Journal report – červen 2025

OBSAH

PREHOSPITAL CARE

– clinical trials & RCT & multicenter study

1: Ballestero Díez Y, Leonardo Cabello MT, Anderez Catalán S, Martínez Miñambres N, Nuim Irujo L, Mintegi Raso S. **Characteristics and interventions in critical patients in spanish paediatric emergency departments: a prospective multicenter study.** Emergencias. 2025 Jun;37(3):215-219. Spanish, English. doi: 10.55633/s3me/009.2025. PMID: 40531121.

2: Marjanovic N, Lestienne J, Balen F, Coisy F, Gerlier C, Guenezan J, Mimoz O; SFMU-IRU network. **Prevalence, risk factors and consequences of early clinical deterioration under non-invasive ventilation in emergency department patients: a prospective, multicentre, observational study of the French IRU Network.** Crit Care. 2025 Jun 3;29(1):224. doi: 10.1186/s13054-025-05430-7. PMID: 40462106; PMCID: PMC12135447.

3: Jeon MK, Kim Y. **Preparedness of Emergency Room Nurses for Bioterrorism Based on the Health Belief Model: A Multicenter Qualitative Study.** Int Nurs Rev. 2025 Jun;72(2):e70028. doi: 10.1111/inr.70028. PMID: 40384405; PMCID: PMC12086607.

4: Sakamoto K, Yasuda H, Shinzato Y, Kishihara Y, Amagasa S, Kashiura M, Moriya T. **Optimal timing for epinephrine administration in adult patients with out-of-hospital cardiac arrest: A retrospective observational study.** Acad Emerg Med. 2025 Jun;32(6):659-667. doi: 10.1111/acem.15089. Epub 2025 Jan 11. PMID: 39797640.

PREHOSPITAL CARE

– systematic review & meta-analysis & scoping review

1: Yin Wong LS, Anderson E, Brooks JP, Nowak-Wegrzyn A. **Controversies in Allergy: Does Using Epinephrine Always Mean Calling 911?** J Allergy Clin Immunol Pract. 2025 Jun 25:S2213-2198(25)00603-8. doi: 10.1016/j.jaip.2025.06.022. Epub ahead of print. PMID: 40578760.

2: Larson NJ, Rogers FB, Blondeau B, Dries DJ. **Prehospital Management of the Pregnant Trauma Patient.** Air Med J. 2025 Jul-Aug;44(4):236-241. doi: 10.1016/j.amj.2025.04.002. Epub 2025 Jun 1. PMID: 40571377.

3: Pálok D, Kiss B, Élő LG, Dósa Á, Zubek L, Élő G. **Enhancing Safety and Quality of Cardiopulmonary Resuscitation During Coronavirus Pandemic.** J Clin Med. 2025 Jun 11;14(12):4145. doi: 10.3390/jcm14124145. PMID: 40565889; PMCID: PMC12194367.

4: Burgos-Esteban A, Cordón-Hurtado V, Giménez-Luzuriaga M, Peinado-Quesada M, Gómez-Lage L, Juárez-Vela R, Czapla M, García-Criado J, Navas-Echazarreta N, Rodríguez-Calvo A, Lasa-

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Berasain P, Quintana-Diaz M. **Intranasal Drug Administration for Psychomotor Agitation as a Safe and Effective Prehospital Intervention: An Integrative Review.** Nurs Rep. 2025 Jun 16;15(6):219. doi: 10.3390/nursrep15060219. PMID: 40559510; PMCID: PMC12196232.

5: Srivats S, Zghyer F, Shahrori Z, Albert C, Al-Khatib SM, Chugh S, Etheridge SP, Goldberger ZD, Gopinathannair R, Lakkireddy D, Morin DP, Perez MV, Rottmann M, Sunshine JE, Wang PJ, Chung MK. **Sudden cardiac arrest: Limitations in risk-stratification and treatment, and the potential for digital technologies and artificial intelligence to improve prediction and outcomes.** Prog Cardiovasc Dis. 2025 Jun 18:S0033-0620(25)00083-0. doi: 10.1016/j.pcad.2025.06.005. Epub ahead of print. PMID: 40553720.

6: Goyal M, Hill MD, Saver JL, Singh N. **Poverty and Stroke: The Need for Socioeconomic Data in Hyperacute Care.** Stroke. 2025 Jul;56(7):1965-1968. doi: 10.1161/STROKEAHA.125.050669. Epub 2025 Jun 23. PMID: 40549834.

7: Aderinto N, Olatunji G, Kokori E. **Effectiveness of mobile stroke units in reducing time to thrombolysis in acute ischemic stroke: a scoping review.** Int J Emerg Med. 2025 Jun 20;18(1):109. doi: 10.1186/s12245-025-00903-6. PMID: 40542348; PMCID: PMC12180159.

8: Harring AKV, Kjærgaard M, Gehrt TB. **Frequent callers vs. frequent users – a scoping review of frequent contacts to the emergency medical services.** Int J Emerg Med. 2025 Jun 20;18(1):108. doi: 10.1186/s12245-025-00925-0. PMID: 40542347; PMCID: PMC12180229.

