

Medical Direction Committee (MDC)

October 1, 2026 - 10:30 AM

Old Dominion EMS Alliance
7818 East Parham Road, Suite 911
Henrico, VA 23294

- 1. Call to Order and Welcome**
- 2. Remote Participation Approvals**
- 3. Approval of Agenda and Prior Minutes**
- 4. Special Reports**
 - Quarterly Data Report – Daisy Banta
 - Emergency Custody Orders (ECO) – Dr. Joran Sequeria, VACEP
- 5. DEA and Board of Pharmacy Compliance**
- 6. MDC Membership and Representation**
 - Governance/Executive Committee Update
 - Regional Medical Directors/Representatives
 - Ex Officio Membership
- 7. Old Business**
 - **Research Projects**
 1. Davin Combs, Carilion Clinic
 - **Workgroup Reports**
 1. Pediatric Pain Management
 2. MIH Toolkit
 3. Air Medical
 4. REVLS
 5. Trauma Triage Plan
 - **Trauma Care Committee Report**
- 8. New Business**
 - EMT-Intermediate – Established Chest Tube Maintenance
 - Liquid Plasma – AEMT/EMT-Intermediate

Medical Direction Committee (MDC)

- EMS Scope of Practice Review

12. OEMS Director's Report – Dr. Beermann-Foat

13. State Operational Medical Director Report

14. OEMS Questions/Discussion

15. Public Comment

16. Future Meetings

- January 7, 2027
- July 2027 Meeting Date
- NAEMSP Dinner – January 14, 2027

17. Adjournment

Pediatric Prehospital Pain Management in Virginia

A Position Statement and Resource Document of the Commonwealth of Virginia Medical Direction Committee

ABSTRACT

Pediatric pain is common in EMS and is frequently undertreated, a pattern documented repeatedly in national prehospital data where analgesia is delivered in only a minority of pediatric pain encounters, and importantly the least likely children to be treated include racial and ethnic minority children as well as younger.[2][3][4] In the available VAOEMS dashboard data for pediatric patients under 15 years of age, 21.7% of children with documented moderate pain scores (4–6) and 32.7% with documented severe pain scores (7–10) had documented analgesic administration.[7] Younger children had the lowest documented analgesia rates. A de-identified review of seven Virginia regional and local EMS protocol documents found broad access to opioid analgesia but substantial variation in pediatric pain scales, non-opioid options, ketamine availability, monitoring language, and QI expectations.[8] This position statement is intended to support OMD-led regional and agency protocol improvement through flexible, multimodal, age-appropriate pediatric pain care rather than a single statewide drug sequence, consistent with contemporary evidence that non-opioid and multimodal regimens can achieve pain relief comparable to opioid-containing regimens for common pediatric injuries.[15][16][17]

MDC BEST PRACTICE RECOMMENDATIONS

- Virginia EMS protocols are encouraged to include an OMD-approved, validated pediatric pain assessment tool such as Wong-Baker FACES or FPS-R for children able to self-report, and CRIES, FLACC, r-FLACC, EVENDOL, or an equivalent behavioral tool for infants, preverbal children, nonverbal children, or children with developmental differences.[10][11][12][13][14]
- When feasible, an initial pain score or behavioral pain assessment should be documented before intervention, with reassessment after non-pharmacologic or pharmacologic interventions, and at transfer of care. Systematic pain-score documentation remains low in prehospital pediatric care and is a prerequisite for equitable treatment.[3][7]
- A flexible, stepwise, multimodal approach is preferred. Because non-opioid regimens (ibuprofen alone or ibuprofen plus acetaminophen) provide analgesia comparable to opioid-containing regimens for acute musculoskeletal injury with far fewer adverse events, non-opioid therapy could be considered first-line pharmacologic strategy for mild-to-moderate pain.[15][16][17] Severe obvious injury, such as a long-bone fracture, may reasonably begin with a rapid intranasal or parenteral analgesic rather than waiting for an oral medication trial, with oral non-opioid therapy considered once the child is more comfortable.
- Non-pharmacologic care should be treated as an active intervention. Examples include caregiver presence, calm coaching, distraction chosen by the child or caregiver, dimming lights, reducing noise, comfort objects, sensory toys when available, splinting, traction when indicated, cold packs, wound/burn care, position of comfort, and nausea management.[16][24]
- Systems are encouraged to consider stocking and protocolizing at least one oral non-opioid analgesic and, when feasible, one IV non-opioid option to support opioid-sparing multimodal care.[15][17]
- Protocols authorizing opioids or ketamine should pair analgesia with safety language for mental status, respiratory status, SpO₂, blood pressure, pain-score reassessment, and ETCO₂/capnography when available or locally expected.[18][19][22]
- A locally approved pediatric dosing system, length-based tape, Handtevy-style reference, or equivalent drug card is recommended to reduce weight-based dosing error.[22][29]
- Regional and agency QI programs are encouraged to follow pediatric pain score documentation, analgesia eligibility, time to first analgesic, reassessment, adverse respiratory events, and untreated moderate/severe pain by age group, with explicit attention to equity across age and demographic groups.[2][4][29]

SUGGESTED MEDICATION FRAMEWORK FOR LOCAL OMD/PHARMACY REVIEW

Doses below are a discussion framework derived from the submitted MDC recommendations and reviewed protocols. Final protocol language should verify concentration, route availability, intranasal volume limits, repeat-dose timing, cumulative maximums, age/weight restrictions, contraindications, and local scope.

Medication/intervention	Possible dose framework	Implementation notes
Ondansetron	0.15 mg/kg, max 4 mg IV/IO/IM/PO per local route approval.	Consider for associated nausea/vomiting or when nausea is anticipated with opioid or ketamine therapy.[16]
Acetaminophen / Tylenol	15 mg/kg every 6 hours as needed; max 1 g PO or IV. IV dose over 15 minutes.	Same dose may be used for fever. Consider avoiding if acetaminophen given within prior 4 hours, hepatic disease, chronic alcohol use, or allergy. Effective as monotherapy or combined with ibuprofen for many injuries.[15][16]
Ibuprofen / Motrin / Advil	10 mg/kg every 6 hours as needed; max 400 mg PO.	Same dose may be used for fever. First-line NSAID with the most favorable benefit–harm profile for pediatric acute

Medication/intervention	Possible dose framework	Implementation notes
		pain.[15][17] Consider avoiding if NSAID within prior 6 hours, bleeding risk/history, renal dysfunction/chronic kidney disease, or allergy. Do not utilize in children less than 6 months of age.
Ketorolac / Toradol	0.5 mg/kg IV/IM every 6 hours as needed; max 15 mg IV/IM.	Parenteral NSAID option for opioid-sparing care. Consider avoiding if NSAID within prior 6 hours, bleeding risk/history, renal dysfunction/chronic kidney disease, or allergy. Caution in children less than 2 years of age.
Fentanyl	IN: 1.5 mcg/kg, max 100 mcg; split between nares. Repeat q10 min, max 2 doses. IV: 1 mcg/kg, max 100 mcg; repeat x1. IM: 1 mcg/kg, max 100 mcg; repeat x1.	Rapid IN option is useful when IV access is not present and is an underutilized modality in injured children.[3][23] Onset of analgesia is somewhat slower than IV opioids, so expect maximal effect at 20–30 minutes.[21] Use caution with head injury/increased ICP, COPD, liver/kidney dysfunction. Avoid with MAOI use within 14 days. Rare chest wall rigidity with rapid administration; mitigate with slow push, have naloxone and BVM ready.
Ketamine	Pain (sub-dissociative) dose: 0.2 mg/kg IV, max 15 mg, repeat x1. IN pain dose: 0.5 mg/kg. Dissociative dosing: 1.5 mg/kg, consider max 50 mg, repeat x1.	Effective opioid-alternative analgesic; prehospital and ED data show pain reduction comparable or superior to opioids with rare, serious adverse events.[6][18][20] Prepare caregivers for altered perception, vivid dreams, nystagmus, and transient dysphoria; mild transient adverse effects and light sedation are more common than with fentanyl.[20][21] Calm coaching and reassurance are helpful. Consider ondansetron. Use ETCO ₂ /capnography when available because rare laryngospasm may occur. Consider mixing pain-dose ketamine in a 100 cc IVF bag for slower infusion. Per the ACEP/NAEMSP joint statement, weight- or length-based dosing is essential and use in children <3 months is generally avoided.[22]
Morphine	IV/IO: 0.1 mg/kg; max single dose 5 mg.	May be useful when vascular access is already present. Patients with sickle cell disease may need higher total dosing, up to 10 mg, under local protocol or medical-control guidance.
IO infusion discomfort	If IO access is otherwise clinically indicated, consider preservative-free 1% lidocaine 0.5 mg/kg, max 40 mg, slowly over 2 minutes; dwell at least 60 seconds. For prolonged IO use, consider redosing at 50% initial dose.	IO access should generally not be established solely for analgesia. Consider when IV access is not obtainable and rapid, reliable access is clinically needed.

