15] Waveform capnography is the gold standard for confirming invasive airway placement due to its accuracy, reliability, and continuous monitoring capabilities.[16]

In the 2025 ESO EMS Index, this measure focuses on using waveform capnography to confirm and monitor invasive airway placement.[17]

Chart 7

Percentage of Patients with Waveform $ETCO_2$ Documented



As shown in Chart 7, 64% of invasive airway procedures in adult patients and 62% of pediatric patients include documentation confirming waveform capnography.

We recognize that true clinical performance may exceed what is reflected in the data. However, consistent, standardized documentation practices are essential to demonstrate performance reliably.

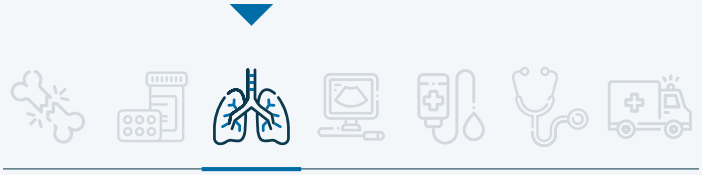
MEASURE DEFINITION

Invasive airway confirmation

Successful last invasive airway procedures performed during an EMS response originating from a 911 request in which waveform capnography is used for placement confirmation.

METRIC 3

INVASIVE AIRWAY CONFIRMATION USING WAVEFORM CAPNOGRAPHY



BEST PRACTICES:

Ensure that all EMS professionals receive training in using waveform capnography. Provide regular competency assessments and simulations to improve proficiency and confidence in interpreting data.[18]

Regularly inspect and maintain capnography equipment. Calibration and routine checks prevent technical issues that could compromise patient monitoring.

Combine capnography data with clinical assessments, including auscultation and observation of chest rise, to confirm ETT placement. This multimodal approach enhances the accuracy of airway management.[19]

Basic life support (BLS) agencies using invasive airways should ensure waveform capnography confirmation capabilities for patient safety.

Encourage documentation of the invasive airway placement confirmation method using the discrete fields in the EHR. Documenting in free text creates inconsistent data and limits reliability.

METRIC 4

OBSTETRIC EMERGENCIES

Complications related to pregnancy can occur during pregnancy, labor, and delivery, but also up to one year postpartum. Among all pregnancy-related deaths in the U.S., 53% happen between seven days and 12 months after the end of pregnancy, and, according to the American College of Obstetricians and Gynecologists (ACOG), 84% are preventable.[20]

Complications related to pregnancy include cardiovascular conditions such as cardiomyopathy; hemorrhage; hypertensive emergencies such as preeclampsia, eclampsia, and stroke; and mental health conditions such as depression and suicidal ideation.[21] Many obstetric emergencies can be life-threatening yet present without obvious symptoms.

The 2025 ESO EMS Index includes two new measures related to obstetric emergencies: severe hypertension in pregnancy and postpartum hemorrhage. There were 88.4K documented 911 encounters with pregnant patients. The median age among this patient population was 27 years. More than half of those patients were at least 20 weeks gestation.

Chart 8

Patients with a Documented Pregnancy

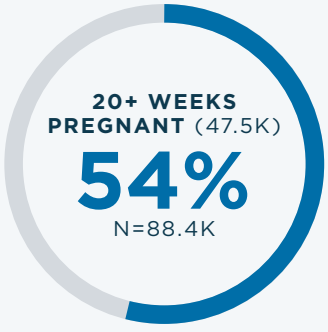
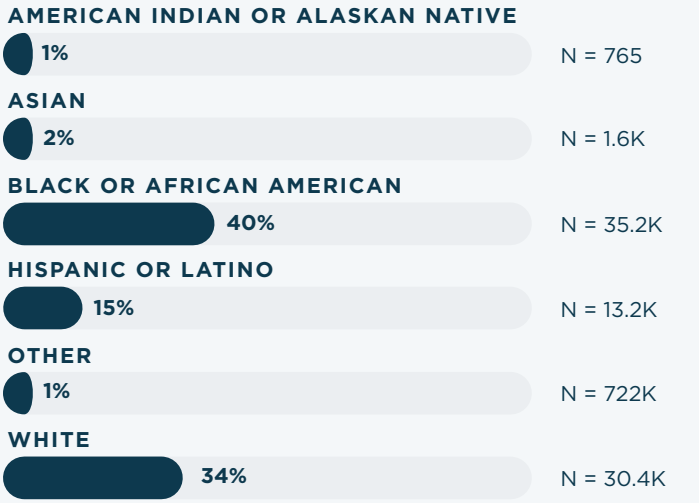