9: Kamidani R, Okada H. **Centralization and transport of critically ill pediatric patients.** Front Pediatr. 2025 Jun 4;13:1601875. doi: 10.3389/fped.2025.1601875. PMID: 40535697; PMCID: PMC12174163.

10: Cheskes S, McLeod SL. **Double sequential external defibrillation for refractory ventricular fibrillation: the science, the controversies and the future.** J Electrocardiol. 2025 Jun 4;91:154046. doi: 10.1016/j.jelectrocard.2025.154046. Epub ahead of print. PMID: 40483934.

11: Jazayeri SB, Nejad MMM, Ghozy S, Hamouda N, Ahmad B, Kadirvel R, Kallmes DF. **Diagnostic value of non-invasive large vessel occlusion detection methods: A systematic review and meta-analysis.** Interv Neuroradiol. 2025 Jun 2:15910199251345631. doi: 10.1177/15910199251345631. Epub ahead of print. PMID: 40452472; PMCID: PMC12129949.

12: Davis NW, Peng TJ, Lykens D, Corwine A, Young S, Webb R, Saini N, Wilson CA, Singh A, Khanna A. **Indirect Effects of Operating a Mobile Stroke Treatment Unit.** Stroke. 2025 Jun;56(6):1646-1649. doi: 10.1161/STROKEAHA.125.051445. Epub 2025 May 23. PMID: 40408525.

13: Sheahan J, Duffy R, Cunningham C. **The evolving role of paramedicine educators: A scoping review.** Afr J Emerg Med. 2025 Jun;15(2):595-601. doi: 10.1016/j.afjem.2025.04.001. Epub 2025 Apr 17. PMID: 40290105; PMCID: PMC12033909.

14: Puchwein P, Hallmann B, Eibinger N. **Bleeding management in pelvic trauma: state of the art.** Curr Opin Anaesthesiol. 2025 Jun 1;38(3):323-330. doi: 10.1097/ACO.0000000000001478. Epub 2025 Feb 28. PMID: 40071960.

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PREHOSPITAL CARE

– clinical trials & RCT & multicenter study –

1. Emergencias. 2025 Jun;37(3):215-219. doi: 10.55633/s3me/009.2025.

Characteristics and interventions in critical patients in spanish paediatric emergency departments: a prospective multicenter study.

Ballestero Díez Y(1), Leonardo Cabello MT(2), Anderez Catalán S(1), Martínez Miñambres N(1), Nuim Irujo L(1), Mintegi Raso S(1).

OBJECTIVE: To describe the clinical characteristics and interventions performed on critically ill patients admitted to pediatric emergency departments (PED) in Spain.

METHODS: Study based on a prospective multicenter registry of 19 PED included in the critical patient working group of the Spanish Society of Pediatric Emergencies. We included critical patients under 18 years of age admitted to those PEDs on the 4th, 14th, and 24th of each month between February 2020 and January 2022 (2 years). Critical patient was defined as one who met at least one of the following criteria: admission to a pediatric intensive care unit, stabilization procedures of the airway or circulatory system in the PED.

RESULTS: During the study period, 116,138 episodes were registered in the PEDs, and 255 (0.2%) were critically ill patients (median age 15 months; medical conditions 232, 91.0%). Of these, 145 (56.9%) required airway stabilization and 19 (7.5%) circulatory procedures. Eighty-four (32.9%) received prehospital care, 9 requiring airway stabilization and 6 circulatory procedures (5 cardiac massage). In the PEDs, 233 patients (91.4%) required interventions, of which 15 (5.9%) were airway stabilization, 1 (0.4%) circulatory and 8 (3.1%) both. Ten patients died (3.9%).

CONCLUSIONS: Critically ill patients are infrequent in Spanish PEDs. The high rate of procedures performed emphasizes the importance of adequate training of healthcare pre-hospital and in-hospital professionals.

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PMID: 40531121 [Indexed for MEDLINE]

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2. Crit Care. 2025 Jun 3;29(1):224. doi: 10.1186/s13054-025-05430-7.

Prevalence, risk factors and consequences of early clinical deterioration under non-invasive ventilation in emergency department patients: a prospective, multicentre, observational study of the French IRU Network.

Marjanovic N(1)(2)(3), Lestienne J(4)(5), Balen F(6)(7)(8), Coisy F(9), Gerlier C(8)(10), Guenezan J(4)(5)(11), Mimoz O(4)(11)(12); SFMU-IRU network.

BACKGROUND: Non-invasive ventilation (NIV) is widely used in emergency settings for acute respiratory failure, with NIV failure, usually defined by the need for tracheal intubation, as its primary complication. In emergency settings where patients may not be intubated or or where NIV represents the ceiling of care, a pragmatic understanding of NIV failure requires a broader definition that incorporates early clinical deterioration, including presumptive intubation criteria. This study assessed the prevalence of early clinical deterioration under NIV initiated in emergency settings (emergency department [ED] or mobile emergency medical services [EMS]) and its associated variables.

