

Updated European Society for Emergency Medicine Guidelines for acute pain management in emergency departments and prehospital care

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Acute pain management in European emergency settings faces persistent challenges, including inadequate clinical knowledge, training deficits, heightened emphasis on opioid stewardship, and concerns regarding drug-seeking behaviors. Despite previous guidelines, oligoanalgesia remains prevalent, with many patients experiencing suboptimal pain control. The evolving clinical landscape necessitated updating the 2020 European Society for Emergency Medicine (EUSEM) guidelines, considering emergent technological advances, the ongoing opioid crisis, aging populations, and continued pressure on emergency services. EUSEM launched the European Pain Initiative (EPI) to provide evidence-based recommendations for acute pain management in emergency settings and published guidelines in 2020. EPI convened a new project to review and update the previous guideline, rooted in the changing clinical landscape and experience. A systematic literature review was conducted following Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, searching MEDLINE, Cochrane database, Google Scholar, and EMBASE from January 2020 to May 2025. Publications were evaluated against predetermined inclusion and exclusion criteria, with evidence levels assigned to assist in developing management recommendations. The literature findings were integrated with the clinical experience of the EPI panel to reach a consensus on flexible, adaptable guidelines suitable for diverse

European settings. These updated guidelines provide evidence-based recommendations for adult (≥ 16 years) and pediatric (≥ 1 – ≤ 15 years) patients in emergency and prehospital settings, promoting a multimodal approach to acute pain management. The recommendations integrate the Channels-Enzymes-Receptors Targeted Analgesia framework with WHO analgesic ladder principles and emphasize systematic pain assessment, flexible routes of administration, and patient-specific decision-making. Nonopioid and multimodal strategies are prioritized, with opioids reserved for appropriate indications. *European Journal of Emergency Medicine* 33: 152–161 Copyright © 2026 Wolters Kluwer Health, Inc. All rights reserved.

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Introduction

Pain is the most common reason for patients requesting ambulance attendance and presentation to the emergency department (ED) [1,2]. In emergency settings, pain management should be straightforward to administer and be patient- and condition-specific. In all cases, it should be preceded by pain assessment and recording of pain scores.

In 2020, the European Society for Emergency Medicine (EUSEM) launched and published guidance for acute pain management in emergency settings through the multidisciplinary initiative – the European Pain

Initiative (EPI) [3,4]. The 2020 guideline relied upon the two central pillars of effective and repeated pain assessment and timely, flexible treatment using both nonpharmacological and pharmacological options. Opioids have traditionally been the mainstay of treatment [5], but with the advent of the opioid crisis, it is essential that effective alternatives to opioids for the treatment of pain are explored [6]. The changing landscape over the last 5 years, including the opioid crisis, technological advances because of the coronavirus disease 2019 pandemic, an aging population, and the continued pressure on emergency services, necessitates an update of approaches to acute pain management in the emergency setting [5,6]. This updated guideline provides recommendations that are flexible across all healthcare settings, regardless of medication access, and enable ED personnel to

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implement pain management strategies that will remain relevant for the long-term.

Details of pain assessment, which remains largely unchanged in this update, and nonpharmacological management can be found in previous publications [3,4].

This guidance addresses the Population, Intervention, Comparison, Outcome question of the effectiveness of multimodal pain management strategies for patients entering an emergency setting with a pain score of Numerical Rating Scale (NRS) greater than or equal to 4 or Visual Analogue Scale (VAS) greater than or equal to

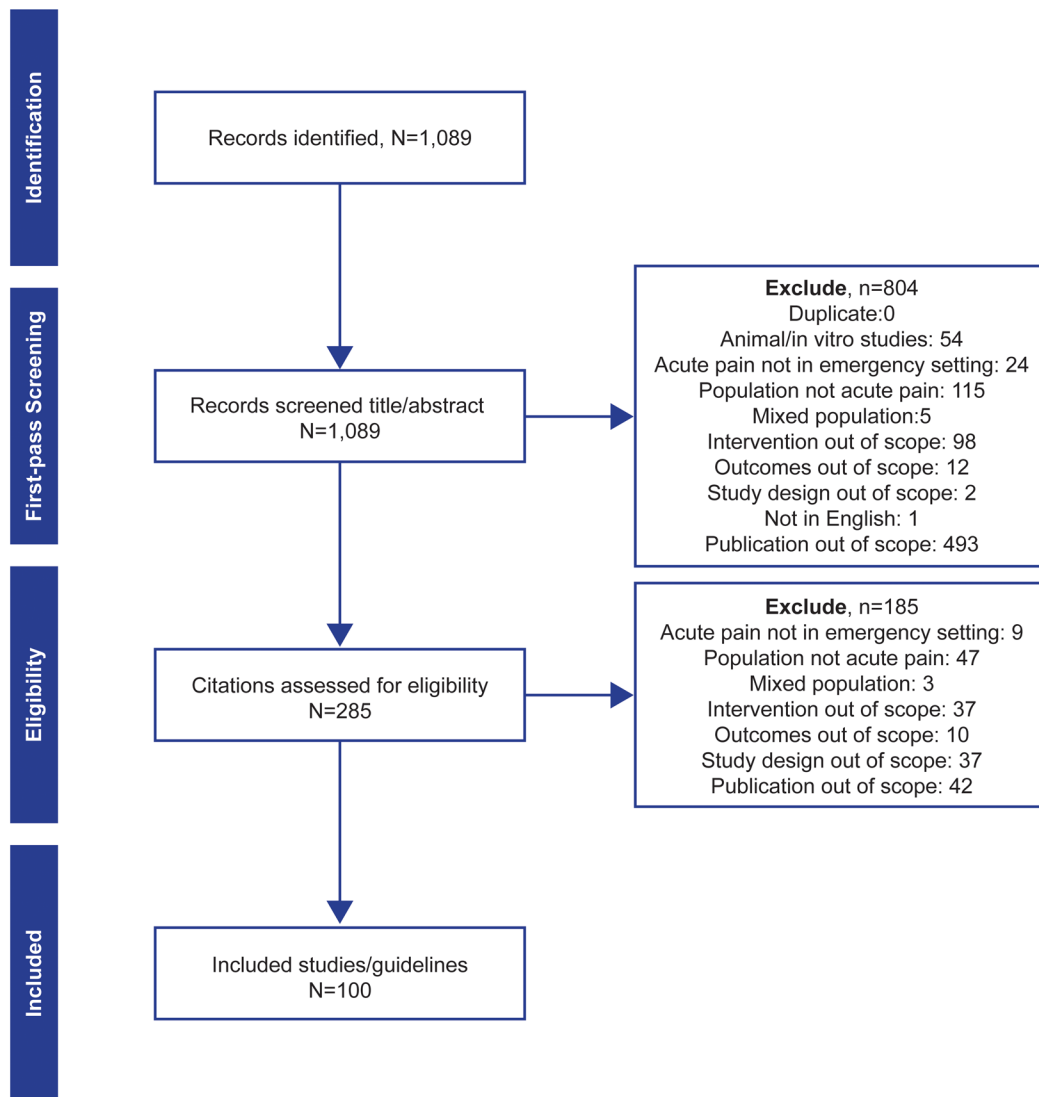
4 (on a 0–10) or greater than or equal to 40 (on a 0–100 scale).