INTRODUCTION

Relief of pain and suffering is a central goal of prehospital care. In children, pain is not only a symptom but also a developmental and emotional experience that may be difficult to quantify. Children may under-report pain, may be unable to self-report, or may demonstrate distress through behavior rather than verbal description.[14]

Undertreatment of pediatric pain in EMS is well documented nationally. Analysis of the National EMS Information System (NEMSIS) has shown that pain is documented as a symptom in fewer than one-third of potentially painful encounters and that only about 16% of children with injury receive prehospital analgesia, with the youngest children least likely to have pain documented or treated.[2] These gaps persist even where evidence-based guidelines and age-appropriate pain scales have been adopted.[3] They are also inequitable: Black children with documented pain have historically been least likely to receive analgesia, and a single-center pediatric trauma cohort found Black or Hispanic children were 20% to 23% less likely to receive prehospital pain medication than White children after adjustment for clinical need and family preference.[2][4] Frequently cited barriers by EMS clinicians have identified difficulty assessing pediatric pain, discomfort with pediatric dosing, difficulty obtaining IV access, and caregiver and clinician concerns about opioids.[5][6]

The goal of this position statement is to support consistent, age-appropriate pediatric pain assessment, timely analgesia, and safe monitoring while preserving regional and agency OMD discretion.

METHODS AND SCOPE

The protocol review included seven submitted Virginia regional or local EMS protocol documents from 2025–2026. To reduce agency-to-agency comparison and focus on statewide recommendation, individual regional or local

protocol sets are not named. VAOEMS dashboard regional council data are presented by the regional council format used in the source dashboard, because council-level variation is directly relevant to statewide and regional quality-improvement planning.[7][8]

VAOEMS pain dashboard data supplied for this project were reviewed for pediatric patients under 15 years of age with documented pain scores of 4–6 and 7–10, covering October 2023 through December 2025 and updated April 1, 2026. Dashboard values may not capture undocumented pain treatment, contraindications, patient refusal, medical-control decisions, or non-pharmacologic interventions.[7]

Limitations: Written protocol language may not reflect actual medication stocking, agency-level OMD restrictions, local credentialing, drug-box exchange rules, or medical-control alternatives. Counts should be interpreted as protocol-access indicators, not as compliance judgments.

VAOEMS PEDIATRIC PAIN ADMINISTRATION DATA

The VAOEMS dashboard data demonstrate a substantial opportunity for pediatric pain improvement. Among children under 15 years old with documented moderate or severe pain scores, most did not have documented analgesic administration. The regional council data are retained by name in this section to support council-level QI interpretation; this is separate from the de-identified protocol feature review below.[7]

Pain score range	Patients	With documented analgesia	No documented analgesia	Analgesia rate
4–6	5,206	1,129	4,077	21.7%
7–10	4,746	1,554	3,192	32.7%
4–10 combined	9,952	2,683	7,269	27.0%

The youngest children had the lowest documented analgesia rates in both pain categories, mirroring the age-based disparity described in national NEMSIS data.[2][7]

Pain score	Age group	Patients	With analgesia	Without analgesia
4–6	0–4 years	1,029	169 (16.4%)	860 (83.6%)
4–6	5–12 years	2,785	608 (21.8%)	2,177 (78.2%)
4–6	13–17 years	1,392	352 (25.3%)	1,040 (74.7%)
7–10	0–4 years	573	154 (26.9%)	419 (73.1%)
7–10	5–12 years	2,613	851 (32.6%)	1,762 (67.4%)
7–10	13–17 years	1,560	549 (35.2%)	1,011 (64.8%)

Regional variation was also substantial. The VAOEMS regional council table is intentionally shown with council names so that the data can be used for statewide benchmarking and regional QI planning.

EMS Regional Council	Pain 4–6 with analgesia / total	Pain 7–10 with analgesia / total
Blue Ridge	56 / 236 (23.7%)	62 / 159 (39.0%)
Central Shenandoah	48 / 155 (31.0%)	70 / 189 (37.0%)
Lord Fairfax	15 / 98 (15.3%)	37 / 166 (22.3%)
Northern Virginia	271 / 1,366 (19.8%)	386 / 1,118 (34.5%)
Old Dominion	206 / 1,098 (18.8%)	255 / 1,064 (24.0%)
Peninsulas	75 / 358 (20.9%)	107 / 347 (30.8%)
Rappahannock	113 / 445 (25.4%)	141 / 334 (42.2%)
Southwest Virginia	45 / 184 (24.5%)	48 / 166 (28.9%)

EMS Regional Council	Pain 4–6 with analgesia / total	Pain 7–10 with analgesia / total
Thomas Jefferson	42 / 171 (24.6%)	65 / 152 (42.8%)
Tidewater	164 / 648 (25.3%)	248 / 628 (39.5%)
Western Virginia	94 / 447 (21.0%)	135 / 423 (31.9%)
Out of State	3 / 10 (30.0%)	6 / 8 (75.0%)

When analgesia was documented, fentanyl accounted for most recorded medication administrations in both pain-score groups. Non-opioid analgesics were documented far less often, a pattern that runs counter to guideline recommendations favoring non-opioid, multimodal first-line therapy.[15][16]

Analgesic listed on dashboard	Pain score 4–6 administrations	Pain score 7–10 administrations
Fentanyl	534	1,026
Acetaminophen/Tylenol	63	49
Morphine	36	68
Ketorolac/Toradol	27	38
Ketamine	15	42
Ibuprofen/Motrin	5	4
Hydromorphone/Dilaudid	N/A	N/A

Dashboard note: Medication counts may reflect multiple medications for a single patient. The original dashboard showed minor differences between summary-card counts and regional-table grand totals; this paper uses dashboard summary-card totals for statewide patient counts and regional-table values for regional council comparisons. Source dashboard graphics are included in the appendix.

De-identified Protocol Review

The reviewed protocols contain many strong elements, but the elements are not distributed consistently across documents. The de-identified feature counts below are intended to highlight system-level opportunities rather than rank or critique individual EMS regions or agencies.[8]

Protocol feature	Count among reviewed protocols (n=7)	De-identified interpretation
Standalone pain or pain/nausea protocol	6 of 7	One reviewed protocol set presented analgesia primarily through condition-specific or medication-reference sections rather than a comprehensive general pediatric pain pathway.
Validated or named pediatric pain assessment tool	4 of 7	Examples included FACES-based scales, FLACC/r-FLACC, CRIES, or equivalent structured pediatric pain tools.
Initial and post-intervention pain-score documentation	4 of 7 explicit; 1 additional broader reassessment model	Several protocols document pain or general reassessment, but not all explicitly tie reassessment to analgesic intervention and transfer of care.
Any acetaminophen/Tylenol option	6 of 7	Includes oral and/or IV acetaminophen for pediatric pain or fever contexts.
IV acetaminophen option	3 of 7	IV acetaminophen may support opioid-sparing care but has cost, stocking, and infusion-time implications.
Oral ibuprofen option	2 of 7	NSAID access varies. Given evidence supporting ibuprofen as first-line therapy, low access is a notable gap. Contraindication screening and local age/weight rules are important.[15][17]
Ketorolac/Toradol option	2 of 7	Parenteral NSAID access varies and may be limited by age, renal, bleeding, trauma, or OMD preferences.
Pediatric fentanyl analgesia	7 of 7	Fentanyl was the most consistently available opioid option

Protocol feature	Count among reviewed protocols (n=7)	De-identified interpretation
		and the most commonly documented analgesic in VAOEMS data.
Pediatric morphine analgesia	6 of 7	Morphine was commonly listed as an IV/IO alternative or backup analgesic.
Ketamine for pediatric pain, burn, trauma, or related analgesia	4 of 7	Three protocols appeared to allow ketamine in a broader pediatric pain/severe-pain context; one appeared condition-specific. Protocols limiting ketamine to patients 15 years and older were not counted as pediatric access for this row.
Explicit ETCO₂/capnography language tied to opioid/ketamine or respiratory-impact medications	3 of 7	Some additional protocols mention respiratory monitoring, but fewer provide auditable ETCO ₂ /capnography language within the pain pathway.
Structured pediatric dosing aid/reference	4 of 7 clearly structured; 3 of 7 with medication dosing elsewhere	Examples include length-based references, Handtevy-style references, or medication-reference tables.