METHODS: A prospective multicentre study was conducted in 68 French EDs and EMS in the Initiative Recherche Urgences (IRU) network. Adult patients (≥ 18 years) requiring NIV in emergency settings were included, excluding those with a known do-not-resuscitate order or low autonomy. The primary endpoint was early clinical deterioration under NIV at 1 h. Early clinical deterioration under NIV was defined as either (1) the need for tracheal intubation or; (2) the presence of presumptive criteria for intubation. Secondary endpoints were baseline factors associated with failure, the need for tracheal intubation or death within 7 days among patients surviving without tracheal intubation at 1 h, and 7-day mortality.

RESULTS: A total of 198 patients were included over 5 days. Early clinical deterioration at 1 h was reported in 41% of the patients. Early clinical deterioration under NIV was associated with a Glasgow Coma Scale score < 14 (adjusted odds ratio [aOR] = 5.5, 95% confidence interval [CI] [1.8 -19.4]), heart rate > 115 beats per minute (aOR = 2.5, 95%CI [1.3-5.2]), and signs of increased work of breathing (aOR = 2.8, 95%CI [1.2-7.1]). Among the surviving patients not intubated at 1 h, 12% required intubation within 7 days in the Early Clinical Deterioration group and 3% in the No Early Clinical Deterioration group (p < 0.001). Within 7 days, 28% died in the Early Clinical Deterioration group and 10% in the No Early Clinical Deterioration group (p = 0.001). NIV failure was associated with increased 7-day mortality (aHR = 4.1, 95%CI [1.8-9.1]).

CONCLUSIONS: Early clinical deterioration under NIV is common in EDs, affecting nearly one out of two patients, and is associated with higher 7-day mortality. Clinical trial registration Registered 2024 january, 23th. NCT06213623. Prior to the first inclusion.

DOI: 10.1186/s13054-025-05430-7

PMCID: PMC12135447

PMID: 40462106 [Indexed for MEDLINE]

3. Int Nurs Rev. 2025 Jun;72(2):e70028. doi: 10.1111/inr.70028.

Preparedness of Emergency Room Nurses for Bioterrorism Based on the Health Belief Model: A Multicenter Qualitative Study.

Jeon MK(1), Kim Y(2).

AIM: To explore emergency room nurses' perceptions of preparedness for bioterrorism.

INTRODUCTION: In the context of evolving global security threats, including wars, terrorism, and emerging infectious diseases, it is critical to evaluate the bioterrorism response competencies of emergency room nurses and identify strategies to enhance their preparedness.

METHODS: Qualitative data were gathered through focus group interviews with 13 emergency room nurses employed at six regional emergency centers across the country. Data were analyzed using qualitative content analysis, and findings were reported in accordance with the COREQ guidelines.

RESULTS: Analysis of 537 meaningful statements yielded 38 codes, which were organized into two themes and eight subthemes. The first theme, barriers to bioterrorism preparedness, included subthemes such as "insufficient knowledge and experience related to bioterrorism" and "contrasting thoughts on the possibility of bioterrorism occurring in South Korea." The second theme, facilitators to bioterrorism preparedness, encompassed subthemes such as "programs to improve one's competencies in dealing with bioterrorism" and "unavoidable sense of responsibility as a nurse."

CONCLUSION: Despite a lack of established guidelines, knowledge, training, and response systems specific to bioterrorism, emergency room nurses demonstrate a strong sense of professional duty to provide care even in the event of a bioterrorist attack.

IMPLICATIONS FOR NURSING AND HEALTH POLICY: To strengthen bioterrorism preparedness, there is an urgent need to develop human resources, enhance infrastructure, and implement

targeted education and training programs for healthcare professionals. Education and training are essential to enhance the competency of emergency room nurses in responding effectively to bioterrorism at all times. The inadequate bioterrorism response systems in emergency centers and the low competency levels of nurses highlight the need for policies aimed at improving bioterrorism response capabilities within the national emergency medical system.

DOI: 10.1111/inr.70028

PMCID: PMC12086607

PMID: 40384405 [Indexed for MEDLINE]

4. Acad Emerg Med. 2025 Jun;32(6):659-667. doi: 10.1111/acem.15089. Epub 2025 Jan 11.

Optimal timing for epinephrine administration in adult patients with out-of-hospital cardiac arrest: A retrospective observational study.

Sakamoto K(1), Yasuda H(1)(2)(3)(4), Shinzato Y(1), Kishihara Y(1), Amagasa S(5), Kashiura M(1), Moriya T(1).

BACKGROUND: This study aimed to clarify the appropriate timing for epinephrine administration in adults with out-of-hospital cardiac arrest (OHCA), particularly those cases with nonshockable rhythms, by addressing resuscitation time bias.

METHODS: We performed a retrospective observational study utilizing a multicenter OHCA registry involving 95 hospitals in Japan between June 2014 and December 2020. We included patients with OHCA and nonshockable rhythms who received epinephrine during resuscitation. The primary and secondary outcomes were favorable 30-day neurological status and survival, respectively. A favorable neurological outcome was defined as a cerebral performance category score of 1 or 2. The time from emergency medical service (EMS) personnel contact to epinephrine administration was categorized in 5-min intervals. We used the Fine-Gray regression to calculate the time-dependent propensity score in each group. After risk set matching, we employed a generalized estimating equation (GEE) to adjust for within-patient clustering.