Methodology

Literature review

These guidelines update those published in 2020, when a full literature search spanning more than 20 years was performed. The literature search for this update includes only those publications appearing since the beginning of 2020 and builds on previously identified literature. The systematic literature review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (Fig. 1) [7].

Fig. 1



PRISMA: overview of literature used to construct EUSEM recommendations. EUSEM, European Society for Emergency Medicine; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Search terms were used to follow a strategic methodology [8,9] and relevant publications from January 2020 to May 2025 were identified via a literature search performed using MEDLINE, Cochrane database, Google Scholar, and EMBASE online databases on 30 May 2025. The complete search strategy, determined by all authors, included both free-text words and medical subject headings, is available in online Supplementary Table S1, Supplemental digital content 1, <https://links.lww.com/EJEM/A537> as are the agreed inclusion and exclusion criteria for all publications (Supplementary Table S2, Supplemental digital content 1, <https://links.lww.com/EJEM/A537>).

First-pass evaluation was undertaken by Said Hachimi-Idrissi and Susan Allen, who reviewed titles and abstracts. Second-pass evaluation of published full texts by all authors determined those meeting eligibility criteria for subsequent review and discussion. Any disagreements were resolved through author discussion. A working set of publications was generated (Fig. 1), with additional publications included from outside the strict definitions applied in the search strategy as required. To develop recommendations, the returned literature was integrated with the authors' clinical experience. All literature used, including that used to compile the original guidelines in 2020, was evaluated and graded and is presented in the Supplementary Tables S3 and S4, Supplemental digital content 1, <https://links.lww.com/EJEM/A537>.

European Society for Emergency Medicine recommendations

Management of acute pain in the prehospital and hospital settings

To provide the flexibility required in busy, diverse emergency settings, EUSEM recommendations have been based on an agreed set of guiding principles, including training, protocol development, and documentation. EUSEM also recommends pain management within a multimodal, multidisciplinary framework that embraces opioid stewardship and integrates pharmacological and nonpharmacological approaches. Nonopioid and multimodal analgesia should be prioritized, reserving opioids for cases where benefits clearly outweigh risks [10–17]. The pharmacological approach to acute pain management in emergency settings has also evolved, and EUSEM has integrated the Channels-Enzymes-Receptors Targeted Analgesia approach and pyramid into updated recommendations aligned with an adapted pain ladder from the WHO (Supplementary Figure S1, Supplemental digital content 1, <https://links.lww.com/EJEM/A537>) [18,19].

The pathway for patients in pain in emergency settings emphasizes the need for assessment, management, and reassessment to optimize patient outcomes and is outlined in Supplementary Figure S2, Supplemental digital content 1, <https://links.lww.com/EJEM/A537> [20,21]. Prompt

and effective assessment of the patient's pain is essential, and multidimensional pain assessment tools should be considered if possible [22]. All patients should receive a baseline assessment of pain on arrival to emergency services within at least 15 min [4]. All patients should receive appropriate nonpharmacological approaches [3] to alleviate pain, and for those who require it, pharmacological analgesia should be provided. An overview of key considerations for pharmacological prescribing is provided in online Supplementary Materials, Supplemental digital content 1, <https://links.lww.com/EJEM/A537>.

Tiered system for pain management – the traffic light approach

With the objective of simplifying pain management across a range of emergency settings, for this update EUSEM have adopted a three-tiered system – the 'traffic light' approach (Fig. 2). This tiered system structures acute pain management into mild (green), moderate (orange), and severe (red) categories using validated pain scales such as NRS or VAS to guide analgesic choice. At first assessment, clinicians assign a pain category and initiate the corresponding step of multimodal analgesia, incorporating nonpharmacological and pharmacological options individualized to the patient and clinical context [3,4,11–14,17,21,23–34].

Mild pain is typically managed with oral monotherapy [35–37], with inhaled therapy considered until oral agents take effect [38–40], while moderate pain requires adding further agents with different mechanisms or routes (e.g. inhaled, intranasal, intramuscular, or intravenous formulations) [41–57]. Severe pain prompts rapid escalation, combining the moderate-step regimen with additional interventions such as ketamine, intranasal/nebulized/sublingual opioids, or nerve blocks, with close monitoring for effect [45,46,51,52,58–70]. Pain scores are re-evaluated at defined intervals (e.g. 30 min for mild–moderate pain and 15 min for severe pain), and patients move up or down the tiered levels (or through the colors of the traffic light) as analgesia is escalated when pain worsens or does not diminish and de-escalated as pain improves.

Practical management of pain in emergency settings

Based on the literature, expertise, and consensus view of the EPI members, the recommendations for managing pain in emergency settings are outlined in Fig. 3a for adults aged greater than or equal to 16 years and in Fig. 3b for children aged more than 1 to less than or equal to 15 years. The treatment algorithm gives an overview of all potential analgesic medications that may be used to manage pain by severity. The choice of pain management should be determined by the patient's baseline pain, so that every patient enters the tiered system appropriately – at green, orange, or red [11,12,14,15,71]. Once a patient is allocated to a tier, pain management strategies can be implemented and, as pain persists or analgesia