DISCUSSION

Pain Assessment and Documentation

A reliable pediatric pain pathway begins with choosing the right tool for the child. Self-report is preferred when developmentally appropriate, but infants, preverbal children, nonverbal children, children with developmental delay, and children with autism spectrum disorder may benefit from a behavioral tool.[11][14][16] A protocol that simply asks for a 0–10 score may miss important pediatric distress. Validated options include Wong-Baker FACES and the Faces Pain Scale-Revised for self-report, and CRIES (neonates/infants), FLACC and r-FLACC (preverbal children and children with cognitive impairment), and EVENDOL (validated for out-of-hospital use in children under 8) for behavioral assessment.[10][11][12][13]

Best practice is to document both a baseline score or behavioral assessment, and a reassessment after intervention. Reassessment may follow splinting, repositioning, distraction, opioid analgesia, ketamine, acetaminophen, NSAIDs, or antiemetic therapy. This makes pain relief visible in the ePCR and supports QI review. Because low pain-score documentation is a persistent, nationally observed problem and a limitation for equitable treatment, strengthening the audit of pediatric pain assessment is itself a system-level intervention.[3][5]

Flexible Multimodal Care

A stepwise approach is useful when it does not delay effective treatment. Pediatric pain treatment can begin with non-pharmacologic interventions and non-opioid medications for mild or moderate pain. Contemporary trial data reinforce this default: in two simultaneous double-blind, placebo-controlled RCTs across six Canadian pediatric EDs (nearly 700 patients aged 6–17 with moderate-to-severe acute musculoskeletal pain), a single oral dose of ibuprofen alone, ibuprofen plus acetaminophen, or ibuprofen plus hydromorphone produced comparable pain reduction at 60 minutes, while adverse events were more than four times more frequent with hydromorphone (28.2%) than with ibuprofen alone (5.8%) or ibuprofen plus acetaminophen (6.1%).[15] A network meta-analysis of 41 pediatric acute-pain trials similarly found that NSAIDs, ketamine, and mid- to high-potency opioids each reduce pain versus placebo, but only NSAIDs reduced the need for rescue medication.[17] These findings align with the 2024 AAP clinical practice guideline, which recommends non-opioid medications plus optimized non-pharmacologic care as first-line therapy, reserving opioids for moderate-to-severe pain not controlled by these measures.[16]

However, a child with a clear long-bone fracture, major burn, severe sickle cell pain, or painful extrication may be better served by rapid intranasal fentanyl, ketamine, or another fast-acting analgesic followed by oral or IV non-opioid therapy once the child is more comfortable. The goal is not to force every child through the same medication sequence. The goal is to match route, onset, severity, contraindications, and transport environment to the clinical scenario.[6][21]

Non-pharmacologic Interventions

Non-pharmacologic care can begin immediately and is often available to all certification levels. Protocols may consider naming these interventions explicitly so they are recognized as treatment rather than informal comfort measures. Examples include calm communication, caregiver presence, favorite music or video, reduced stimulation, comfort objects, sensory toys, splinting, traction when indicated, cold packs, wound/burn care, and position of comfort.[16] Distraction therapy in particular disrupts pain perception and reduces fear and anxiety; while it is widely used in pediatric EDs and informally by paramedics, it is under-formalized in the prehospital setting and represents a low-risk, scalable opportunity.[24] Qualitative work with EMS clinicians who care for children in pain has surfaced additional pragmatic, child-friendly strategies—including topical anesthetic creams, oral transmucosal approaches, child-friendly communication, and inhaled agents such as methoxyflurane where available—as candidate improvements alongside enhanced pediatric pain assessment and electronic documentation.[6]

Anticipatory nausea management is also part of comfort care. Ondansetron may be considered for vomiting, significant nausea, or when nausea is anticipated with opioid or ketamine therapy, using local route approval and dose guidance; it is safe and effective when administered by paramedics.[16] A simple BLS-level adjunct is inhaled isopropyl alcohol (a folded alcohol prep pad held near the nares for several slow breaths). Randomized and pooled evidence in adults shows inhaled isopropyl alcohol reduces acute nausea faster than, and at least as effectively as, oral ondansetron, with reduced rescue-antiemetic use and no reported serious adverse events; a Cochrane review found it achieves 50% symptom relief faster than ondansetron or promethazine, and small pediatric data suggest a transient antiemetic effect after surgery.[25][26][27][28] Inhaled isopropyl alcohol is inexpensive, rapidly available, and well tolerated, making it a reasonable non-pharmacologic option for anticipated or mild nausea, particularly before IV access is established. (Note: robust prehospital pediatric-specific trial data remain limited, and pregnancy has not been studied.)

Non-opioid Pharmacologic Options

The de-identified protocol review found that acetaminophen was listed in most reviewed protocols, while ibuprofen and ketorolac were less common.[8] The VAOEMS medication data showed relatively low documented non-opioid administration compared with fentanyl.[7] Given high-quality evidence that ibuprofen (alone or with acetaminophen) matches opioid-containing regimens for common pediatric injuries with fewer adverse events, this pattern supports a statewide discussion about stocking and protocolizing oral and IV non-opioid options when operationally feasible.[15][16][17]

Non-opioid therapy can be used as initial treatment for mild or moderate pain, as adjunct treatment after initial opioid or ketamine therapy, or as a way to maintain analgesia during longer transports. Contraindication screening remains important, particularly for acetaminophen timing and liver disease, NSAID timing, renal disease, bleeding risk, and allergy.

Opioid and Ketamine Safety

Fentanyl was present in all reviewed protocols and was the most common documented analgesic in the VAOEMS dashboard data.[7][8] A best-practice opioid pathway pairs dosing with respiratory and mental status monitoring. Intranasal fentanyl is particularly useful when IV access is not rapidly available, and is often underutilized; clinicians should anticipate that its peak effect occurs at roughly 20–30 minutes, somewhat later than IV opioids, so intranasal volume and repeat dosing should be clearly specified.[3][21][23] Multicenter prehospital data show opioid administration to injured children remains suboptimal even after protocol updates, underscoring that protocol change alone is insufficient without education and QI.[3]

A rare, but airway-threatening fentanyl-specific effect deserves explicit mention in any protocol authorizing pediatric fentanyl: chest wall (thoracic) rigidity, also called "rigid chest" or "wooden chest" syndrome. This complication produces acute rigidity of the thoracic, abdominal, laryngeal, and diaphragmatic musculature, resulting in ineffective spontaneous ventilation, hypercarbia, hypoxemia, and secondary bradycardia, and its onset can occur within minutes of administration.[32] Because the resulting rigidity can defeat both bag-mask ventilation and endotracheal intubation, it can convert a routine analgesic intervention into a field airway emergency.[32][33] Neonates and infants appear disproportionately susceptible: a prospective neonatal series documented rigidity in 4% (8 of 89) after fentanyl doses of 3–5 mcg/kg, two of whom developed concurrent laryngospasm that rendered bag valve mask ventilation impossible, and comparable events have been reported in infants after low analgesic

doses.[33][34] Risk is reduced by slow administration and by avoiding large (>5mcg/kg) or rapidly delivered boluses (>200mcg/min), particularly in the youngest children.[35] Prehospital clinicians should suspect rigidity in any child with acute respiratory distress or ventilation failure shortly after opioid administration; management is immediate ventilatory support plus reversal with naloxone and/or a short-acting neuromuscular blocking agent, and in the neonatal series naloxone (20–40 mcg/kg) reversed both rigidity and laryngospasm within one minute.[33] If naloxone fails to promptly restore ventilation, a short-acting neuromuscular blocker with controlled ventilation reliably overcomes the rigidity. Reported prehospital pediatric incidence at the analgesic doses used in this framework (IN 1.5 mcg/kg, IV/IM 1 mcg/kg) is not well characterized, consistent with the broader scarcity of prehospital pediatric-specific data.[32][33] Mitigating risk for development of rigid chest syndrome includes using weight-based dosing, giving IV fentanyl slowly (avoid rapid boluses, consider dilution), favoring the intranasal route in young children, and having BVM, naloxone, and a paralytic ready before administration

Ketamine availability varied.[8] Sub-dissociative ketamine is an effective opioid alternative: a prehospital pediatric analgesia study using the ESO Data Collaborative (9,223 patients) found high rates of pain reduction with both ketamine and opioids and a greater average pain-score reduction with ketamine (mean -4.4 vs -3.1), with rare adverse events, no unplanned airway placements, and no prehospital deaths.[6] A companion descriptive analysis of prehospital pediatric ketamine reported significant pain-score reductions with desaturation events in only 1.8% and no deaths.[19] In the ED, the PRIME randomized trial established that intranasal ketamine is non-inferior to intranasal fentanyl for pediatric extremity-injury pain, with more frequent but mild and transient adverse effects.[20][21] When used for analgesia or dissociation, protocols may consider caregiver-preparation language because children may develop nystagmus, vivid dreams, altered perception, or transient dysphoria; a calm environment, reassurance, caregiver coaching, and pretreatment or treatment for nausea can reduce distress. ETCO₂/capnography is a reasonable safety expectation when available because laryngospasm, while uncommon, is a serious complication. Consistent with the ACEP/NAEMSP joint position statement, ketamine dosing in children should always be weight- or length-based, adjunct measures such as fracture immobilization should be used first, and caution is advised in the head-injured child.[22]

Morphine remains a useful alternative when IV/IO access is available. Patients with sickle cell disease may need higher total doses than other pediatric pain patients; local OMD guidance or medical control can help support safe titration.