RESULTS: A total of 36,756 patients were included in the analysis. When involving timing variables and GEE, epinephrine administration significantly affected favorable 30-day neurological status at 1-5 and 6-10 min, with risk ratios (RR; 95% confidence intervals [CIs]) of 9.36 (1.19-73.7) and 3.67 (1.89-7.14), respectively. Epinephrine administration significantly affected 30-day survival at 1-5, 6-10, 11-15, and 16-20 min, with RRs (95% CIs) of 2.33 (1.41-3.85), 2.09 (1.65-2.65), 1.64 (1.32-2.05), or 1.70 (1.29-2.25), respectively.

CONCLUSIONS: Epinephrine administration within 10 min of EMS personnel contact may be associated with favorable neurological outcomes in patients with OHCA and nonshockable rhythms.

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PMID: 39797640 [Indexed for MEDLINE]

Journal report – červen 2025

PREHOSPITAL CARE

– systematic review & meta-analysis & scoping review –

1. J Allergy Clin Immunol Pract. 2025 Jun 25:S2213-2198(25)00603-8. doi: 10.1016/j.jaip.2025.06.022. Online ahead of print.

Controversies in Allergy: Does Using Epinephrine Always Mean Calling 911?

Yin Wong LS(1), Anderson E(2), Brooks JP(2), Nowak-Wegrzyn A(3).

The current standard management of anaphylaxis recommends immediate activation of EMS after epinephrine administration. Recently the AAAAI 2023 anaphylaxis practice parameter has provided a conditional recommendation that patients at low risk may observe initial response to epinephrine at home. This pro-con review explores the evolving debate around whether immediate activation of EMS is always necessary or whether a risk-stratified approach may be appropriate for low-risk patients. We examine the clinical rationale underpinning reflex immediate EMS activation-monitoring for biphasic reactions and providing adjunctive care-against evidence suggesting that most anaphylaxis cases resolve with minimal intervention. Rates of biphasic anaphylaxis and severe outcomes are low, especially with early epinephrine use. Mandatory EMS activation may deter timely epinephrine use and increase healthcare costs, anxiety, and emergency department utilization unnecessarily. However, real-world barriers such as limited access to multiple EAIs, poor EAI usage, and inadequate anaphylaxis education outside specialty care increase risk for adverse outcomes without EMS involvement. We propose a risk-stratified approach that incorporates individual medical history, access to treatment, and capacity for self-management. Shared decision-making, objective assessment tools, and improved anaphylaxis education are essential for safely implementing this shift. Although immediate EMS activation remains critical for high-risk individuals, a tailored strategy may improve outcomes, reduce burden, and increase timely epinephrine use in lower-risk populations. Further research is needed to define clear criteria for safe home management and ensure health equity in access and education.

DOI: 10.1016/j.jaip.2025.06.022

PMID: 40578760

2. Air Med J. 2025 Jul-Aug;44(4):236-241. doi: 10.1016/j.amj.2025.04.002. Epub 2025 Jun 1.

Prehospital Management of the Pregnant Trauma Patient.

Larson NJ(1), Rogers FB(2), Blondeau B(3), Dries DJ(4).

Obstetrical care in the United States is in crisis. As timely access to obstetric care becomes increasingly less common in the United States, the role of an emergency medical services clinician in the care of a pregnant trauma patient has become increasingly important, particularly in rural or austere environments with extended times to arrival at a trauma center with capacity to provide definitive obstetrical care. In this review, we provide considerations for the primary management of pregnant trauma patients in a prehospital setting by reviewing the essentials of immediate care by organ system, with particular emphasis on airway support and medication considerations in pregnancy.

DOI: 10.1016/j.amj.2025.04.002

PMID: 40571377 [Indexed for MEDLINE]

3. J Clin Med. 2025 Jun 11;14(12):4145. doi: 10.3390/jcm14124145.

Enhancing Safety and Quality of Cardiopulmonary Resuscitation During Coronavirus Pandemic.

Pálok D(1), Kiss B(1), Élő LG(2), Dósa Á(3), Zubek L(2), Élő G(2).

Background: Professional knowledge and experience of healthcare organization went through continuous change and development with the progression of COVID-19 pandemic waves. However, carefully developed guidelines for cardiopulmonary resuscitation (CPR) remained largely unchanged regardless of the epidemic situation, with the largest change being a more prominent bioethical approach. It would be possible to further improve the quality of CPR by systematic data collection, the facilitation of prospective studies, and further development of the methodology based on this evidence, as well as by providing information and developing provisions on interventions with expected poor outcomes, and ultimately by refusing resuscitation.