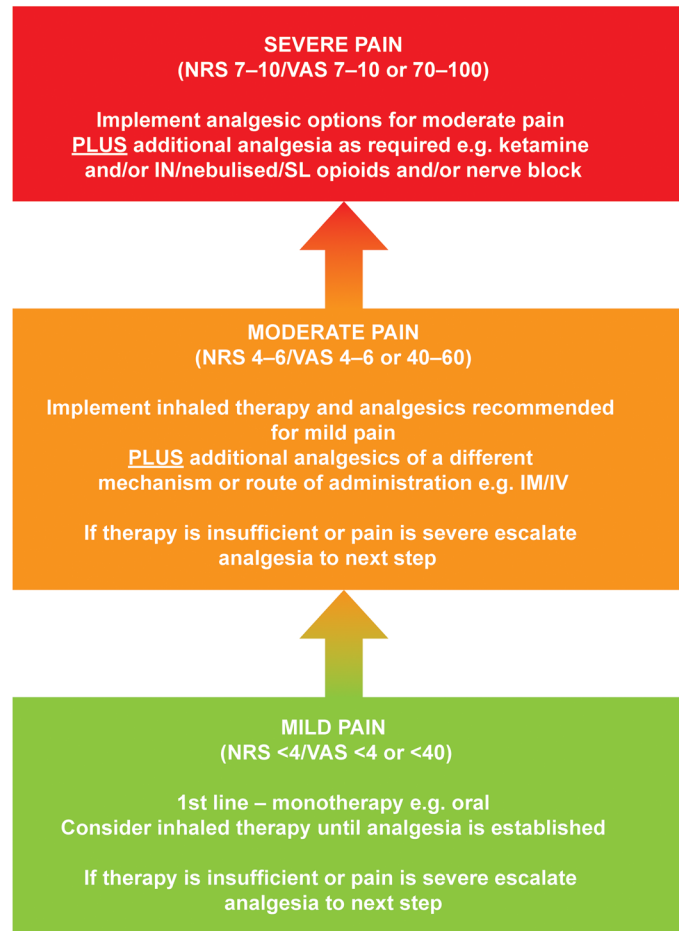
Fig. 2

Emergency setting specific recommendations

- Develop analgesic protocols that embrace a multimodal, multidisciplinary approach so that effective analgesia (non-pharmacological and pharmacological) is provided as soon as possible in the patient's journey through emergency care
- When additional analgesia is needed, consider a drug with another mechanism of action, do not rely on dose escalation alone

Patient-specific recommendations

- Evaluate baseline pain (NRS/VAS/FACE/CRIS etc) considering the capabilities of the patient*
- Use multimodal pain assessments where available for implementation
- Treat the underlying cause of pain
- Consider non-pharmacological pain relief
- If non-pharmacological methods alone are insufficient or pain is severe, escalate to pharmacological analgesia
- Manage patients' expectations where improvement rather than elimination of pain is a more realistic goal
- Re-evaluate mild or moderate pain at 30 minutes post-implementation of analgesia (unless patient visibly in increasing pain)**
- Re-evaluate severe pain at 15 minutes post-implementation of analgesia**
- Escalate analgesia based on regular pain assessments and pain scores, individualised to the patient; **NOTE:** whilst oral, intranasal, inhaled or IV routes of administration are preferred, depending on patient circumstances; when opioids are required IM, IO or SC routes of administration may need to be considered but should be considered as last resort when other routes are not available



Management strategy for acute pain in emergency settings. *Pain assessment: where possible, use patient self-report. Consider the pain scoring tool used to ensure it meets the needs of the patient, particularly those who are unable to self-report effectively, such as children and those with cognitive impairment. Where possible, use tools that are multidimensional but easy to implement in a busy emergency environment. **Pain reassessment: consider first assessment of pain as follows: severe baseline pain reassess at 15 min, moderate baseline pain 15–30 min; mild pain more than 30–60 min. On reassessment, if pain reduction is not evident, then escalate analgesia and reassess, considering other medicines rather than relying on dose escalation alone. The route of analgesia should also be considered. For intravenous, intranasal, inhaled, and sublingual administration, reassess the pain score at 15 min. For intramuscular and per os administration, reassess pain at 30 min. CRIS, crying, requires oxygen, increased vital signs, expression, sleeplessness; IM, intramuscular; IN, intranasal; IO, intraosseous; IV, intravenous; NRS, numerical rating scale; SL, sublingual; VAS, visual analogue scale.

takes effect, can be escalated or de-escalated as appropriate. Practitioners should choose medication within their appropriate prescribing rights and within their scope of professional practice. Practitioners should also consider the choice of route of analgesic administration based on pain severity, patient characteristics, staff training levels, and clinical urgency rather than defaulting to traditional intravenous opioid approaches. Choice should meet the needs of the individual patient and the required speed of onset for analgesia. EUSEM recognizes that patient characteristics unrelated to their pain state, including age, gender, population minoritization or disadvantage, and comorbidities, impact pain and its management and need additional consideration. Detailed information regarding protocol development, multimodal management, pain

assessment, analgesics, routes of administration, and the impact of patient characteristics on pain management can be found in Supplementary Materials, Supplemental digital content 1, <https://links.lww.com/EJEM/A537>, and the full guideline booklet available at https://eusem.org/images/251210_EUSEM_European_Pain_Initiative_Guidelines_Updated_Oct_2025.pdf.

Pharmacological treatment recommendations for acute pain

Bridging analgesia for all patients

In all patients, inhaled analgesia may be considered as interim pain control while definitive analgesia is being established, including nitrous oxide in adults and children

Fig. 3

(a)	<u>Analgesic options in ADDITION to those for moderate pain if needed (ensure new drug is of a different class):</u> IN/SL/buccal/nebulised opioids (fentanyl, sufentanil) IV opioids (morphine, fentanyl, sufentanil) IN/nebulised/IV ketamine (potential for combination with antipsychotics e.g. haloperidol, diazepam or midazolam) Nerve block (bupivacaine/ropivacaine)
SEVERE PAIN (NRS 7–10/VAS 7–10 or 70–100)	<u>Analgesic options in ADDITION to those for mild pain if needed (ensure new drug is of a different class):</u> Topical lidocaine INH nitrous oxide Oral opioids INH methoxyflurane IV paracetamol IV NSAIDs (ketorolac) IN/nebulised/IV ketamine (potential for combination with antipsychotics e.g. haloperidol, diazepam or midazolam) IV/IM metamizole Nerve block where appropriate
MODERATE PAIN (NRS 4–6/VAS 4–6 or 40–60)	<u>Analgesic options:*</u> Topical or oral NSAIDs (e.g. ibuprofen, diclofenac) Oral paracetamol
(b)	<u>Analgesic options in ADDITION to those for moderate pain if needed (ensure new drug is of a different class):</u> IN/SL/IV opioids (fentanyl) IN/nebulised/IV ketamine IV/oral opioids (morphine) Nerve block (bupivacaine/ropivacaine)
SEVERE PAIN (NRS 7–10/VAS 7–10 or 70–100)	<u>Analgesic options in ADDITION to those for mild pain if needed (ensure new drug is of a different class):</u> Topical local anaesthetic gel (lidocaine, prilocaine gel) INH nitrous oxide Oral opioids (morphine) IV paracetamol IV NSAIDs IN/nebulised/IV ketamine Nerve block where appropriate
MODERATE PAIN (NRS 4–6/VAS 4–6 or 40–60)	<u>Analgesic options:*</u> Oral ibuprofen Oral paracetamol Topical local anaesthetic gel (lidocaine, prilocaine gel)**
MILD PAIN (NRS <4/VAS <4 or <40)	