Equity in Pediatric Pain Treatment

Age and demographic-based disparities in prehospital analgesia are well documented and directly relevant to Virginia's data, in which the youngest children were least likely to be treated.[2][7] National NEMSIS analyses and single-center trauma cohorts have shown that Black and Hispanic children are less likely to receive prehospital analgesia and, when treated, less likely to receive opioids, even after adjustment for clinical need and family preference.[2][4] Encouragingly, disparities narrowed over time in at least one cohort as overall treatment rates rose, suggesting they are modifiable through protocol standardization, dosing aids, expanded intranasal and oral options, and targeted education.[4] QI programs should therefore stratify pain assessment, treatment, and reassessment rates by age and, where feasible, by demographic group.

Vascular Access and Intraosseous (IO) Analgesia

Analgesia alone is usually not a reason to utilize IO access. However, when IO access is otherwise clinically indicated and infusion pain is anticipated, preservative-free lidocaine can be considered under local protocol. Slow administration and dwell time may improve comfort before fluids or medications are infused.

CONSIDERATIONS FOR IMPLEMENTATION

A practical Commonwealth approach would support a model pediatric pain module rather than a single mandatory drug-box configuration. Regional and agency OMDs can then decide which options are appropriate for their clinicians, geography, transport times, medication exchange systems, and pediatric receiving-hospital relationships.[6][29]

- Protocol language can remain flexible while still naming assessment, reassessment, monitoring, dosing aids, medication maximums, contraindications, and QI fields.

- Education can be concise and case-based, emphasizing pediatric pain scales, intranasal delivery, opioid/ketamine monitoring, acetaminophen/NSAID contraindications, and documentation. Simulation and case-based training that approximates real-world pediatric encounters directly addresses the clinician inexperience repeatedly cited as a barrier.[5][6]
- ePCR templates can make best practice easier by prompting tool used, initial score, intervention, reassessment score, medication, route, time to analgesia, and reason analgesia was not given.
- A 12-month post-implementation dashboard review could evaluate changes in documented analgesia rates, especially in children 0–4 years old and in severe pain scores 7–10, and should be embedded within the pediatric-specific EMS QI framework endorsed by the AAP.[29]

SUGGESTED QUALITY IMPROVEMENT MEASURES

QI domain	Suggested measure
Assessment	Percentage of pediatric pain patients with documented age-appropriate pain score or behavioral pain tool.
Treatment opportunity	Percentage of children with pain score 4–10 who were eligible for analgesia and received pharmacologic analgesia, non-pharmacologic care, or a documented reason for withholding.
Timeliness	Median time from patient contact to first analgesic when medication was administered.
Reassessment	Percentage with post-intervention pain score or behavioral reassessment and score at transfer of care.
Medication safety	Route, dose, repeat dose, weight source, dose-cap compliance, and medication variance review.
Respiratory safety	Hypoxia, hypoventilation, airway intervention, naloxone use, laryngospasm or chest wall rigidity concern, or other adverse events after opioid or ketamine therapy.
Equity / age stratification	Analgesia and reassessment rates by age group, especially 0–4 years, and by pain severity and demographic group.

LIMITATIONS

This document is based on submitted protocol files, VAOEMS dashboard data, and MDC-supplied recommendations. It is not a formal systematic review. Protocol counts are based on written language and may not reflect agency-specific stocking, OMD restrictions, clinician credentialing, temporary medication shortages, or online medical-control practice.

The VAOEMS dashboard data identify documented analgesic administration but may not capture pain relief from splinting, immobilization, distraction, caregiver presence, refusal, contraindications, short transport time, medication unavailability, or missing ePCR documentation. The data should be interpreted in a quality-improvement mindset rather than as an assumption that every untreated patient was undertreated. In addition, much of the highest-quality comparative analgesia evidence cited here derives from ED or mixed prehospital/ED populations; prehospital pediatric-specific trial data remain limited, and recommendations should be interpreted with that caveat.[6][21]

CONCLUSION

Pediatric pain management is a clinically achievable and measurable EMS quality opportunity for the Commonwealth of Virginia. The reviewed protocols show that Virginia EMS systems already have many of the necessary building blocks: pain scales, pediatric dosing aids, fentanyl, morphine, acetaminophen, NSAIDs, ketamine guardrails, non-pharmacologic care, antiemetic support, and monitoring models.

The most important statewide priorities are age-appropriate pain assessment, documented reassessment, access to multimodal therapy anchored in first-line non-opioid analgesia, safe opioid/ketamine monitoring, pediatric dosing

safeguards, and equity-focused QI review targeting the youngest children and patients with severe pain.[15][16][17]

APPENDIX A: SUGGESTED DOCUMENTATION FIELDS

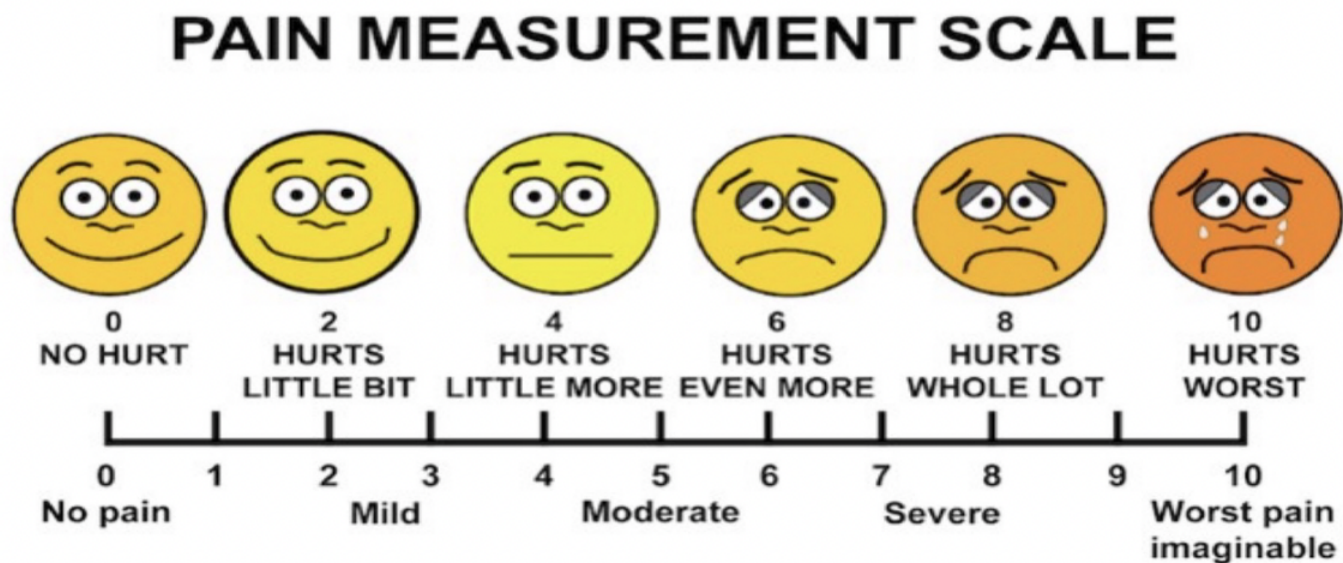
A model ePCR prompt set could include the following fields, adapted to local documentation platforms:

- Pain assessment tool used: numeric, FACES/FPS-R, FLACC/r-FLACC, CRIES, EVENDOL, or OMD-approved equivalent.
- Initial pain score or behavioral pain assessment and time documented.
- Non-pharmacologic interventions used, such as caregiver presence, distraction, splinting, cold pack, or position of comfort.
- Medication, dose, route, weight source, single-dose maximum, repeat dosing, and contraindication screening.
- Post-intervention pain score or behavioral reassessment, vital signs, respiratory status, mental status, SpO₂, and ETCO₂ when available.
- Reason analgesia was not administered when pain score is 4–10, such as refusal, contraindication, rapid transport, medication unavailable, patient instability, or medical-control decision.

APPENDIX B: PEDIATRIC PAIN ASSESSMENT TOOLS AND VAOEMS DASHBOARD GRAPHICS

The following figures are retained as supporting resources for pediatric pain assessment and source-data review. They are not intended to replace locally approved OMD tools or the source VAOEMS dashboard.

Figure C1. Faces-based pain measurement scale and FLACC pain scale.



FLACC Pain Scale

CATEGORIES	SCORES			Score
	0	1	2	
Face	No particular expression or smile; disinterested	Occasional grimace or frown, withdrawn	Frequent to constant frown, clenched jaw	
Legs	No position, or relaxed	Uneasy, restless, tense	Kicking or legs drawn up	
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking	
Cry	No crying (awake or asleep)	Moans or whimpers Occasional complaint	Crying steadily, screams or sobs, freq complaints	
Consolability	Content, relaxed	Reassured by occasional touching, hugging, talking	Difficult to console or comfort	
Total possible FLACC score between 0 and 10				TOTAL

Figure C2. Faces Pain Scale-Revised (FPS-R) and numeric rating scale.