Chart 9 shows the breakdown by race and ethnicity for pregnant patients. Black patients make up 40% of this group with approximately 35.2K pregnancies, followed by White patients at approximately 30.4K patients.

Chart 9

Demographic Distribution of Patients with a Documented Pregnancy



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

HYPERTENSION

Elevated blood pressure in pregnancy and postpartum patients is dangerous yet often presents with few symptoms. Hypertensive disorders in pregnancy remain a leading source of maternal mortality. One study found that less than 1% of patients reported known hypertension, and just over 1% reported a headache, yet 32% were hypertensive on EMS examination.[22]

A patient with severe hypertension after 20 weeks of gestation and up to six weeks postpartum may indicate preeclampsia. Preeclampsia occurs in 3% to 6% of all pregnancies[23] and is 1.5 to two times higher in first-time pregnancies.[24]

In some cases, preeclampsia warrants immediate intervention. ACOG defines preeclampsia with severe features when systolic blood pressure (SBP) is greater than or equal to 160 mmHg, or diastolic blood pressure (DBP) is greater than or equal to 110 mmHg and is sustained for 15 minutes.[25] New guidance from multiple professional medical societies (including ACOG and the American College of Emergency Physicians) now recommends treatment with antihypertensives and magnesium sulfate in the inpatient setting if these hypertensive conditions for preeclampsia with severe features are met.

METRIC 4

OBSTETRIC EMERGENCIES

In contrast, EMS protocols have traditionally called for treatment when there is both hypertension and at least one additional clinical sign or symptom (headache, visual changes, altered mental status, etc). As we do not yet have specific recommendations for the out-of-hospital treatment of isolated hypertension in this patient population, we added this new measure to obtain a baseline of current EMS practice.

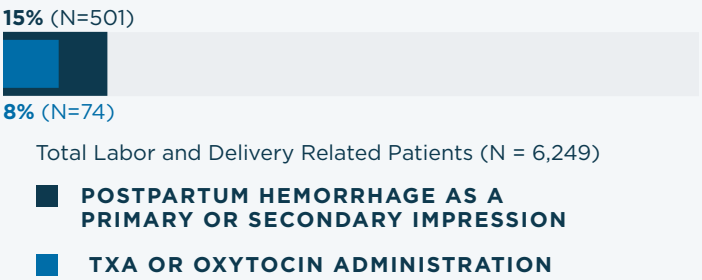
There were 29.8K ALS patients with a documented pregnancy of 20 weeks or greater. Among these patients, 13% (3.8K) had an elevated SBP of 160 mmHg or higher or DBP of 110 mmHg or higher. Within that group of 13%, 157 patients (4%) received an antihypertensive agent and/or magnesium sulfate.

POSTPARTUM HEMORRHAGE

According to the CDC, the U.S. has the highest maternal mortality rate among industrialized countries, with postpartum hemorrhage as the second-highest cause of maternal death.[26] Postpartum hemorrhages are time-critical complications requiring immediate intervention. Moreover, available data highlights a well-documented racial and ethnic disparity, with Black women in the U.S. more likely to die from postpartum complications, including hemorrhage-related complications, compared to White women.[27]