Methods: This study involved the critical collection and analysis of literary data originating from the Web of Science and PubMed databases concerning bioethical aspects and the efficacy of CPR during the COVID-19 pandemic. Results: According to the current professional recommendation of the European Resuscitation Council (ERC), CPR should be initiated immediately in case of cardiac arrest in the absence of an exclusionary circumstance. One such

circumstance is explicit refusal of CPR by a well-informed patient, which in practice takes the form of a prior declaration. ERC prescribes the following conjunctive conditions for do-not-attempt CPR (DNACPR) declarations: present, real, and applicable. It is recommended to take the declaration as a part of complex end-of-life planning, with the corresponding documentation available in an electronic database. The pandemic has brought significant changes in resuscitation practice at both lay and professional levels as well. Incidence of out-of-hospital resuscitation (OHCA) did not differ compared to the previous period, while cardiac deaths in public places almost halved during the epidemic ($p < 0.001$) as did the use of AEDs ($p = 0.037$). The number of resuscitations performed by bystanders and by the emergency medical service (EMS) also showed a significant decrease ($p = 0.001$), and the most important interventions (defibrillation, first adrenaline time) suffered a significant delay. Secondary survival until hospital discharge thus decreased by 50% during the pandemic period.

Conclusions: The COVID-19 pandemic provided a significant impetus to the revision of guidelines. While detailed methodology has changed only slightly compared to the previous procedures, the DNACPR declaration regarding self-determination is mentioned in the context of complex end-of-life planning. The issue of safe environment has come to the fore for both lay and trained resuscitators.

Future Directions: Prospective evaluation of standardized methods can further improve the patient's autonomy and quality of life. Since clinical data are controversial, further prospective controlled studies are needed to evaluate the real hazards of aerosol-generating procedures.

DOI: 10.3390/jcm14124145

PMCID: PMC12194367

PMID: 40565889

4. Nurs Rep. 2025 Jun 16;15(6):219. doi: 10.3390/nursrep15060219.

Intranasal Drug Administration for Psychomotor Agitation as a Safe and Effective Prehospital Intervention: An Integrative Review.

Burgos-Esteban A(1)(2)(3), Cordón-Hurtado V(2), Giménez-Luzuriaga M(3), Peinado-Quesada M(4), Gómez-Lage L(4), Juárez-Vela R(3)(5), Czapla M(3)(6), García-Criado J(7), Navas-Echazarreta N(3), Rodríguez-Calvo A(8), Lasa-Berasain P(9), Quintana-Diaz M(4).

Introduction: Psychomotor agitation represents a complex medical emergency, particularly challenging in prehospital settings. Since March 2020, the incidence of psychomotor agitation has significantly increased.

Rationale: Emergency Medical Services (EMS) frequently serve as the first point of contact, bearing the critical responsibility of effectively managing these situations.

Objective: This was to assess the feasibility and suitability of the intranasal route for administering pharmacological therapy in the prehospital management of patients experiencing psychomotor agitation.

Materials and Methods: An integrative review of the literature was conducted to evaluate the use of the intranasal route for drug administration in patients with psychomotor agitation in prehospital settings. The review was carried out between September 2022 and July 2024. A total of 454 articles were identified, 15 of which met the inclusion criteria. These were supplemented by an additional 10 records, resulting in the analysis of 25 studies.

Results: Seventeen studies outlined protocols for managing agitated patients, five described the correct technique for intranasal drug administration, and eleven identified drugs suitable for this route.

Conclusions: The intranasal route is a safe, rapid, and accessible method for the pharmacological containment of agitated patients in prehospital settings, particularly for individuals who are uncooperative.

DOI: 10.3390/nursrep15060219

PMCID: PMC12196232

PMID: 40559510

5. Prog Cardiovasc Dis. 2025 Jun 18:S0033-0620(25)00083-0. doi: 10.1016/j.pcad.2025.06.005.

Sudden cardiac arrest: Limitations in risk-stratification and treatment, and the potential for digital technologies and artificial intelligence to improve prediction and outcomes.

Srivats S(1), Zghyer F(2), Shahrori Z(3), Albert C(4), Al-Khatib SM(5), Chugh S(6), Etheridge SP(7), Goldberger ZD(8), Gopinathannair R(9), Lakkireddy D(9), Morin DP(10), Perez MV(11), Rottmann M(12), Sunshine JE(13), Wang PJ(11), Chung MK(14).

Sudden cardiac death (SCD) remains a pervasive public health challenge, accounting for a significant proportion of cardiac and all-cause mortality worldwide. Despite notable advancements in cardiovascular therapies and reductions in overall cardiac mortality, survival following sudden cardiac arrest (SCA) remains dismally low, and prediction strategies remain inadequate. This comprehensive review examines the current landscape of SCD etiologies and the latest guidelines for primary and secondary prevention of SCD with implantable

cardioverter defibrillators (ICDs). Particular attention is given to the limitations of left ventricular ejection fraction (LVEF) as the primary tool for risk stratification, given its low sensitivity, specificity, and limited applicability to the broader population in which most SCDs occur. Emerging risk scores and machine learning (ML) driven prediction models have begun to efficiently integrate clinical, electrical, imaging, genetic and laboratory parameters to improve SCD risk stratification. This review highlights examples of such artificial intelligence (AI) prediction models and discusses their potential role in the near-term and long-term prediction of SCD in both in-hospital and out-of-hospital settings, while emphasizing the need for external validation of such models. The review also discusses critical system-level gaps in the chain of survival from cardiac arrest, particularly the need for automated emergency medical services (EMS) activation, community responder engagement, high-quality cardiopulmonary resuscitation (CPR) and improved access to defibrillation. It explores the role of digital technologies such as wearable sensors, smartwatches, smartphone applications and implantable devices in improving real-time SCA detection and enhancing early aspects of the chain of survival from cardiac arrest. Finally, the review calls for a multidisciplinary, multi-sectoral approach including regulatory, technological, and public health stakeholders to bridge gaps in SCD prevention, detection, and response.