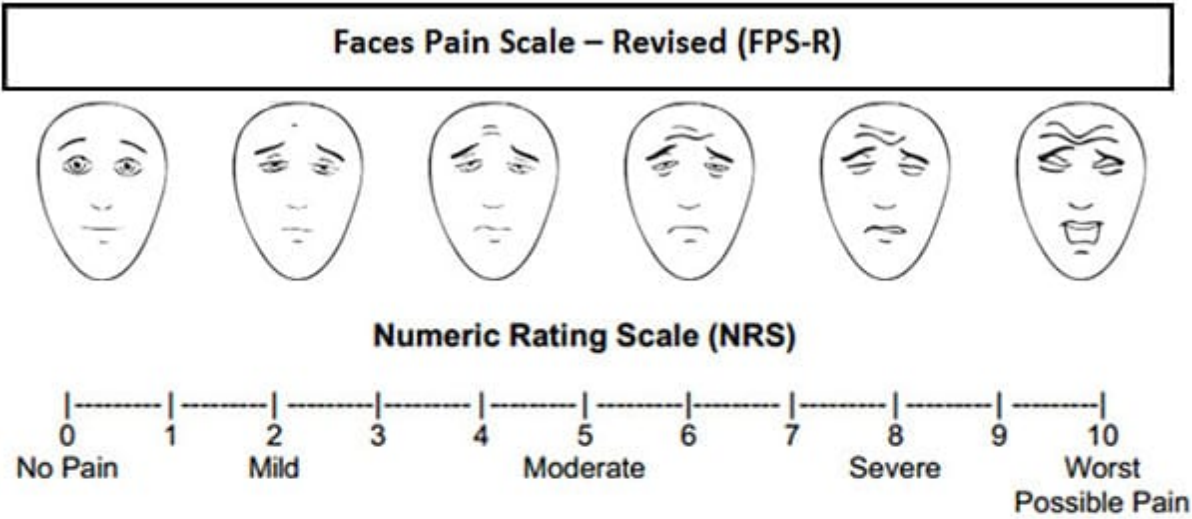


Figure C3. Revised FLACC pain scale.

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested, sad, appears worried	Frequent to constant quivering chin, clenched jaw, distressed looking face, expression of fright/panic
Legs	Normal position or relaxed, usual tone & motion to limbs	Uneasy, restless, tense, occasional tremors	Kicking, or legs drawn up, marked increase in spasticity, constant tremors, jerking
Activity	Lying quietly, normal position, moves easily, regular, rhythmic respirations	Squirming, shifting back and forth, tense, tense/guarded movements, mildly agitated, shallow/splinting respirations, intermittent sighs	Arched, rigid or jerking, severe agitation, head banging, shivering, breath holding, gasping, severe splinting
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint, occasional verbal outbursts, constant grunting	Crying steadily, screams or sobs, frequent complaints, repeated outbursts, constant grunting
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort, pushing caregiver away, resisting care or comfort measures

Figure C4. CRIES scoring for neonates and infants.**Coding tip for CRIES**

Crying	The characteristic cry of pain is <i>high pitched</i>. • If no cry or cry which is not high pitched score 0 • If cry high pitched but baby is easily consoled score 1 • If cry is high pitched and baby is inconsolable score 2
Requires O₂ for Sat >95%	Look for <i>changes</i> in oxygenation. Babies experiencing pain manifest decreases in oxygenation as measure by TCO₂ or oxygen saturation. • If no oxygen is required score 0 • If <30% O₂ is required score 1 • If >30% is required score 2
Increased vital signs	<i>*Note: Take blood pressure last as this may wake child causing difficulty with other assessments.</i> Use baseline pre-op parameters from a non-stressed period. Multiply baseline HR x 0.2 than add this to baseline HR to determine the HR which is 20% over baseline. Do likewise for BP. Use mean BP. • If HR and BP are both unchanged or less than baseline score 0 • If HR or BP is increased but increase is <20% score 1 • If either one is increased >20% over baseline score 2
Expression	The facial expression most often associated with pain is a grimace. This may be characterized by: brow lowering, eyes squeezed shut, deepening of the naso-labial furrow, open lips, and mouth. • If no grimace is present score 0 • If grimace alone is present score 1 • If grimace and non cry vocalization grunt is present score 2
Sleepless	This parameter is scored based upon the infant's state during the hour preceding this recorded score. • If the child has been continuously asleep score 0 • If he/she has awakened at frequent intervals score 1 • If he/she has been awake constantly score 2

Figure C5. EVENDOL pediatric out-of-hospital pain assessment tool.

**A pain scale
for children
under 7**



A pain scale validated
for children from birth
to 7 years

Score ranges from 0 to 15.
Treatment threshold: 4/15.

Note everything you observe, even if you think the symptoms are not due to pain but to fear, tiredness or illness severity.

Name	sign absent	sign weak or transient	sign moderate or present about half the time	sign strong or present almost all the time	Assessment at admission		Following assessments and/or after analgesic ³			
					at rest ¹ (R)	during examination ² or mobilization (M)	Analgesic		Following assessments and/or after analgesic ³	
							R	M	R	M
Vocal or verbal expression										
cries and/or screams and/or moans and/or complains of pain	0	1	2	3						
Facial expression										
furrowed forehead and/or frown, furrowed or bulging brow and/or tense mouth	0	1	2	3						
Movements										
restlessness, agitation and/or rigidity and/or muscular tenseness	0	1	2	3						
Postures										
unusual and/or antalgic posture and/or protection of the painful area and/or immobility	0	1	2	3						
Interaction with the environment										
can be comforted and/or interested in playing and/or interacts with people	normal 0	low 1	very low 2	absent 3						
Remarks	Total /15									
	Date & Time									
	Signature									

¹ At rest (R): observe the child from a distance, before performing any examination or procedure, at rest, ensuring the best possible conditions of safety and comfort, for example with his/her parents, when he/she is playing.

² During examination or mobilization (M): assess pain during examination or mobilization or palpation of the painful area by nurse or by doctor.

³ Reassess pain regularly after analgesic administration: wait 30 to 45 minutes if analgesic is administered by oral or rectal route, 5 to 10 minutes if administered by IV route. Note whether the child is at rest (R) or mobilized (M).

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Graphic design: Zid et Zen communication - zidetzen@clubinternet.fr

Figure C6. VAOEMS pediatric pain dashboard - pain score 4-6.

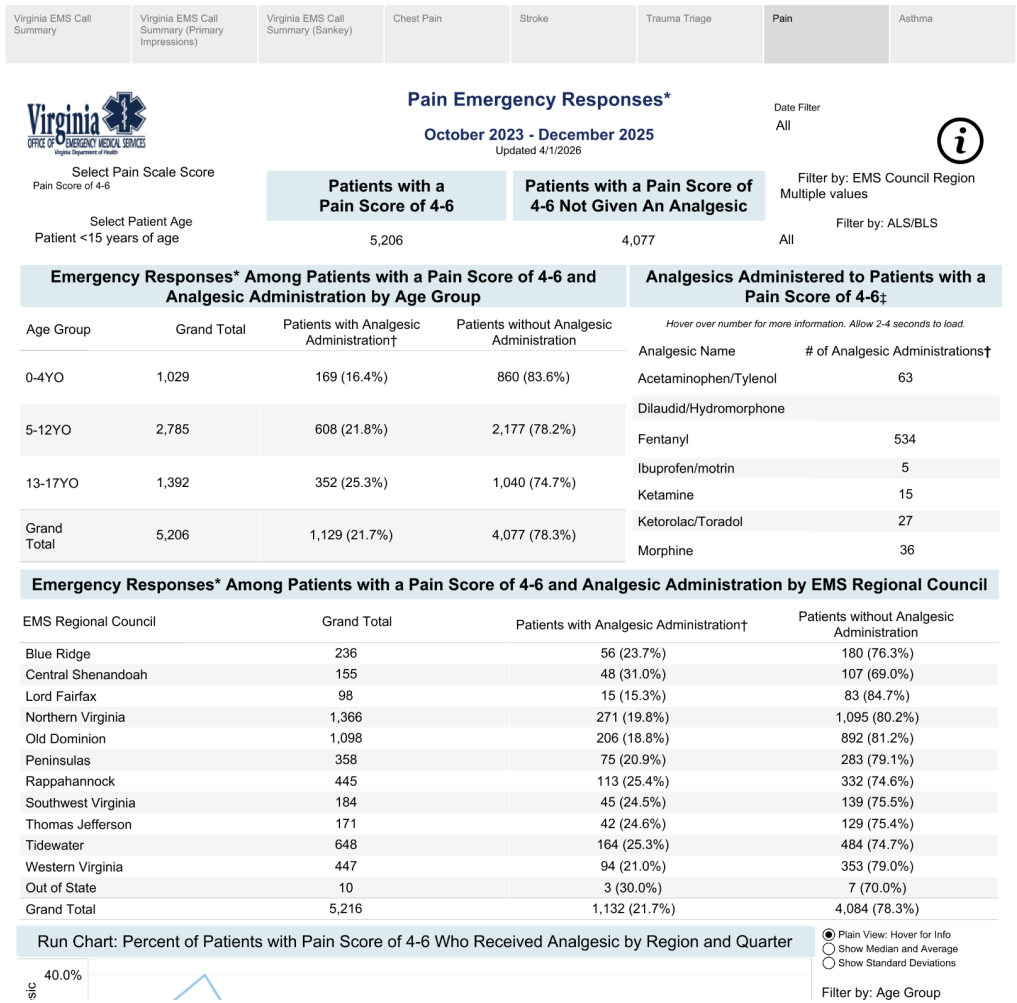


Figure C7. VAOEMS pediatric pain dashboard - pain score 7-10.