Chart 10

Patients with Postpartum Hemorrhage

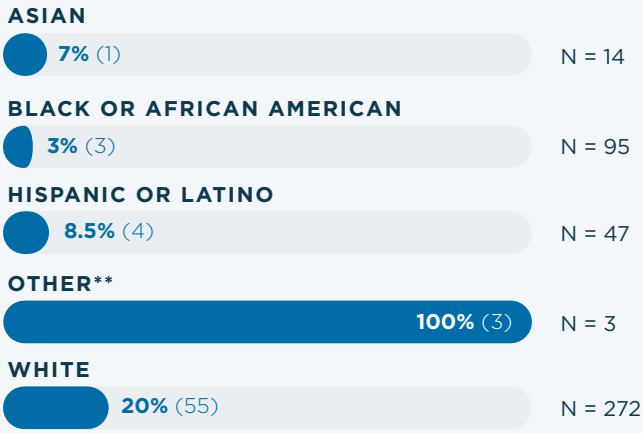


There were 6.2K EMS responses related to labor and delivery. The median age among this patient population was 30 years, and 501 patients (8%) had a documented primary or secondary impression of postpartum or immediate postpartum hemorrhage. 74 (15%) of these patients received tranexamic acid (TXA) or oxytocin as prehospital treatment.

Looking at race and ethnicity, White patients accounted for more than half (54%) of the total patients with postpartum hemorrhage, and 20% of them received prehospital TXA or oxytocin. Nineteen percent of patients with postpartum hemorrhage were Black or African American, and 3% received TXA or oxytocin. 9% of patients with postpartum hemorrhage identified as Hispanic or Latino, and 8.5% received TXA or oxytocin.

Chart 11

Demographics of Patients with Postpartum Hemorrhage*

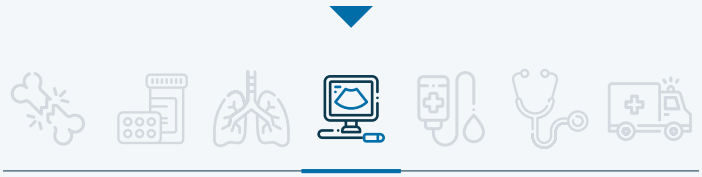


**More than one race or ethnicity may be documented for a patient.*

*** Given the low number of patients, "Other" includes American Indian/Alaskan Native, Middle Eastern, and Native Hawaiian or other Pacific Islander*

METRIC 4

OBSTETRIC EMERGENCIES



BEST PRACTICES:

There is still much to learn about best practices for the treatment of patients with prehospital obstetric complications.[28] However, evidence supports the following:

An elevated blood pressure may be the only atypical vital sign and should not be ignored. EMS professionals should start with an assumption of hypertension in all patients with pregnancy and postpartum until proven otherwise.

To improve patient outcomes, early recognition of excessive hemorrhage and the availability of resources to escalate to more aggressive interventions are critical. Increase the availability of medications for patients with obstetric emergencies, such as magnesium sulfate, other antihypertensives, TXA, and/or oxytocin in ambulances.[29]

Ensure adequate training for paramedics to safely conduct obstetric emergency interventions.

When noninvasive interventions such as external uterine massage for postpartum hemorrhage fail, EMS clinicians need the ability to progress to pharmaceutical interventions such as oxytocin or tranexamic acid (TXA).

Prioritize research on prehospital treatment of patients with obstetric complications, with a goal of developing evidence-based standard protocols.

Significantly increase EMS clinician exposure to obstetric patients and EMS education requirements.[30]

Refer to new model EMS guidelines released by NAEMSP, developed in collaboration with ACOG, which offer specific guidance for managing obstetric emergencies in the field. These are available at NAEMSP.org and include:

- **Postpartum Hemorrhage**
- **Elevated Blood Pressure in Pregnancy and Postpartum**
- **Eclampsia**

METRIC 5

PREHOSPITAL WHOLE BLOOD SURVEILLANCE

Prehospital administration of whole blood is an emerging intervention that may improve outcomes for critically ill trauma patients experiencing significant blood loss. By initiating transfusion early, EMS can address severe hemorrhage more effectively, stabilize vital signs, and reduce the risk of coagulopathy associated with trauma.