(a) Treatment options within the management strategy for acute pain in adults (≥ 16 years) in emergency settings. (b) Treatment options within the management strategy for acute pain in children (>1 to ≤ 15 years) in emergency settings. *Consider the use of inhaled therapy, that is, nitrous oxide, while other methods of analgesia are being established. **When planning analgesia for pediatric patients, consider local anesthetic cream/gel (lidocaine or lidocaine/prilocaine or tetracaine) to facilitate future IV administration. *Note:* onset of effect of anesthetic cream/gel requires from 30 min up to 60 min lead time. IM, intramuscular; IN, intranasal; INH, inhaled; IV, intravenous; NRS, numerical rating scale; NSAID, nonsteroidal anti-inflammatory drugs; SL, sublingual; VAS, visual analogue scale.

Fig. 3 (Continued)

Specific considerations for the management of pain in adults Fig. 3a:

1. Codeine and tramadol are not recommended because of their significant pharmacological limitations, safety concerns, and the availability of superior alternative medications.
2. The use of the opioid oxycodone is discouraged and not recommended, given its association with higher rates of euphoria than other opioids.
3. Metamizole is associated with life-threatening agranulocytosis and should be used with caution.
4. Ensure availability of naloxone if opioids are used.
5. For patients who receive NSAIDs, administration of a second different NSAID is contraindicated e.g. if a patient receives ibuprofen, then other NSAIDs like diclofenac or ketorolac should not be used.
6. If analgesia is not sufficient, escalate therapy using drugs from another class and/or dose escalation – drugs from the same class should not be used in combination.
7. Patients should be discharged from the emergency setting with minimal opioids, no more than 2–3 days of dosing to minimize the risk of addiction.
8. Escalate analgesia based on regular pain assessments and pain scores, individualized to the patient. *Note:* while oral, intranasal, inhaled, or intravenous routes of administration are preferred, depending on patient circumstances, when opioids are required intramuscular or subcutaneous routes of administration may need to be considered when other routes are not available or not feasible.
9. IM administration should be individualized to the patient and used when oral, intranasal, inhaled, and IV access is not available or difficult. The use of intramuscular delivery is strongly discouraged due to painful administration, unpredictable absorption, slow onset to effect, risk of local complications, and superior alternatives, and should be reserved only for exceptional circumstances when other routes are impossible.

Specific considerations for the management of pain in children and adolescents Fig. 3b:

1. Ensure availability of naloxone if opioids are used.
2. Consider antiemetics as adjunct to opioids: ondansetron to overcome nausea and reduce vomiting.
3. For patients who receive NSAIDs, administration of a second different NSAID is contraindicated, for example, if a patient receives ibuprofen, then other NSAIDs should not be used.
4. If analgesia is not sufficient, escalate therapy using drugs from another class and/or dose escalation – drugs from the same class should not be used in combination.
5. Codeine is contraindicated in children and is not recommended.
6. Methoxyflurane has demonstrated efficacy and safety in pediatric population, particularly for the management of acute traumatic pain in prehospital and emergency settings. Despite this robust evidence base, the lack of formal regulatory approval for pediatric use of methoxyflurane in wider Europe remains a significant barrier, limiting its broader implementation across European emergency departments and prehospital systems. As such, use of methoxyflurane in children and adolescents is off-label. Methoxyflurane has very recently been approved for use in children in Ireland, and while it remains off-label in wider Europe, its use in children aged 6 and over who can cope with instruction should be considered.

and inhaled methoxyflurane in adults [38,39,54,72–74]. A recent prehospital study by Simensen *et al.* [39] demonstrated noninferiority of inhaled methoxyflurane compared with intranasal fentanyl, with clinically relevant reductions in pain scores at 10 min. This suggests that intranasal opioids may also be effective as bridging analgesia. Other studies have similarly reported noninferiority of intranasal sufentanil compared with intravenous opioids in patients with severe pain [59,75]. Taken together, these findings support consideration of intranasal opioids, such as fentanyl, as bridging analgesia alongside inhaled options, within the clinician's scope of practice and prescribing authority.

Adults

In adults aged greater than or equal to 16 years, oral paracetamol or nonsteroidal anti-inflammatory drugs (NSAIDs) are recommended for mild pain, with the potential to escalate to intravenous administration in patients with moderate pain and include options such as ketamine (intranasal, intravenous, or nebulized routes) and opioids, with the option to consider nerve block in appropriate patients. In severe pain, opioids and ketamine should be considered via intranasal, sublingual, buccal, nebulized, and intravenous routes, plus nerve block.

Children

In children aged more than 1 to less than or equal to 15 years, oral ibuprofen or paracetamol is recommended for those with mild pain, plus the use of nitrous oxide while analgesia is being established. In these patients, also consider the use of a topical local anesthetic gel (lidocaine or lidocaine/prilocaine or tetracaine) to facilitate later intravenous administration, as the onset to effect is up to 60 min. For moderate pain, oral opioids and intravenous paracetamol and NSAIDs are recommended with the option for nerve block as needed. For severe pain, opioids should be considered administered by oral, intranasal, sublingual, or intravenous routes with the option to add intranasal, nebulized, or intravenous ketamine or nerve block as needed.

Discussion

Despite the widespread availability of evidence-based guidelines and diverse analgesic options, implementation of optimal pain management in emergency settings remains challenged by multifaceted barriers. Barriers to improvement include interconnected domains: human factors (including provider underestimation of patient pain, with healthcare professionals underestimating pain severity in approximately 80% of published studies), environmental constraints (overcrowding, understaffing,

and medicolegal concerns about symptom masking), and procedural barriers (fragmented authorization for non-physician analgesic administration and incomplete documentation). These barriers are not merely organizational; they reflect deeper uncertainties about the risks and benefits of analgesia in acute care, particularly regarding opioid stewardship and the fear of inadvertently masking serious underlying pathology.