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Plasma Administration by Advanced EMTs and EMT-Intermediates

Concept Paper for Committee Discussion, with Draft Protocol and Competency Standard

To: Medical Direction Committee, Virginia State EMS Advisory Board

From: Sudershan Gupta, MD, Regional Operational Medical Director, Region 7, and David Long, MA, NRP, Executive Director, Tidewater EMS Council, Inc.

Date: [Insert date]

Requested action: Discussion and direction. No vote is requested at this meeting.

PART 1 — CONCEPT PAPER FOR DISCUSSION

1. The Question Before the Committee

Should credentialed Advanced EMTs and EMT-Intermediates be permitted to initiate plasma transfusion for hemorrhagic shock, under algorithmic activation criteria and OMD credentialing?

That is the whole of the request. Everything else in this packet exists to answer objections to it.

Virginia's Scope of Practice — Procedures for EMS Personnel currently authorizes initiation of blood and component therapy at the Paramedic level only. We are not asking the Committee to change that today. We are asking whether the question merits development, what evidence the Committee would need in order to evaluate it, and who should be at the table while it is developed.

[Verify against the current published Scope of Practice document before submission. The version reviewed in preparing this packet was revised June 30, 2024.]

2. Why the Question Arises

Region 7 spans deep geographic contrasts. The urban tier runs mature, paramedic-staffed low-titer O whole blood programs. The Eastern Shore, Middle Peninsula, and outer rural corridors do not, and the reason is not clinical judgment about whether those patients need blood. It is staffing and money.

- Transport intervals to a Level I or Level II trauma center in these corridors routinely exceed 45 to 60 minutes.
- Immediate response in these corridors rests largely on volunteer agencies staffed at the EMT and Advanced EMT levels. A paramedic is frequently not on the first unit, and sometimes not on any unit.
- Cold chain and cost together make current programs impractical for low-volume rural agencies.

The evidence makes this uncomfortable, because the benefit of prehospital plasma concentrates in exactly the systems currently excluded. In the combined post hoc analysis of PAMPer and COMBAT, mortality roughly doubled in the standard-care group when transport exceeded 20 minutes, while no

comparable increase appeared among patients who received plasma; the authors reported no serious adverse events attributable to prehospital plasma.

The patients who stand to benefit most are the ones least likely to be attended by the only credential currently permitted to help them.

3. What Would Actually Change

Advanced EMTs in Virginia already establish and maintain peripheral intravenous access and administer medications under protocol. EMT-Intermediates already maintain blood and component therapy in progress. [Confirm both against the current Scope of Practice table.]

The question is therefore not whether these clinicians can perform the physical task. It is whether the decision-making surrounding transfusion initiation exceeds their preparation.

We would argue it does not, and the reason is structural. Under an algorithmic protocol, transfusion initiation is a verification and monitoring task rather than a titration or differential diagnosis task. The clinician does not select a product, calculate a dose, or choose an ABO group. A single universal product is carried. Activation is governed by objective criteria — shock index at or above 1.0 or systolic blood pressure below 90 mmHg, paired with an identified hemorrhagic source. The clinician verifies, administers, monitors, and stops.

That profile differs materially from the judgment-intensive skills that properly distinguish the Paramedic level. It is also the reason the indication set in this packet is deliberately narrow: every indication added that requires the clinician to reason toward a diagnosis weakens the argument that the task does not require diagnostic reasoning.

4. Product Selection Is an Agency Decision, Not a Committee Decision

This request is product-neutral. It concerns the authority to administer plasma, not which plasma an agency carries.

Two products are viable, and they trade against each other on cost and logistics. Liquid plasma is inexpensive but requires validated refrigeration. Freeze-dried plasma removes the cold chain entirely but costs roughly eight to twenty times more per unit and requires field reconstitution.

Product	Published cost per unit	Storage	Shelf life	Field preparation
Liquid plasma	US\$40–100 (Johns Hopkins 2025). Region 7 supplier quote: \$60–70.	Refrigerated, 1–6°C	26 days	None — spike and run
Freeze-dried plasma	US\$500–800 (Canadian Armed Forces review 2025); US\$700–1,500 (Johns Hopkins 2025). No public US price for the newly licensed product. [Obtain manufacturer quote.]	Room temperature	Approx. 2 years	Reconstitution per manufacturer IFU

Which trade is correct depends on the agency. A squad with a validated refrigerator and reliable turnover should carry liquid plasma. A remote volunteer unit that cannot maintain and monitor a refrigerator may find freeze-dried plasma the only workable option despite the price, particularly where a rotation agreement with a regional health system limits wastage exposure.

We would ask the Committee to authorize the skill and let each agency and its OMD select the product. Tying a scope authority to a specific product would require the Committee to revisit it every time the market moves — and the market is moving, with the first freeze-dried plasma product licensed for civilian use in the United States approved in July 2026.

5. Risk Profile and Where Each Risk Is Controlled

Plasma is the higher-risk component category and we want to be direct about that. TRALI remains among the leading causes of transfusion-associated death in the United States, and plasma-containing components historically drove those fatalities. ABO compatibility for plasma is inverted relative to red cells, which is a genuine cognitive hazard for clinicians whose mental model was built around whole blood.

The argument is not that these risks are small. It is that nearly all of them are controlled upstream of the ambulance — at donor selection, product specification, and transfusion service level — rather than by clinician judgment at the bedside.

Risk	Primary point of control	Residual field responsibility
TRALI	Blood center donor policy. AABB requires plasma-containing components from male, never-pregnant female, or HLA-antibody-tested donors. Post-mitigation incidence fell from roughly 1:51,000–65,000 to 1:250,000–317,000 units.	Recognize acute hypoxemia within 6 hours, stop the infusion, support oxygenation and ventilation, notify the receiving facility.
ABO-incompatible plasma	Product specification. Group A with low anti-B titer, or group AB. A single universal product is carried; the clinician never selects an ABO group.	Two-person verification that the unit issued matches the unit hung. No compatibility decision is made in the field.
TACO	Protocol-fixed volume and defined infusion approach.	Monitor for dyspnea and rising work of breathing; stop and reassess.
Allergic / anaphylactic reaction	Not preventable at product level; low incidence.	Already within the AEMT scope — stop the infusion, administer epinephrine and adjuncts per existing protocol.
TA-GVHD (theoretical; never-frozen LP only)	Blood center irradiation policy where indicated. Not considered clinically relevant in the massively bleeding population.	None. Delayed phenomenon; no field action.
Storage failure / product integrity	Regional transfusion service: validated refrigeration and monitoring for LP; seal and cake integrity checks for FDP; unit rotation and recall.	Confirm temperature indicator or vial integrity before administration, per checklist.

Product specification

Plasma carried under this protocol shall be group A with a low anti-B titer, or group AB, sourced from low-TRALI-risk donors — male, never-pregnant female, or HLA-antibody tested. This is not a local preference: it reflects the specification used in PAMPer and the labeling of the FDA-licensed freeze-dried product. Rh type is not applicable to plasma.

Note on Rh policy for whole blood

Where an agency carries low-titer O whole blood alongside or instead of plasma, Region 7 practice is O-positive for all patients, including females of childbearing potential. This is consistent with prevailing prehospital and trauma practice nationally. The rationale is that the intervention is triggered by recognition of life-threatening hemorrhage, that D-alloimmunization risk in this population is low, and that Rh-negative supply cannot support prehospital programs at scale. We state the policy explicitly rather than leave it implied, because the Committee should be able to see that it was decided rather than defaulted.

6. Indications

Included

Activation requires a hemodynamic trigger — shock index ≥ 1.0 or SBP < 90 mmHg — paired with an identified hemorrhagic source:

1. Traumatic hemorrhage: blunt or penetrating injury with suspected internal bleeding or massive external hemorrhage.
2. Non-traumatic hemorrhage: witnessed massive hematemesis or frank melena, suspected ruptured abdominal aortic aneurysm, or severe obstetric or postpartum hemorrhage.

Traumatic brain injury is captured where the patient independently meets the activation criteria. It is not a separate indication.

One point we would flag for the Committee's judgment rather than argue: witnessed hematemesis and postpartum hemorrhage are observable findings, but suspected ruptured aortic aneurysm requires the clinician to reason toward a diagnosis. The Committee may reasonably conclude that indication belongs at the Paramedic level even if the others do not.