The number of EMS agencies transfusing prehospital blood continues growing, from seven in 2018 to 156 and counting.[31] EMS professionals administering whole blood to critically ill and injured patients is practical, feasible, and associated with a low risk of adverse events. Multiple research studies support using whole blood in prehospital settings:

- Compared to component therapy, Low-titer O whole blood transfusion is associated with better patient outcomes, decreased risk of administration error, and simplified transfusion logistics.[32, 33]
- In patients experiencing hemorrhagic shock, whole blood transfusion is associated with improved survival and decreased overall blood use compared to packed red blood cells (PRBCs).[34]
- Prehospital blood product transfusion for combat casualties in Afghanistan demonstrated a 20-fold survival benefit when whole blood was given within 34 minutes of injury.[35]
- Trauma patients experiencing hemorrhagic shock who received prehospital whole blood transfusion had a greater improvement in shock index and a reduction in early mortality.[36]

When evaluating if your EMS agency should set up a whole blood program, several factors must be considered. These include the availability of trauma resources, the average transport times to a trauma center, and the number of patients your agency serves who could benefit from whole blood administration. Additionally, it's essential to take into account the logistical challenges of storing and handling whole blood, the potential impact on local blood bank(s), the training required for EMS personnel, and the potential effect on patient outcomes.

Chart 12

Incidents with Blood or Blood Product Administration by Encounter Type

Total (N = 1.9K)

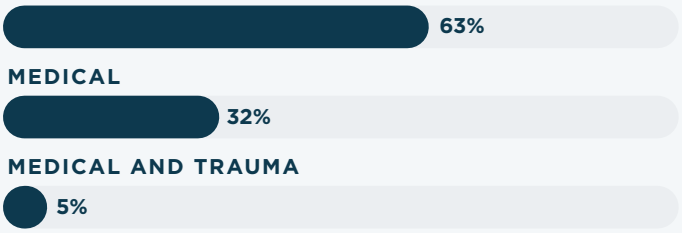


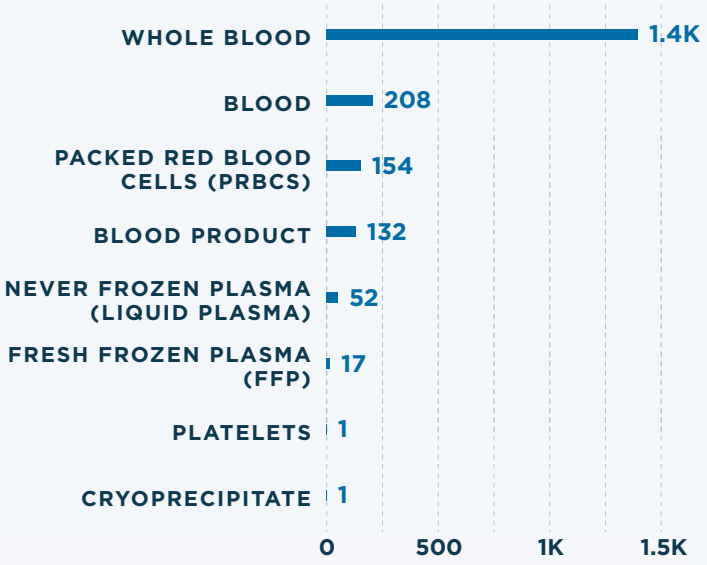
Chart 12 shows that almost one in three whole blood recipients is a medical patient, not someone who sustained an injury. Medical patients in need of whole blood most often experienced gastrointestinal bleeding or a complication related to pregnancy.

METRIC 5

PREHOSPITAL WHOLE BLOOD SURVEILLANCE

Chart 13

Blood Product Type Administered*



** Includes ground medical only, as air medical has long carried whole blood.*

An unexpected finding is the amount of whole blood in use, shown in Chart 13 since PRBCs are historically most used by EMS. However, the 2025 ESO EMS Index data indicates a shift, with whole blood as the most given blood product.

BEST PRACTICES:

Create clear protocols for appropriate whole blood handling and distribution, and conduct routine quality checks on compliance.

Build close relationships with community trauma centers and blood banks as part of a commitment to ensure that not a drop of blood is wasted.

EMS agencies that routinely carry whole blood should promote local blood drives and donate blood.

As evidence continues to support the benefits of rapid blood replacement, EMS agencies should consider adopting whole blood protocols to bridge the gap between injury and definitive hospital care.