The evaluation and management of acute pain is complex and relies on both clinical knowledge and clinical experience. To provide effective analgesia through non-pharmacological or pharmacological means, EUSEM recommends:

1. Evaluation of the patient's pain, with empathy to understand how distress is contributing to their pain.
2. Adequate and repetitive assessment of pain by individual patient age, cognitive, and linguistic abilities.
3. Treatment of any underlying causes of pain and implementation of nonpharmacological pain management strategies. For all patients, this may involve techniques such as splinting, immobilization, heat/cold, virtual reality, or mixed reality, and, for children, additional distraction techniques such as play.
4. Implementation of age-specific pharmacologic pain management that is specific to patient baseline pain – ensuring appropriate reassessment according to baseline pain severity, analgesia provided, and route of administration. While oral administration is preferred, the use of inhaled, intranasal, sublingual, and buccal administration should be considered where appropriate.
5. For all patients, consider inhaled or intranasal analgesia while other analgesic options are considered or implemented. Evidence from prehospital studies indicates that intranasal fentanyl and inhaled methoxyflurane both provide early analgesia that is non-inferior to intravenous morphine and to each other, supporting their role as effective nonintravenous bridging analgesia in the initial management of acute pain [39]. Nitrous oxide is well-established in emergency settings for fast, pain relief that is practical to use for all emergency personnel [33,74]. Inhaled methoxyflurane has established use in adults and has very recently been approved for use in children aged greater than or equal to 6 years in Ireland, but is currently off-label in other countries [76,77].
6. Analgesics should be selected with an understanding of analgesic pathways, considering their benefits and risks with reference to the individual patient and risk of side effects. Consider analgesic combinations rather than a reliance on opioids or dose escalation alone.
7. Ensure effective documentation of all pharmacological analgesia provided and ensure there are no contraindications to use before administration. Use the lowest dose of medication for the shortest period to achieve analgesia.
8. EUSEM has opted not to recommend the use of codeine or tramadol for use in emergency analgesia in this update due to their limitation and safety concerns. However, it is noted that codeine remains important in some countries for use in emergency analgesia, and in these instances, local and institutional recommendations should be considered.

In summary, despite persistent barriers to optimal pain management in European emergency settings, the evidence base for effective, evidence-based analgesia has expanded substantially over the past 5 years.

With the changing analgesic landscape, EUSEM and the EPI have reviewed and revised guidance to provide flexible recommendations that can be implemented across a wide range of healthcare settings by a range of healthcare professionals in emergency settings.

Our recommendations have been developed to provide a three-tiered stratified system (the traffic light approach) to emergency pain management, where patients are triaged by baseline pain severity using NRS, VAS, or multidimensional tools, with flexible escalation and de-escalation based on analgesic response. The framework emphasizes multimodal, multidisciplinary analgesia with regular reassessment at baseline and after analgesic implementation; at 30 min for mild–moderate pain and 15 min for severe pain. A multimodal approach combining pharmacologic agents targeting distinct pain pathways with nonpharmacologic interventions has consistently demonstrated superior efficacy, reduced opioid consumption, and improved patient outcomes compared with traditional opioid-centric approaches.

Both adults and children are managed using the stratified system, but the specific pharmacological options differ significantly to account for physiological and safety profiles in pediatric care.

For adults, the protocol offers a wider range of analgesic classes and combination therapies.

1. Mild pain: Management focuses on oral paracetamol and NSAIDs, with a specific option for topical NSAIDs (e.g. diclofenac) alongside oral forms.
2. Moderate pain: Treatment expands to include inhaled methoxyflurane and nitrous oxide. For moderate pain, there is the potential to escalate analgesia to intravenous options include paracetamol, NSAIDs (ketorolac), and metamizole (intravenous/intramuscular). Notably, ketamine can be combined with antipsychotics (haloperidol) or benzodiazepines (diazepam, midazolam) for enhanced effect.
3. Severe pain: Stronger opioids such as sufentanil are introduced alongside fentanyl and morphine. Routes

include intranasal, sublingual, buccal, and nebulized administration to ensure rapid onset.

The pediatric approach prioritizes noninvasive routes and age-appropriate formulations, with a more restricted drug list.

1. Mild pain: In addition to oral ibuprofen and paracetamol, topical local anesthetic gels (lidocaine, prilocaine) are a first-line option, emphasizing needle-free pain relief for minor procedures.
2. Moderate pain: Options include inhaled nitrous oxide and oral morphine. Unlike adults, there is no mention of methoxyflurane or metamizole. Intravenous options are focused on paracetamol and NSAIDs as required if oral options are not sufficient or practical, with ketamine available but without the explicit antipsychotic combinations used in adults.
3. Severe pain: Pharmacological escalation relies on fentanyl (intranasal/sublingual/intravenous) and morphine (intravenous/oral). Sufentanil is not listed for children. The protocol emphasizes intranasal and nebulized delivery systems to minimize distress associated with intravenous access.

In all patients, the use of bridging analgesia such as fast-onset inhaled analgesia should be considered while other analgesic options are being implemented or taking effect.

Implementation of these strategies requires more than guideline publication; sustainable improvement depends on institutional culture change, sustained staff education integrated into clinical workflows, systematic audit and feedback mechanisms, and alignment of organizational priorities with evidence-based pain management. EUSEM's updated guidelines offer flexible, evidence-based recommendations designed to promote multimodal analgesia across diverse European healthcare settings while acknowledging real-world constraints of time, resources, and provider scope.

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All authors met the requirement for authorship as established by the International Committee of Medical Journal Editors, and were involved in the development of the guidelines, including development of search criteria, review of returned citations, discussion and agreement of included data, development of the guideline, and the

manuscript. The authors believe these recommendations represent their honest work and are able to verify the validity of the results reported.

The updated complete guideline is available at www.eusem.org/education/guidelines

Conflicts of interest

There are no conflicts of interest.