DOI: 10.1016/j.pcad.2025.06.005

PMID: 40553720

6. Stroke. 2025 Jul;56(7):1965-1968. doi: 10.1161/STROKEAHA.125.050669. Epub 2025 Jun 23.

Poverty and Stroke: The Need for Socioeconomic Data in Hyperacute Care.

Goyal M(1), Hill MD(1), Saver JL(2), Singh N(3).

Poverty profoundly influences stroke risk, access to care, and recovery, yet remains largely invisible in hyperacute stroke trials. Despite growing awareness of health inequities, current research and clinical frameworks rarely capture socioeconomic data at the point of care-particularly during the hyperacute phase, when decisions are time sensitive. This commentary highlights the urgent need to incorporate measures of poverty and social vulnerability into hyperacute stroke care and research. We briefly review existing evidence on the relationship between socioeconomic status and acute stroke outcomes, identify gaps in current data collection practices, and explore why capturing such information has remained a challenge. To address this gap, we propose a practical, rapid-assessment approach using brief, validated tools to measure economic strain in emergency or prehospital settings. These tools can be embedded into clinical workflows with minimal disruption while providing critical context for

interpreting outcomes and guiding resource allocation. We envision incorporating such tools into future randomized controlled trials to ensure that socioeconomic factors are systematically captured and analyzed-ultimately enabling more inclusive trial designs, equitable care delivery, and data-driven policy change.

DOI: 10.1161/STROKEAHA.125.050669

PMID: 40549834 [Indexed for MEDLINE]

7. Int J Emerg Med. 2025 Jun 20;18(1):109. doi: 10.1186/s12245-025-00903-6.

Effectiveness of mobile stroke units in reducing time to thrombolysis in acute ischemic stroke: a scoping review.

Aderinto N(1), Olatunji G(2), Kokori E(2).

BACKGROUND: Timely thrombolysis within the golden hour (≤ 60 min from onset) is critical for minimizing disability in acute ischemic stroke (AIS). Mobile stroke units (MSUs) enable prehospital thrombolysis, with effectiveness varying by urban versus rural settings, the presence of an onboard neurologist, and telemedicine models. This study maps evidence on MSU effectiveness in reducing time to thrombolysis in AIS compared to standard emergency medical services (EMS), examines factors modulating effectiveness (e.g., geographic setting, operational protocols), and identifies research gaps.

METHODS: This scoping review followed the Arksey and O'Malley framework and PRISMA-ScR guidelines. PubMed, Embase, Google Scholar, Scopus, and Cochrane Library were searched from January 2008 to March 2025 for peer-reviewed studies reporting thrombolysis timing in AIS with MSUs. Included randomized controlled trials (RCTs), observational studies, and meta-analyses (using both fixed-effects and random-effects models) were synthesized narratively, with data on time reductions, treatment rates, outcomes, and limitations extracted by two blinded reviewers (NA and EK) and tabulated.

RESULTS: Thirteen studies (five RCTs, six observational studies, and two meta-analyses) involving 39,800 patients across urban and mixed settings were included. MSUs reduced the median onset-to-needle time by 20–41 min, increasing golden-hour rates from less than 5% (EMS) to 21–33%. Urban settings reduced time by 25–41 min and onboard neurologists by up to 41 min, compared to 20–40 min in rural areas and 30–37 min with telemedicine. Thrombolysis rates increased by 10–20% with MSUs compared to EMS, with earlier treatment associated with improved 90-day mRS outcomes of 0–1. Gaps include limited rural data, sparse real-world evidence of cost-effectiveness, and inconsistent reporting of outcomes.

CONCLUSION: MSUs enhance access to thrombolysis in AIS, resulting in substantial time savings and potential benefits to outcomes, particularly in urban settings. Further research is needed on rural applicability, cost-effectiveness, and standardized outcomes to optimize global MSU implementation.

DOI: 10.1186/s12245-025-00903-6

PMCID: PMC12180159

PMID: 40542348

8. Int J Emerg Med. 2025 Jun 20;18(1):108. doi: 10.1186/s12245-025-00925-0.

Frequent callers vs. frequent users - a scoping review of frequent contacts to the emergency medical services.

Harring AKV(1)(2), Kjærgaard M(3), Gehrt TB(3)(4).

BACKGROUND: A significant limitation in the literature on frequent callers and frequent users of prehospital Emergency Medical Services (EMS) is the lack of consistent and thus, comparable definitions, as well as inconsistent use of terminology. Here we aim to summarise and address discrepancies in the existing literature, contributing to the ongoing discussion.

METHOD: We conducted a systematic search of available literature from 2000 up until February 2024 in the PubMed database. Search terms related to both frequent callers and frequent users of the prehospital EMS.