METRIC 6

BEHAVIORAL HEALTH IN PEDIATRIC POPULATIONS

Nationally, pediatric behavioral health diagnoses are on the rise.[37] Unsurprisingly, this trend is mirrored in 911 calls. EMS professionals across the U.S. treat nearly two million pediatric patients annually, often serving as the first point of contact for children with behavioral health emergencies (BHE).[38] In fact, according to National EMS Information System Data (NEMSIS), mental health and behavioral emergencies are the second most common cause of EMS activation for patients less than 18 years old.[39] And it's not only behavioral health; adolescents with substance use disorders (SUD) often have high rates of co-occurring mental illness – perhaps 60% or more.[40]

Chart 14

Pediatric EMS Responses that are BHEs

As Chart 14 shows, among all pediatric EMS responses, 10% involved a behavioral health issue as the primary concern. Chart 15 lists the top five primary impressions of pediatric BHE: behavioral/psychiatric episode (47%), anxiety reaction/emotional upset (26%), suicidal ideation (13%), suicide attempt (7%), and mental disorder (3%).

Chart 15

Top Primary Impressions of Pediatric BHEs

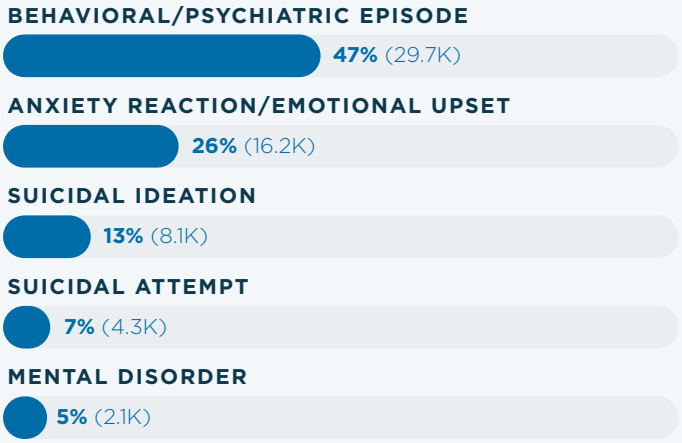
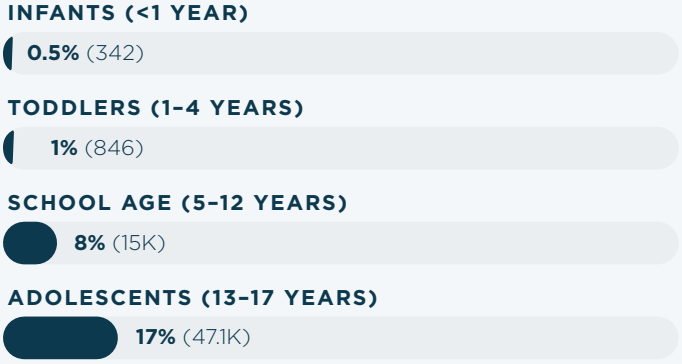


Chart 16

EMS Pediatric Responses that are BHEs, by Age



Examining data by age, Chart 16 shows that 1.5% of pediatric patients under five, including infants less than a year old, experienced a BHE. However, this number increases with age to 8% of school-aged patients five to 12 years, and 17% of adolescents 13 to 17 years.

METRIC 6

BEHAVIORAL HEALTH IN PEDIATRIC POPULATIONS

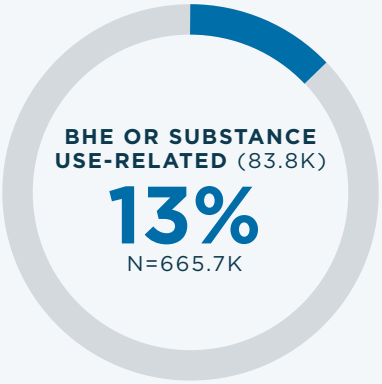
Most EMS-transported children with behavioral health emergencies were discharged from the ED, highlighting an opportunity to evaluate optimal alternative care settings.[41] The declining number of pediatric psychiatric facilities and providers contributes to increasing difficulty accessing appropriate care.[42]

The 2025 ESO EMS Index also explored the combination of pediatric BHE and substance use.