References

- 1 Häske D, Dorau W, Eppler F, Heinemann N, Metzger F, Schempf B. Prevalence of prehospital pain and pain assessment difference between patients and paramedics: a prospective cross-sectional observational study. *Sci Rep* 2024; **14**:5613.
- 2 National Ambulance Service of Ireland. *National Ambulance Service Quality Improvement Project: prehospital pain management*. 2024. <https://www.nationalambulance.ie/documentrepository/clinicalkpis/pain-management-qjune-2022-final.pdf>. [Accessed 31 October 2025]
- 3 Hachimi-Idrissi S, Dobias V, Hautz WE, Leach R, Sauter TC, Sforzi I, *et al.* Approaching acute pain in emergency settings – European Society of Emergency Medicine (EUSEM) guidelines – part 2: management and recommendations. *Intern Emerg Med* 2020; **15**:1141–1155.
- 4 Hachimi-Idrissi S, Coffey F, Hautz WE, Leach R, Sauter TC, Sforzi I, *et al.* Approaching acute pain in emergency settings; European Society of Emergency Medicine (EUSEM) guidelines – part 1: assessment. *Intern Emerg Med* 2020; **15**:1125–1139.
- 5 Dahaba AA, Nannan Panday RS. Editorial: optimizing opioid prescriptions in the emergency department. *BMC Emerg Med* 2023; **23**:106.
- 6 Abdolrazaghnejad A, Banaie M, Tavakoli N, Safdari M, Rajabpour-Sanati A. Pain management in the emergency department: a review article on options and methods. *Adv J Emerg Med* 2018; **2**:e45.
- 7 Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, *et al.* The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021; **372**:n71.
- 8 Whitemore R, Knafl K. The integrative review: updated methodology. *J Adv Nurs* 2005; **52**:546–553.
- 9 Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med* 2009; **6**:e1000097.
- 10 Royal College of Emergency Medicine. *Management of pain in adults*. 2014. [https://www.rcem.ac.uk/docs/College%20Guidelines/5w.%20Management%20of%20Pain%20in%20Adults%20\(Revised%20December%202014\).pdf](https://www.rcem.ac.uk/docs/College%20Guidelines/5w.%20Management%20of%20Pain%20in%20Adults%20(Revised%20December%202014).pdf). [Accessed 31 October 2018]
- 11 Harvin JA, Albarado R, Truong VTT, Green C, Tyson JE, Pedroza C, *et al*; MAST Study Group. Multi-modal analgesic strategy for trauma: a pragmatic randomized clinical trial. *J Am Coll Surg* 2021; **232**:241–251.e3.
- 12 Rech MA, Griggs C, Lovett S, Motov S. Acute pain management in the emergency department: use of multimodal and non-opioid analgesic treatment strategies. *Am J Emerg Med* 2022; **58**:57–65.
- 13 Priano J, Faley B, Procopio G, Hewitt K, Feldman J. Adjunct analgesic use for acute pain in the emergency department. *Hosp Pharm* 2017; **52**:138–143.
- 14 Fabbri A, Voza A, Riccardi A, Serra S, De Iaco F; Study and Research Center of the Italian Society of Emergency Medicine (SIMEU). The pain management of trauma patients in the emergency department. *J Clin Med* 2023; **12**:3289.
- 15 Nagpal AK, Gadkari C, Singh A, Pundkar A. Optimizing pain management in emergency departments: a comprehensive review of current analgesic practices. *Cureus* 2024; **16**:e69789.
- 16 Powell R, Scott NW, Manyande A, Bruce J, Vogele C, Byrne-Davis LM, *et al.* Psychological preparation and postoperative outcomes for adults undergoing surgery under general anaesthesia. *Cochrane Database Syst Rev* 2016; **2016**:CD008646.
- 17 Suls J, Wan CK. Effects of sensory and procedural information on coping with stressful medical procedures and pain: a meta-analysis. *J Consult Clin Psychol* 1989; **57**:372–379.
- 18 Cisewski DH, Motov SM. Essential pharmacologic options for acute pain management in the emergency setting. *Turk J Emerg Med* 2019; **19**:1–11.
- 19 World Health Organisation (WHO). *Cancer pain ladder*. 2018. <https://iris.who.int/server/api/core/bitstreams/809a021b-e75c-4f9c-b002-6fb13bf1a0f5/content>. [Accessed 31 October 2025]
- 20 Cleaver B, Bird J, Boyde L, Francis GE. Evaluation of a new rapid assessment and treatment (RAT) tablet app for emergency department (ED)