RESULT: A total of 19 articles were included in our analysis of definitions of frequent callers and users of prehospital EMS. The average minimum number of calls required to be defined as a frequent caller was 42.5 calls per year (range: 4-120). For frequent users, an average minimum number of ambulance responses was 4.7 per year (range: 3-10).

CONCLUSION: Our findings emphasise both the possibility and the need to distinguish between frequent users and frequent callers of prehospital EMS. Existing definitions in the literature vary widely, making comparisons difficult. Standardised definitions and consistent terminology are essential to address underlying issues and enable further research synthesis.

DOI: 10.1186/s12245-025-00925-0

PMCID: PMC12180229

PMID: 40542347

9. Front Pediatr. 2025 Jun 4;13:1601875. doi: 10.3389/fped.2025.1601875. eCollection 2025.

Centralization and transport of critically ill pediatric patients.

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BACKGROUND: Caring for critically ill pediatric patients requires specialized expertise, centralized facilities, and efficient transport systems. The centralization of pediatric intensive care units in tertiary centers has enhanced clinical outcomes, resource efficiency, and standardized care. In this study, we provided an updated review of the increase in need for specialized pediatric transport teams.

METHODS: We searched PubMed for peer-reviewed literature on the treatment and transport of critically ill pediatric patients, as well as websites of government agencies involved in reporting population prospects. The following search terms were used: pediatric intensive care units, specialized pediatric transport teams, centralization, and helicopter emergency medical services. Thereafter, an inductive qualitative content analysis was performed.

RESULTS: High-volume pediatric intensive care units are associated with lower risk-adjusted mortality rates and more efficient resource utilization. However, over-centralization may reduce quality. Effective patient transport depends on skilled personnel, coordination, and stabilization, regardless of the team's composition. Therefore, transport methods should be selected based on a patient's condition, distance, and regional resources. Although helicopters enable rapid transport, they pose risks such as patient-related adverse events, operational hazards, and high costs. Additionally, recent studies questioned the "golden hour" concept, emphasizing stabilization and timely care over speed. Telemedicine plays a crucial role in reducing unnecessary transfers, optimizing resources, and improving access to specialized care.

CONCLUSIONS: As aging populations and declining birth rates reshape healthcare needs, the demand for specialized pediatric transport and telemedicine increases. Future strategies must address regional disparities, enhance cost-effectiveness, and integrate advanced technologies such as artificial intelligence to ensure equitable and high-quality pediatric care.

DOI: 10.3389/fped.2025.1601875

PMCID: PMC12174163

PMID: 40535697

10. J Electrocardiol. 2025 Jun 4;91:154046. doi: 10.1016/j.jelectrocard.2025.154046.

Double sequential external defibrillation for refractory ventricular fibrillation: the science, the controversies and the future.

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Double sequential external defibrillation (DSED), the technique of providing two rapid shocks from two defibrillators with pads placed in the anterior-lateral and anterior-posterior position has been studied in animal labs and clinical practice for over two decades. In 2022, the Double Sequential External Defibrillation for Refractory Ventricular Fibrillation (DOSE-VF, clinicaltrials.gov: NCT04080986) trial was published in the New England Journal of Medicine. This cluster randomized crossover trial involved six paramedic services in Ontario, Canada, and compared standard (anterior-lateral) defibrillation to vector change defibrillation (VC, anterior-posterior pad repositioning) or DSED for patients with ventricular fibrillation (VF) and unresponsive to three standard shocks. The trial showed superior outcomes for all primary and secondary endpoints (VF termination, return of spontaneous circulation [ROSC], survival to hospital discharge, and neurologically intact survival) with DSED versus standard defibrillation, and improved VF termination and survival to discharge, but not ROSC or neurologically intact survival, with VC versus standard defibrillation. These findings, along with the 2023 updated ILCOR guidelines endorsing DSED for refractory VF, have generated significant global interest in it's implementation. This manuscript explores the scientific rationale and underlying mechanisms of DSED, examines controversies surrounding its implementation, and outlines directions for future research.

DOI: 10.1016/j.jelectrocard.2025.154046

PMID: 40483934

11. Interv Neuroradiol. 2025 Jun 2:15910199251345631. doi: 10.1177/15910199251345631.

Diagnostic value of non-invasive large vessel occlusion detection methods: A systematic review and meta-analysis.

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Background: Accurate and timely prehospital detection of large vessel occlusion (LVO) is critical for optimizing patient triage and initiating appropriate reperfusion therapies. Recent advances

in portable stroke detection technologies, such as electroencephalography (EEG) and transcranial Doppler (TCD) ultrasound, offer potential solutions but their diagnostic performance remains unclear.

Methods: We searched PubMed, Scopus, Embase, and Web of Science, following the PRISMA guidelines. Studies were included if they assessed the diagnostic performance of non-invasive prehospital LVO detection tools compared to CT or MR angiography. Risk of bias was assessed using the QUADAS-2 tool.