Expressly excluded

Plasma has been discussed in connection with burns, sepsis, and endothelial glycocalyx protection. Those mechanisms are of genuine scientific interest and are not part of this request — now or as a staged expansion.

AABB's Choosing Wisely guidance states that plasma should not be transfused to correct coagulopathy in non-bleeding patients. AABB's plasma guidelines could not recommend plasma outside massive transfusion and warfarin-related intracranial hemorrhage. Surviving Sepsis guidance advises against plasma to correct laboratory coagulation abnormalities absent active bleeding or a planned procedure. We do not propose a non-hemorrhagic indication.

7. Evidence Base

- PAMPer (NEJM 2018): prehospital thawed plasma during air medical transport was safe and produced lower 30-day mortality than standard care (23.2% vs 33.0%).
- COMBAT (Lancet 2018): no mortality benefit in a short-transport urban ground system, with a comparable safety profile.
- Pusateri et al. (JAMA Surgery 2020), combined post hoc analysis of 626 patients: benefit concentrated at transport times exceeding 20 minutes; no serious adverse events associated with prehospital plasma.
- Gruen et al. (JAMA Network Open 2020): among severely injured patients with TBI at risk for hemorrhagic shock, prehospital plasma was associated with 45% lower adjusted mortality risk.
- J Trauma Acute Care Surg (online April 20, 2026), ACS-TQIP analysis of 6,183 patients with traumatic intracranial hemorrhage: 45% lower hazard of 30-day death for patients transfused versus not yet transfused at the same time point (aHR 0.55; 95% CI 0.33–0.92; $p = 0.02$), with an inflection at approximately 10 minutes from ED arrival beyond which predicted survival fell with each additional minute. Cited for the time gradient, not as a TBI indication.
- Prehospital Evidence-Based Practice Program rapid review (Air Medical Journal 2025): across 22 studies reporting mortality, none reported a negative mortality impact from prehospital plasma.
- Rajesh et al. (Transfusion 2025): advocates EMS adoption of liquid plasma where whole blood is not feasible, on shelf life, availability, and cost.
- Feuerstein et al. (Vox Sanguinis 2020) and subsequent reviews: freeze-dried plasma demonstrates coagulation performance comparable to fresh frozen plasma, with more than 25 years of European military and civilian EMS use.

Limitations we would state plainly in any full proposal: no randomized trial has evaluated liquid plasma specifically as the prehospital product; no trial has evaluated administration by non-paramedic clinicians; the 2026 timing analysis is retrospective and measures from ED arrival rather than EMS contact; and a 2024 TQIP analysis of 63,918 patients with moderate-to-severe TBI found no adjusted mortality effect of plasma overall, with benefit apparent only where hemorrhage was present — a finding consistent with the activation gate proposed here.

8. A Proposed Path

The Scope of Practice document already contains a suitable mechanism: sponsors of pilot projects, demonstration projects, or non-IRB research are asked to present proposals to the Medical Direction Committee for review and approval prior to implementation. We believe that pathway, rather than an immediate permanent scope change, is the right vehicle.

We would also note that the Scope of Practice document represents practice maximums. Any change of this type would permit and never require, and each Operational Medical Director would retain full authority to decline to authorize the skill.

Phase	Objective	Indicative timing	Decision gate
Phase 1	Committee discussion and framing. MDC identifies the questions it needs answered and the specialties it wants at the table.	This meeting and the next	MDC direction on scope of the question and composition of a work group.
Phase 2	Work group refines the attached protocol and competency standard, and develops the training curriculum, QA package, 50-state scope survey, and supplier letter of commitment.	[6–12 months]	Work group product returned to MDC.
Phase 3	Time-limited demonstration project under the MDC pilot pathway at a defined number of agencies, with 100% case review and reporting at set intervals.	[24 months]	Interim and final reports; MDC decision to extend, modify, or terminate.
Phase 4	If supported, MDC considers a permanent line-item addition to the Scope of Practice — Procedures for EMS Personnel.	Following Phase 3	MDC vote on permanent scope change.

9. Questions for the Committee

We would value the Committee’s direction on the following, and expect it will raise questions we have not anticipated.

1. Is the Committee willing to consider an indication-specific exception at the AEMT and Intermediate levels, or does it view initiation of any blood product as categorically a Paramedic-level function?
2. Should the EMT-Intermediate question (maintain to initiate) be separated from the AEMT question (no current authority to initiate), given that they are materially different increments?
3. Should authorization be by standing order, or should online medical control contact be required? We have drafted it as notification rather than authorization, on the grounds that the rural corridors in question have unreliable radio and cellular coverage and that the evidence base is a time gradient. We recognize the Committee may see this differently.
4. What weight would the Committee place on the absence of any other state authorizing initiation below the Paramedic level?
5. What training and credentialing standard would be adequate, and should it be uniform statewide or delegated to OMD credentialing with a defined minimum?
6. Does the Committee agree that product selection should rest with the agency and its OMD rather than being fixed in the scope authority?

7. Who should the Committee designate to a work group? We would suggest transfusion medicine, trauma surgery, rural and volunteer EMS operations, OEMS staff, the paramedic community, and a participating blood supplier.
8. Are there conditions under which the Committee would consider this question closed, so that we do not consume Committee time on a proposal that cannot succeed?

10. What Region 7 Brings

- A regional prehospital blood program in its fourth year, with [insert count] transfusions performed across [insert number] jurisdictions.
- An operational document set in daily use: regional transfusion SOG, administration protocols and checklists, cooler packing and conditioning procedures, and a triplicate transfusion record.
- Every transfusion reviewed within 72 hours through a three-tier structure — agency, regional, and Regional Trauma Advisory Committee.
- An in-progress AABB Transfusion Administration Service accreditation build under POHTA standards, including validated refrigeration, continuous temperature monitoring, cooler validation, unit recall and rotation, and supplier and receiving-hospital agreements.
- Peer-reviewed output, including a 96-patient study showing 75% 24-hour survival with no difference between Level I and Level III receiving centers, and a calcium study that drove regional adoption of a TXA and calcium bundle.
- **A centralized regional transfusion service.** This is the practical answer to the objection that rural agencies cannot individually become blood banks. Under this model they do not need to — the Council holds the transfusion service function and the agency holds the cooler.

11. Known Gaps

We would rather surface these ourselves than have them surface later.

1. No precedent. We have been unable to identify a state authorizing initiation of blood or blood products below the Paramedic level. Virginia would be first. A formal 50-state survey should be part of any work group product.
2. No trial evidence for administration by non-paramedic clinicians, and none for liquid plasma specifically as the prehospital product.
3. Supply is unconfirmed in writing. A letter of commitment from a blood supplier should precede any demonstration project. [Status of discussions: insert.]
4. Funding is unresolved. Neither product is reimbursed reliably, and freeze-dried plasma in particular will require an identified funding source before a rural agency can carry it.
5. Professional concerns from the paramedic community are legitimate and should be heard directly rather than managed around.

PART 2 — DRAFT REGIONAL PROTOCOL 7-401

Draft for Committee review. Not in effect. Applicable to Paramedic and, pending approval, credentialed AEMT and EMT-Intermediate under demonstration status.

I. Activation Criteria

Both a hemodynamic trigger and an identified hemorrhagic source are required.

- **Hemodynamic trigger:** shock index ($HR \div SBP$) ≥ 1.0 , or $SBP < 90$ mmHg.
- **Hemorrhagic source:** traumatic hemorrhage; or witnessed massive hematemesis or frank melena; or suspected ruptured abdominal aortic aneurysm; or severe obstetric or postpartum hemorrhage.

II. Contraindications

- Shock clearly attributable to a non-hemorrhagic cause — cardiogenic, septic, or obstructive — without concurrent hemorrhage.
- Findings indicating volume overload or pump failure: bilateral rales, jugular venous distension, or pink frothy sputum, in the absence of identified hemorrhage.
- Documented patient refusal, or a valid objection to transfusion on record.

Note: an allergic reaction in progress is not an absolute bar to transfusing an exsanguinating patient. Treat the reaction, contact medical control, and document. It is listed here as a caution rather than an exclusion.

III. Operational Sequence

3. Initiate transport. Product preparation occurs en route. Never delay scene departure to prepare product.
4. Request paramedic intercept if one can be obtained without slowing transport. An intercept is not a precondition for transfusion — if waiting for a paramedic would delay the transfusion, transfuse.
5. Notify online medical control or the receiving facility of intent to transfuse. This is notification, not authorization. Transfusion is not delayed pending successful contact.
6. Verify the unit against the transfusion record: product identity, ABO group, expiration, integrity. Second-person verification where a second provider is available.
7. Prepare the product. Liquid plasma: confirm the temperature indicator and spike. Freeze-dried plasma: reconstitute strictly in accordance with the manufacturer instructions for use, including agitation technique, reconstitution time, acceptance criteria for the reconstituted solution, and maximum hold time after reconstitution.
8. Administer through an administration set with an integrated 170 to 260 micron blood filter, primed so the filter mesh is fully submerged. Use a fluid warmer where available.