- nurses: is earlier identification of investigations and treatments feasible? *Int Emerg Nurs* 2021; **55**:100875.
- 21 van Zanden JE, Wagenaar S, ter Maaten JM, ter Maaten JC, Ligtenberg JMM. Pain score, desire for pain treatment and effect on pain satisfaction in the emergency department: a prospective, observational study. *BMC Emerg Med* 2018; **18**:40.
 - 22 Crisman E, Appenzeller-Herzog C, Tabakovic S, Nickel CH, Minotti B. Multidimensional versus unidimensional pain scales for the assessment of analgesic requirement in the emergency department: a systematic review. *Intern Emerg Med* 2024; **19**:1463–1471.
 - 23 Daake DR, Guelnder SH. Imagery instruction and the control of postsurgical pain. *Appl Nurs Res* 1989; **2**:114–120.
 - 24 Good M, Albert JM, Anderson GC, Wotman S, Cong X, Lane D, Ahn S. Supplementing relaxation and music for pain after surgery. *Nurs Res* 2010; **59**:259–269.
 - 25 Burgess L, Kynoch K, Theobald K, Keogh S. The effectiveness of nurse-initiated interventions in the emergency department: a systematic review. *Australas Emerg Care* 2021; **24**:248–254.
 - 26 Shillington K, Thompson C, Saraga S, Soch L, Asomaning N, Borgundvaag B, McLeod SL. The effect of a nurse initiated therapeutic conversation compared to standard care for patients with acute pain in the ED: a randomized controlled trial. *Adv Emerg Nurs J* 2021; **43**:217–224.
 - 27 Dove D, Fassassi C, Davis A, Drapkin J, Butt M, Hossain R, et al. Comparison of nebulized ketamine at three different dosing regimens for treating painful conditions in the emergency department: a prospective, randomized, double-blind clinical trial. *Ann Emerg Med* 2021; **78**:779–787.
 - 28 Nguyen T, Mai M, Choudhary A, Gitelman S, Drapkin J, Likourezos A, et al. Comparison of nebulized ketamine to intravenous subdissociative dose ketamine for treating acute painful conditions in the emergency department: a prospective, randomized, double-blind, double-dummy controlled trial. *Ann Emerg Med* 2024; **84**:354–362.
 - 29 Drapkin J, Masoudi A, Butt M, Hossain R, Likourezos A, Motov S. Administration of nebulized ketamine for managing acute pain in the emergency department: a case series. *Clin Pract Cases Emerg Med* 2020; **4**:16–20.
 - 30 Rhodes AJ, Fagan MJ, Motov SM, Zerzan J. Nebulized ketamine for managing acute pain in the pediatric emergency department: a case series. *Türk J Emerg Med* 2021; **21**:75–78.
 - 31 Tanguay A, Lebon J, Hébert D, Bégin F. Intranasal fentanyl versus subcutaneous fentanyl for pain management in prehospital patients with acute pain: a retrospective analysis. *Prehosp Emerg Care* 2020; **24**:760–768.
 - 32 Brichko L, Gaddam R, Roman C, O'Reilly G, Luckhoff C, Jennings P, et al. Rapid Administration of Methoxyflurane to Patients in the Emergency Department (RAMPED) Study: a randomized controlled trial of methoxyflurane versus standard care. *Acad Emerg Med* 2021; **28**:164–171.
 - 33 Cohen SP, Christo PJ, Moroz L. Pain management in trauma patients. *Am J Phys Med Rehabil* 2004; **83**:142–161.
 - 34 Motov SM, Vlasica K, Middlebrook I, LaPietra A. Pain management in the emergency department: a clinical review. *Clin Exp Emerg Med* 2021; **8**:268–278.
 - 35 Charlton K, Limmer M, Moore H. Intravenous versus oral paracetamol in a UK ambulance service: a case control study. *Br Paramed J* 2020; **5**:1–6.
 - 36 Ridderikhof ML, Lirk P, Goddijn H, Vandewalle E, Schinkel E, Van Dieren S, et al. Acetaminophen or nonsteroidal anti-inflammatory drugs in acute musculoskeletal trauma: a multicenter, double-blind, randomized, clinical trial. *Ann Emerg Med* 2018; **71**:357–368.e8.
 - 37 Friedman BW, Chen YT, Campbell C, Nerenberg R, Afrifa F, Schimmrich K, et al. A sequential, multiple-assignment, randomized trial of analgesic strategies for acute musculoskeletal pain. *Am J Emerg Med* 2024; **82**:15–20.
 - 38 BOC Healthcare. Nitrous oxide medical gas data sheet. 2024. https://www.bocgases.co.uk/files/entonox_integral_valve_cylinder.pdf. [Accessed 31 October 2025].
 - 39 Simensen R, Fjose LO, Thorsen K, Olsen IC, Rehn M, Hagemo J, et al. Comparison of inhalational methoxyflurane, intranasal fentanyl, and intravenous morphine for treatment of prehospital acute pain in Norway (PreMeFen): a randomised, non-inferiority, three-arm, phase 3 trial. *Lancet* 2026; **406**:2957–2967.
 - 40 Ricard-Hibon A, Lecoules N, Savary D, Jacquin L, Wiel E, Deschamps P, et al. Inhaled methoxyflurane for the management of trauma related pain in patients admitted to hospital emergency departments: a randomised, double-blind placebo-controlled trial (PenASAP study). *Eur J Emerg Med* 2020; **27**:414–421.
 - 41 Pathan SA, Mitra B, Cameron PA. A systematic review and meta-analysis comparing the efficacy of nonsteroidal anti-inflammatory drugs, opioids, and paracetamol in the treatment of acute renal colic. *Eur Urol* 2018; **73**:583–595.
 - 42 Hosseini-najad SM, Amini Ahidashti H, Bozorgi F, Goli Khatir I, Montazar SH, Jahanian F, Amooei Khanabasi M. Efficacy and safety of combination therapy with ketorolac and morphine in patient with acute renal colic; a triple-blind randomized controlled clinical trial. *Bull Emerg Trauma* 2017; **5**:165–170.
 - 43 Friedman BW, Irizarry E, Chertoff A, Feliciano C, Solorzano C, Zias E, Gallagher EJ. Ibuprofen plus acetaminophen versus ibuprofen alone for acute low back pain: an emergency department-based randomized study. *Acad Emerg Med* 2020; **27**:229–235.
 - 44 Borland M, Milsom S, Esson A. Equivalency of two concentrations of fentanyl administered by the intranasal route for acute analgesia in children in a paediatric emergency department: a randomized controlled trial. *Emerg Med Australas* 2011; **23**:202–208.
 - 45 Kreps B, Malinverni S, Charles E, Bartiaux M, Youatou Towo P. Intranasal sufentanil compared with a classic protocol for acute pain management in an emergency department: a prospective sequential study. *Trauma* 2021; **25**:23–28.
 - 46 Anderson T, Harrell C, Snider M, Kink R. The safety of high-dose intranasal fentanyl in the pediatric emergency department. *Pediatr Emerg Care* 2022; **38**:e447–e450.
 - 47 Hutchings C, Yadav K, Cheung WJ, Young T, Sikora L, Eagles D. A systematic review of sufentanil for the management of adults with acute pain in the emergency department and pre-hospital setting. *Am J Emerg Med* 2023; **70**:10–18.
 - 48 Serra S, Spampinato MD, Riccardi A, Guarino M, Pavasini R, Fabbri A, De Iaco F. Intranasal fentanyl for acute pain management in children, adults and elderly patients in the prehospital emergency service and in the emergency department: a systematic review. *J Clin Med* 2023; **12**:2609.
 - 49 Li X, Hua GC, Peng F. Efficacy of intranasal ketamine for acute pain management in adults: a systematic review and meta-analysis. *Eur Rev Med Pharmacol Sci* 2021; **25**:3286–3295.
 - 50 Seak YS, Nor J, Tuan Kamauzaman TH, Arithra A, Islam MA. Efficacy and safety of intranasal ketamine for acute pain management in the emergency setting: a systematic review and meta-analysis. *J Clin Med* 2021; **10**:3978.
 - 51 Sandberg M, Hyldmo PK, Kongstad P, Dahl Friesgaard K, Raatinemi L, Larsen R, et al. Ketamine for the treatment of prehospital acute pain: a systematic review of benefit and harm. *BMJ Open* 2020; **10**:e038134.
 - 52 Guo J, Zhao F, Bian J, Hu Y, Tan J. Low-dose ketamine versus morphine in the treatment of acute pain in the emergency department: a meta-analysis of 15 randomized controlled trials. *Am J Emerg Med* 2024; **76**:140–149.
 - 53 Trimmel H, Egger A, Doppler R, Pimiskern M, Voelckel WG. Usability and effectiveness of inhaled methoxyflurane for prehospital analgesia – a prospective, observational study. *BMC Emerg Med* 2022; **22**:8.
 - 54 Hyldmo PK, Rehn M, Dahl Friesgaard K, Rognås L, Raatinemi L, Kurola J, et al. Inhaled analgesics for the treatment of prehospital acute pain – a systematic review. *Acta Anaesthesiol Scand* 2024; **68**:1306–1318.
 - 55 Lam L, Brouwer HJ, Gupta M, Ker CJ, Jones C, Athar A, et al. Effectiveness of inhaled methoxyflurane in acute pain in an emergency department – a systematic review of randomized controlled trials. *Am J Emerg Med* 2025; **94**:37–45.
 - 56 Colding-Jørgensen JT, Brandstrup GMG, Nielsen VML, Gradman J, Thybo LAB, Hansen PM, et al. The use of strong analgesics for prehospital pain management in children in the region of Southern Denmark: a register-based study. *Scand J Trauma Resusc Emerg Med* 2025; **33**:23.
 - 57 Oon MB, Nik Ab Rahman NH, Mohd Noor N, Yazid MB. Patient-controlled analgesia morphine for the management of acute pain in the emergency department: a systematic review and meta-analysis. *Int J Emerg Med* 2024; **17**:37.
 - 58 McWilliams HA, Fell L, Wheeler AM, Awad E, Wheeler AR, 3rd, Smith WR, McIntosh SE. Sublingual sufentanil tablet for analgesia in emergency medical services and search and rescue agencies. *Prehosp Emerg Care* 2024; **29**:948–952.
 - 59 Malinverni S, Kreps B, Lucaccioni T, Bouazza FZ, Bartiaux M, Plumacker A, et al. Effect of intranasal sufentanil on acute post-traumatic pain in the emergency department: a randomised controlled trial. *Emerg Med J* 2024; **41**:83–88.
 - 60 Tongbua S, Sri-On J, Thong-On K, Paksophis T. Non-inferiority of intranasal ketamine compared to intravenous morphine for musculoskeletal pain relief among older adults in an emergency department: a randomised controlled trial. *Age Ageing* 2022; **51**:afac073.
 - 61 Shi X, Zhou J, Jiang H, Xie K. Ketamine in the management of acute pain: a comprehensive meta-analysis. *J Coll Physicians Surg Pak* 2024; **34**:78–85.
 - 62 Moradi MM, Barootchi E, Najmeddin E, Sotoodehnia M, Bariko N, Khanlarzadeh M, et al. Evaluation of the efficacy of low-dose ketamine and