Results: A total of 13 studies were included, examining various portable detection tools including EEG or neurophysiological monitoring, ultrasound-based techniques including TCD or TCCD, portable Openwater optical blood flow monitor and cranial accelerometry. The pooled diagnostic odds ratio (DOR) was 52.7 (95% CI: 28.3-97.8), indicating strong diagnostic performance, with significant heterogeneity among studies ($I2 = 67.3\%$, $P < 0.001$). Subgroup analysis revealed that TCD-based methods had the highest DOR (120.4, 95% CI: 76.9-188.7), followed by other tools (26.8, 95% CI: 13.7-52.6), and EEG (18.2, 95% CI: 9.1-36.3). The pooled sensitivity was 87.4% (95% CI: 82.5-91.0) and specificity was 89.39% (95% CI: 83.0-93.5) across all methods. TCD-based methods showed the highest specificity (95.0%, 95% CI: 91.8-97.0).

Conclusion: Non-invasive prehospital LVO detection tools show promising diagnostic performance, particularly TCD-based methods. Future studies should focus on validating these tools in larger, diverse populations to enhance prehospital stroke triage and improve patient outcomes.

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PMCID: PMC12129949

PMID: 40452472

12. Stroke. 2025 Jun;56(6):1646-1649. doi: 10.1161/STROKEAHA.125.051445. Epub 2025 May 23.

Indirect Effects of Operating a Mobile Stroke Treatment Unit.

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Mobile stroke units, also referred to as mobile stroke treatment units, have revolutionized acute stroke care by reducing thrombolysis and mechanical thrombectomy times, resulting in positive patient outcomes. These direct benefits of mobile stroke treatment units have been

well documented in the literature. Yet, despite these demonstrated benefits, mobile stroke treatment unit programs are often perceived as a costly financial burden to establish. However, when implemented effectively, Mobile stroke programs can yield indirect societal and institutional benefits. We highlight the indirect effects and factors that are less commonly reported when operating a mobile stroke program, including aiding local emergency medical services, improving emergency department stroke care and throughput, optimizing hospital resource utilization, and extending community education and outreach initiatives.

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PMID: 40408525 [Indexed for MEDLINE]

13. Afr J Emerg Med. 2025 Jun;15(2):595-601. doi: 10.1016/j.afjem.2025.04.001. Epub 2025 Apr 17.

The evolving role of paramedicine educators: A scoping review.

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INTRODUCTION: Growing responsibility and changes to paramedicine and prehospital care have led to rapid developments in paramedicine education. Despite educational requirements at increasingly advanced levels, it remains unclear how academia has responded to these changes and if they're developing the requisite skills and knowledge.

METHODS: A scoping review was undertaken to understand the present role of paramedicine educators and how they've adapted to the evolution of paramedicine education worldwide. Data searches were performed across eight electronic databases, six paramedicine journals, grey literature, and included sources reference lists.

RESULTS: The four-staged search strategy revealed 1,738 sources, of which 32 remained for final synthesis. In general, there was a lack of contemporary research examining the role of the paramedicine educator despite changes to Higher Education provision and function of paramedics. Noteworthy was the absence of articles from Africa, South America, and major parts of Europe, highlighting the need for development in these regions. There is a lack of clear role descriptions or definitions for paramedicine educators. Inconsistencies were highlighted in entry criteria and progression routes across paramedicine academia globally, emphasising the importance of support for transitioning and established paramedicine educators.

DISCUSSION: These findings have important implications for Higher Education. Professional demands are on the rise, creating a need to introduce clearly defined roles for paramedicine educators to provide clarity in expectations and increase confidence. The changing landscape

of care provision in paramedicine from the historic emergency care focussed model to a more autonomous and inclusive sphere of out-of-hospital care, provides an ideal opportunity to progress and shape the identity of the paramedicine educator.

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PMCID: PMC12033909

PMID: 40290105

14. Curr Opin Anaesthesiol. 2025 Jun 1;38(3):323-330. doi: 10.1097/ACO.0000000000001478. Epub 2025 Feb 28.

Bleeding management in pelvic trauma: state of the art.

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PURPOSE OF REVIEW: Bleeding complications from pelvic injuries occur after high-energy trauma as well as after low-energy trauma in elderly patients and are the main contributors to mortality. Demographic changes necessitate focussing on both entities and targeted therapies throughout the course of management.

RECENT FINDINGS: This article reviews the recent evidence and expertise on bleeding management for haemodynamically unstable patients with pelvic fractures with insights from prehospital care to trends in resuscitation and endovascular techniques and revival of older strategies, to challenges of definitive treatment. It also takes a closer look into pelvic fractures of the elderly and their most recent treatment options.

SUMMARY: Bleeding management in pelvic trauma begins prehospitally with targeted transportation, infusion of crystalloids and blood products, and a differentiated use of pelvic binders. In the emergency department, care involves rapid evaluation, massive transfusion protocols and computed tomography (CT) angiography. Resuscitative Endovascular Balloon Occlusion of the Aorta can serve as bridging to diagnostics and bleeding control. Bleeding control management includes mechanical stabilization, preperitoneal pelvic packing or angioembolization. In elderly patients, rigid vessels and anticoagulation contribute to bleeding complications. Selective CT angiography is advised for certain injury patterns and haemodynamic instability. Depending on bleeding localization, selective angioembolization is preferred.

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