1 in 8 EMS encounters with pediatric patients involved behavioral health or substance use.

Chart 17

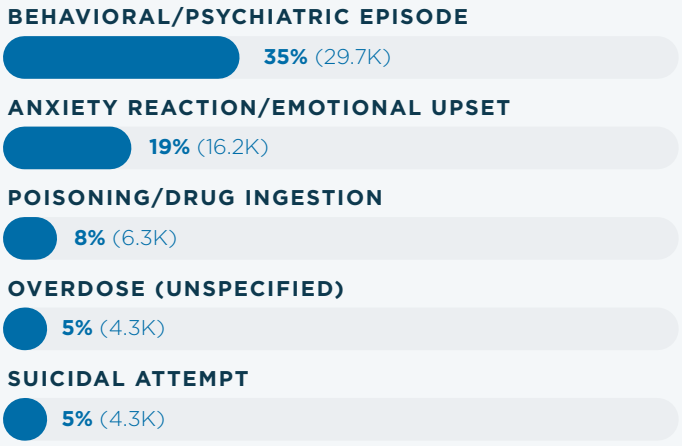
Pediatric EMS Responses that are Behavioral Health or Substance-use Related



As shown in Chart 17, the number of pediatric patients experiencing a BHE or substance use issue increased to 13% of all pediatric encounters. That means roughly one in eight EMS pediatric encounters involve behavioral health or substance use emergencies.

Chart 18

Primary Impressions of Pediatric Behavioral Health and Substance Use Emergencies



METRIC 6

BEHAVIORAL HEALTH IN PEDIATRIC POPULATIONS

Chart 19

EMS Pediatric Responses that are Substance Use or BHEs, by Age

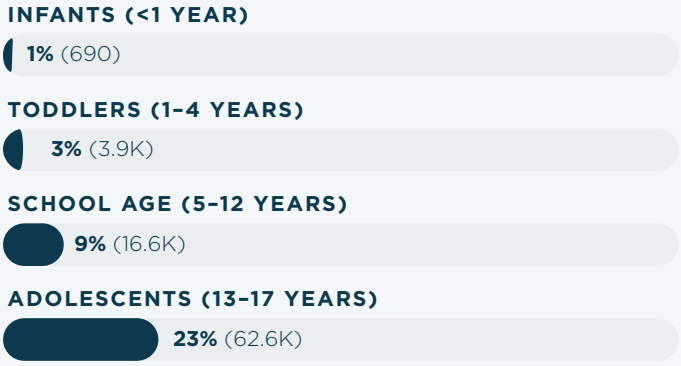


Chart 19 shows 4% of children under the age of five had a behavioral health emergency or substance use issue. This percentage increased to 9% among school-aged patients five to 12 years and jumped to 23% of adolescents aged 13 to 17 years.

Chart 20

Top Primary Impressions of EMS Pediatric Responses that are Substance Use or BHEs in Adolescents (13-17 years)

Chart 20 shows the top primary impressions among EMS pediatric responses that are substance use or BHEs in adolescents ages 13-17 years. They include behavior/psychiatric episode (34%), anxiety reaction/emotional upset (19%), suicidal ideation (11%), overdose-unspecified (7%), suicide attempt (6%), drug/poison ingestion, alcohol use and intoxication (6%), mental disorder (2%) and overdose-acetaminophen (1%).

METRIC 6

BEHAVIORAL HEALTH IN PEDIATRIC POPULATIONS

BEST PRACTICES:

Sparse research data and clinical EMS protocols exist for prehospital pediatric BHE management.[43] But there are pockets of progress.

A pilot project in Alameda County, California found that in the field, EMS professionals determined which children with a BHE could safely be diverted from an emergency department and transported to a psychiatric care facility instead.[44] The program reduced ED visits and provided more timely evaluation and treatment for pediatric patients with BHE.