- dexmedetomidine compared to morphine for control of traumatic limb pain in the emergency department; a randomized clinical trial. *J Emerg Med* 2025; **78**:379–388.
- 63 Kolodychuk N, Krebs JC, Stenberg R, Talmage L, Meehan A, DiNicola N. Fascia iliaca blocks performed in the emergency department decrease opioid consumption and length of stay in patients with hip fracture. *J Orthop Trauma* 2022; **36**:142–146.
- 64 Mohanty CR, Varghese JJ, Panda R, Sahoo S, Mishra TS, Radhakrishnan RV, *et al.* Ultrasound-guided selective peripheral nerve block compared with the sub-dissociative dose of ketamine for analgesia in patients with extremity injuries. *Am J Emerg Med* 2023; **63**:94–101.
- 65 Bhattaram S, Shinde VS, Lamba I, Khumujam PP, Desai TS. Emergency practitioner-administered ultrasound nerve blocks in the emergency department: a retrospective analysis. *Turk J Emerg Med* 2024; **24**:245–251.
- 66 Pietsch U, Fischer H, Rüst CA, Hossfeld B, Grünenfelder A, Wenzel V, Albrecht R. Oral transmucosal fentanyl citrate analgesia in prehospital trauma care: an observational cohort study. *Scand J Trauma Resusc Emerg Med* 2023; **31**:2.
- 67 Rahman NH, DeSilva T. The effectiveness of patient control analgesia in the treatment of acute traumatic pain in the emergency department: a randomized controlled trial. *Eur J Emerg Med* 2012; **19**:241–245.
- 68 Wenderoth BR, Kaneda ET, Amini A, Amini R, Patanwala AE. Morphine versus fentanyl for pain due to traumatic injury in the emergency department. *J Trauma Nurs* 2013; **20**:10–15.
- 69 Beaudrie-Nunn AN, Wierszewski ED, Woods EJ, Bellolio F, Mara KC, Canterbury EA. Efficacy of analgesic and sub-dissociative dose ketamine for acute pain in the emergency department. *Am J Emerg Med* 2023; **70**:133–139.
- 70 Azizkhani R, Sanaei A, Heydari F, Majidinejad S, Golshani K, Sadeghi F, *et al.* Compare the efficacy of bolus low dose ketamine versus bolus plus infusion low dose ketamine on pain management in emergency department: a randomized clinical trial. *Clin Exp Emerg Med* 2025; **12**:259–266.
- 71 Patil A, Srinivasarangan M, Ravindra P, Mundada H. Studying protocol-based pain management in the emergency department. *J Emerg Trauma Shock* 2017; **10**:180–188.
- 72 Lindbeck G, Shah MI, Braithwaite S, Powell JR, Panchal AR, Browne LR, *et al.* Evidence-based guidelines for prehospital pain management: recommendations. *Prehosp Emerg Care* 2023; **27**:144–153.
- 73 Abebe Y, Hetmann F, Sumera K, Holland M, Staff T. The effectiveness and safety of paediatric prehospital pain management: a systematic review. *Scand J Trauma Resusc Emerg Med* 2021; **29**:170.
- 74 Thomas SH. Management of pain in the emergency department. *ISRN Emergency Medicine* 2013; **2013**:583132.
- 75 Blancher M, Maignan M, Clapé C, Quesada JL, Collomb-Muret R, Albasini F, *et al.* Intranasal sufentanil versus intravenous morphine for acute severe trauma pain: a double-blind randomized non-inferiority study. *PLoS Med* 2019; **16**:e1002849.
- 76 Health Products Regulatory Authority. *Penthrox 99.9%, 3ml inhalation vapour liquid (methoxyflurane)*. Summary of Product Characteristics. 2025. https://assets.hpra.ie/products/Human/29723/Licence_PA22745-001-001_15092025151417.pdf. [Accessed 31 October 2025]
- 77 Children's Health Ireland. 'Green whistle' for children approved for emergency pain relief following clinical trial. 2025. <https://www.childrenshealthireland.ie/ga/nuacht/green-whistle-for-children-approved-for-emergency-pain-relief-following-clinical-trial/>. [Accessed 31 October 2025]