9. Maintain a dedicated line. Region 7 practice is 0.9% normal saline as the companion fluid, for consistency and simplicity rather than on the basis that other crystalloids are demonstrably unsafe.

IV. Monitoring, Reaction Response, and Documentation

- Record vitals and shock index immediately prior to spike, every 5 minutes during infusion, and at handoff.
- On any sign of transfusion reaction — urticaria, bronchospasm, fever, rigors, unexplained hypotension, or acute hypoxemia — stop the infusion immediately, maintain the line with normal saline, treat symptomatically per existing protocol, and notify the receiving facility.
- **Retain the unit, the administration set, and the transfusion record and deliver them to the receiving facility.** These are required for reaction investigation and cannot be discarded.
- Submit the ePCR and the Region 7 Transfusion Deployment Form within 24 hours. All cases undergo OMD review within 72 hours.

PART 3 — AEMT COMPETENCY CHECK-OFF

Draft standard for Committee review.

Provider: _____ Certification #: _____

Agency: _____ Date: _____

#	Skill and operational action	Critical guardrail
1	Verifies activation criteria: calculates shock index ≥ 1.0 or confirms SBP < 90 mmHg, and identifies a hemorrhagic source consistent with protocol inclusion.	Both a hemodynamic trigger and a hemorrhagic source are required. Neither alone activates.
2	Screens exclusions: confirms the patient does not meet any listed contraindication.	CRITICAL: an unscreened exclusion is an automatic fail.
3	Initiates transport without delay; requests paramedic intercept if one can be obtained without slowing transport.	Product preparation occurs en route. Never delay scene departure.
4	Notifies online medical control or the receiving facility of intent to transfuse.	Notification, not authorization. Transfusion is not delayed pending contact.
5	Inspects the unit: verifies product identity, ABO group, expiration, and integrity against the transfusion record.	CRITICAL: any discrepancy between record and unit stops the process.
6	Second-person verification of unit against record and patient, where a second provider is present.	Verbalizes the check aloud.
7	Prepares the product. Liquid plasma: confirm temperature indicator. FDP: reconstitute strictly per the manufacturer instructions for use.	CRITICAL: reconstitution technique, timing, and post-reconstitution hold time follow the package insert, not local practice.
8	Visual quality check of the product against light for discoloration, clumping, or particulate.	CRITICAL: an abnormal-appearing unit is discarded, not administered.
9	Assembles administration set with an integrated 170–260 micron filter; primes so the filter mesh is fully submerged.	CRITICAL: standard IV tubing without a blood filter is an automatic fail.
10	Initiates infusion through an established IV ($\geq 18G$ preferred) or IO line; uses a fluid warmer where available.	Monitors the site for infiltration throughout.
11	Monitors and documents vitals and shock index before spike, every 5 minutes during infusion, and at handoff.	Verbalizes the recognition and response sequence for a transfusion reaction.
12	States the reaction response: stop the infusion, maintain the line with normal saline, treat symptomatically, notify the receiving facility, and retain the unit and tubing.	CRITICAL: the unit and set must be retained and delivered for investigation.

Evaluator notes / remediation:

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☐ PASSED ☐ REQUIRES RE-TEST

Candidate signature: _____ Evaluator signature:

Selected References

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- Virginia Office of Emergency Medical Services. Scope of Practice — Procedures for EMS Personnel. Revised June 30, 2024.



Virginia Office of Emergency Medical Services Scope of Practice - Formulary for EMS Personnel

This SOP represents *practice maximums*.

CATEGORY		EMR	EMT	AEMT	I	P
Analgesics						
	Oral analgesics					
	Acetaminophen		●	●	●	●
	Nonsteroidal anti-inflammatory		●	●	●	●
	Parenteral non-opioid analgesics					
	Acetaminophen, ketorolac			●	●	●
	Opiates			●	●	●
	Dissociative analgesics					
	Ketamine 0.5 mg/kg or less IV/IN/IM				●	●
Anesthetics/Sedatives						
	Topical/Otic/Occular		●	●	●	●
	Inhaled-self administered		●	●	●	●
	Local (infiltration, intraosseus)			●	●	●
	General - initiate					●
	General - maintain infusion intubated patient				●	●
	Sedation for the violent/aggressive patient					●
	Benzodiazepine/antipsychotic combination				●	●
	Ketamine greater than 0.5 mg/kg IV/IM					●
	Antipsychotics				●	●
	Benzodiazepines (for sedation)				●	●
Anticonvulsants	Includes benzodiazepines and anti-epileptic drugs			●	●	●
Glucose Altering Agents						
	Glucose elevating agents		●	●	●	●
	Glucose lowering agents					
	Insulin SQ/IV/infusion				●	●
Antidotes						
	Anticholinergic Antagonists				●	●
	Anticholinesterase Antagonists	●	●	●	●	●
	Benzodiazepine Antagonists					
	Narcotic Antagonists	●	●	●	●	●
	Nondepolarizing Muscle Relaxant Antagonist					
	Beta/Calcium Channel Blocker Antidote				●	●
	Tricyclic Antidepressant Overdose				●	●

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Revised June 30, 2024

Use of medication not listed which is indicated by medical control and/or the operational medical director due to the use of a weapon of mass destruction is exempt from this list.



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CATEGORY		EMR	EMT	AEMT	I	P	
	Cyanide Antidote - hydroxycobalamin			●	●	●	Added per MDC 4/2023
	Cholinesterase Reactivator	●	●	●	●	●	
	Combination antidotes, e.g. DuoDote	●	●	●	●	●	
Antihistamines & Combinations			●	●	●	●	
Biologicals							
	Vaccines						
	Vaccines all ages			●	●	●	
	Vaccines to age < 18 years				●	●	
	Antibiotics		●	●	●	●	
Blood/Blood products							
	Initiate					●	
	Maintain				●	●	
Blood Modifiers							
	Anticoagulants				●	●	
	Antiplatelet agents		●	●	●	●	
	Hemostatic agents		●	●	●	●	
	Thrombolytics					●	
	Anti-fibrinolytics (eg tranexamic acid)			●	●	●	
Cardiovascular Agents							
	Alpha adrenergic blockers				●	●	
	Adrenergic stimulants				●	●	
	Antiarrhythmics				●	●	
	Beta adrenergic blockers				●	●	
	Calcium channel blockers				●	●	
	Diuretics				●	●	
	Inotropic agents				●	●	

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	Vasodilatory Agents		●	●	●	●	
	Vasopressors						
	Includes infusions and push dose pressors				●	●	
	Epinephrine IV/IO for cardiac arrest			●	●	●	Epinephrine at the AEMT level added by MDC 7/7/2022
	Epinephrine IM for allergic reaction		●	●	●	●	
	Epinephrine administration systems for allergic reaction (See note below)		●	●	●	●	
Central Nervous System	Antipsychotic				●	●	
Dietary Supplements/Electrolyte	Vitamins						
	Minerals - start at a health care facility	See section: Intravenous Fluids					
	Salts - start at a health care facility						
	Electrolytes Solutions - started at a health care facility						
	Hypertonic Saline				●	●	
Gas							
	Oxygen	●	●	●	●	●	
	Heliox				●	●	
Gastrointestinal							
	Antacids						
	OTC			●	●	●	
	Antidiarrheals		●	●	●	●	
	Antiemetics		●	●	●	●	
	EMT SL/PO route only						
	H2 blockers						
	PO		●	●	●	●	
	IV				●	●	
Hormones	Corticosteroids, Mineralocorticoids			●	●	●	
	Other Hormones						
	pitocin, octreotide, prostaglandins					●	
Intravenous Fluids	isotonic		●	●	●	●	EMT may transport patient with IV fluids not requiring titration or adjustment, and without additives including electrolytes (e.g. potassium, magnesium)
* See note below)	hypotonic		●	●	●	●	

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CATEGORY		EMR	EMT	AEMT	I	P	
	hypertonic				●	●	
	M = Maintenance I = Initiate						
	Crystalloid, +/- Dextrose/Lactate		M	I/M	I/M	I/M	
	with Multi=vitamins		M	M	M	M	
	with Thiamine		M	M	M	M	
Neuromuscular Blockers						●	
Respiratory	Anticholinergics		●	●	●	●	
	Sympathomimetics						
	Beta agonists		●	●	●	●	
	Epinephrine (nebulized)			●	●	●	
Dosage and Concentration Calculation				●	●	●	
M = Maintenance							
I = Initiate							
	Note: EMT's may administer medications within their scope of practice in addition to providing assistance in administration of those medications. EMT's may access a drug kit to access those medications.						
	Note: Med-Math skills including dosage calculations and measurement of medication to be administered are outside EMT scope of practice. EMT's may draw epinephrine from vials or ampules for the treatment of acute allergic reactions using devices/systems using syringes with mechanical limiters or color-coded or other clearly marked indicators to facilitate accurate dose measurement.						
	EMT's may transport patients with IV fluids not requiring titration or adjustment, and without additives including electrolytes (e.g. potassium, magnesium)						

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