Additionally, research supports the following practices:

- Integrate pediatric-relevant content into prearrival dispatch instructions as a standard procedure.[45]
- Reduce anxiety and agitation by approaching without lights or sirens, limiting the number of people interacting with the patient, and using a calm demeanor and tone of voice.[46]
- Offer materials for the patient to draw or write an answer, as the brain's language center can be blocked in hyperarousal states.[47]
- Expand training in pediatric and adolescent-specific de-escalation techniques for EMS to incorporate into assessing and managing BHE.[48] With limited numbers of pediatric interactions, EMS professionals may be less familiar with – and often less confident in – providing pediatric care.
- Ensure EMS professionals are familiar with pediatric medical diagnoses and neurological disorders that present with prominent psychiatric symptoms.[49]
- Implement EMS field-screening protocols to identify and medically clear pediatric patients with low-risk BHE for direct transportation to pediatric psychiatric services facilities rather than the ED.[50]
- Consider training EMS professionals in appropriate evaluation and management of severe agitation in pediatric patients, including how to safely administer relevant medications when indicated.[51]
- Know and follow written and documentation protocols for pediatric physical restraints.[52]
- Encourage EMS agencies to become "Pediatric Ready" or prepared to provide high-quality care for children following national recommendations.[53]

METRIC 7

HIGH UTILIZATION GROUP

Frequent, repeated visits by the same patient to the ED have been extensively documented in the U.S. and elsewhere.[54, 55] These patients are sometimes called "high utilizers." While high utilizers represent a small percentage of the total number of ED patients in the U.S., usually less than 6%, they account for a disproportionately high percentage of ED visits, often 20% or more.[56]

Less than 6% of ED patients account for 20% of all ED visits.

Frequent users are a uniquely vulnerable population with more challenges – including multiple chronic diseases, behavioral health issues, and lower income – than other ED patients.[57, 58] There is a sizable opportunity to improve health outcomes and equity by shifting nonemergent and chronic disease management to primary care settings.[59]

Historically, EMS data focused on episodes of care, making it difficult for EMS agencies to track patients who frequently use EMS services. However, in 2024, **ESO released an innovative longitudinal record ID** that allows EMS agencies to view their data through a patient-centered lens.

This 2025 ESO EMS Index is the first Index to use the longitudinal patient record ID to describe repeat patient encounters and high utilization groups.

Chart 21

Number of EMS Activations by Repeat Users

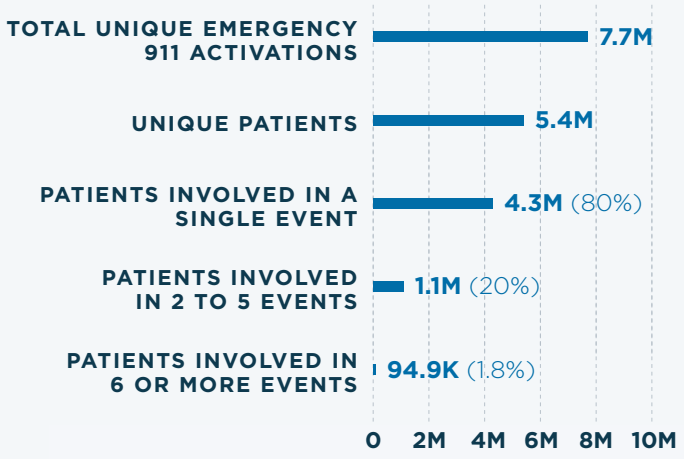


Chart 21 shows 7.7 million unique emergency 911 activations with patient contact among 5.4 million unique patients. Eighty percent (4.3 million) involved a single EMS event. Another 20% (1.1 million) patients used EMS services twice or more in the calendar year, and 1.8% (94.9K) accounted for six or more EMS activations. Among those with two or more EMS activations, about half (54%) were over 65 years of age.

METRIC 7

HIGH UTILIZATION GROUP

Chart 22

The Top 10 EMD Complaints Among Those with Two or More EMS Activations

Chart 22 shows the three most common complaints for patients with two or more activations: sick person (20%), falls (10%), and breathing problems (8%). Falls, especially in older adults, can cause injuries that are not obvious. A "simple fall" is one of the most common triggers for trauma center admissions in older adults and is associated with high 30-day and 1-year mortality rates.[60]

While frequent EMS users are a national problem, solutions must be local. For example, Williamson County EMS in Texas reduced repeat 911 calls by 80% over nine years through its Community Health Paramedic program.[61] The program targets high utilizers – those calling EMS three or more times in 90 days – by providing in-home care, chronic disease education, and service referrals. The program reduces unnecessary ED visits, saves money, and improves community health.

BEST PRACTICES:

- Accurately document all patient encounters to understand the scope of high utilizers in your community.
- Work with local resources and/or community paramedics to educate patients about their health, offer referrals, and alternatives to EMS transport.[62]
- Consider a quality or performance improvement goal around reducing high utilizers.
- Collaborate with hospital social workers to implement case management for frequent users.
- Conduct a thorough assessment for patients who have fallen or request a simple "lift assist." Err on the side of caution when deciding on transportation for this population.[63]
- Consider developing a community EMS program that can rapidly identify adults at risk for falls and provide proactive fall prevention interventions in the home.[64]

CONCLUSIONS

The 2025 ESO EMS Index offers a data-rich view into national EMS performance, highlighting both growth and gaps in prehospital care. By examining real-world trends across millions of records, this Index helps organizations celebrate success and prioritize opportunities to improve outcomes in their communities.

Pain remains undertreated, and disparities persist. Nearly one in three patients with long bone fractures and documented severe pain did not receive analgesics. Worse, racial disparities remain clear: only 51% of American Indian or Alaskan Native patients received pain medication, compared to 68% of White patients. Declines in analgesic use are a call to re-evaluate training, protocols, and documentation practices.

Suspected opioid overdose responses are down for the first time in years. While that's encouraging, 1% of all EMS responses still involved overdoses, and 29% of patients who received naloxone required more than one dose. Just 291 patients received buprenorphine, which can improve engagement in treatment and reduce opioid withdrawal symptoms. Expanding access to field-initiated buprenorphine protocols may be a critical next step.

Only 64% of invasive airways were confirmed with waveform capnography. This foundational safety tool must be reliably available, used, and documented. Documentation gaps may be masking better clinical practice, but without the data, EMS agencies can't prove performance.

Obstetric emergencies highlight two urgent concerns: hypertensive crises and postpartum hemorrhage. Among pregnant patients meeting clinical levels of severely elevated blood pressure, 4% received magnesium sulfate or an antihypertensive medication. For patients with postpartum hemorrhage, less than 15% received TXA or oxytocin. And the care gap was worse for Black patients. As maternal mortality rises in the U.S., EMS must be equipped with the medications, training, and protocols to act.

Data shows that whole blood has become the most commonly administered blood product in ground EMS care. Continued surveillance will help track outcomes, refine protocols, and guide its use across trauma and medical patients.

Behavioral health calls are growing for adolescents. One in eight pediatric encounters involved behavioral health or substance use concerns. This trend requires urgent investment in pediatric-relevant protocols, training in de-escalation, and safe diversion pathways that reduce ED overcrowding and connect children to timely care.

New insights on high utilizers show one in five patients used EMS two or more times per year. These patients often manage multiple chronic diseases, behavioral health challenges, and social instability. Programs like Community Paramedicine offer a proven path forward. Promising practices exist, such as Williamson County EMS reducing repeat calls by 80% through home-based care and proactive referrals.

As a final takeaway, remember that no one metric defines a successful EMS system, as each data point reveals a piece of the story. Together, these measures create a clear call to action:

- Close performance and equity gaps.
- Equip clinicians with the tools, training, and protocols they need.
- Know your data – not just to measure care, but to change patient outcomes.

We hope that you use the 2025 ESO EMS Index as a springboard for bold conversations, informed decisions, and improved community health and safety.

METHODOLOGY

The dataset for the 2025 ESO EMS Index report is real-world data, compiled and aggregated from 12,527,211 911 records that occurred between January 1 – December 31, 2024 across the United States.

Use the 2025 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.

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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