Journal report – leden 2026

OBSAH

HOSPITAL CARE

– clinical trials & RCT & multicenter study

1: Katzenschlager S, Kaltschmidt N, Dietrich M, Fiedler-Kalenka M, Klemm S, Kofler O, Mohr S, Eisner C, Neuhaus C, Simon C, Weigand MA, Weilbacher F, Popp E. **Prehospital transesophageal echocardiography versus conventional advanced life support in out-of-hospital cardiac arrest (PHTEE-OHCA) - a randomized controlled pilot study.** Crit Care. 2026 Jan 2;30(1):45. doi: 10.1186/s13054-025-05805-w. PMID: 41484784; PMCID: PMC12849066.

2: Gilman J, Alghamdi A, Hann M, Carlton E, Cooper JG, Cook E, Siriwardena AN, Phillips J, Thompson A, Bell S, Kirby K, Rosser A, Body R. **Diagnostic Accuracy of a Novel Point of Care High-Sensitivity Troponin Assay in the Prehospital Environment.** Acad Emerg Med. 2026 Jan;33(1):e70213. doi: 10.1111/acem.70213. PMID: 41528153; PMCID: PMC12798273.

3: Ijuin S, Inoue A, Hifumi T, Taira T, Moriyama T, Suga M, Nishimura T, Sakamoto T, Kuroda Y, Ishihara S; SAVE-J II Study Group. **Association between conversion from an initial shockable rhythm to pulseless electrical activity before extracorporeal cardiopulmonary resuscitation and outcome: A secondary analysis of the SAVE-J II study.** Am Heart J. 2026 Jan;291:144-152. doi: 10.1016/j.ahj.2025.08.012. Epub 2025 Aug 22. PMID: 40850602.

4: Fagerheim Bugge H, Guterud M, Larsen K, Toft M, Hov MR, Sandset EC. **Presenting symptoms and diagnostic accuracy of prehospital stroke scales for patients with suspected mild minor stroke.** Eur Stroke J. 2026 Jan 1;11(1):23969873251360592. doi: 10.1093/esj/23969873251360592. PMID: 41614523.

5: Saviluoto A, Raatiniemi L, Mäkelä S, Toivonen T, Setälä P, Kirves H, Tommila M, Toivonen P, Tukia S, Nurmi J. **Association of Cerebral Oxygenation During Prehospital Anaesthesia and Functional Outcome: A Prospective, Observational Multi-Centre Cohort Study of 1014 Patients.** Acta Anaesthesiol Scand. 2026 Jan;70(1):e70161. doi: 10.1111/aas.70161. PMID: 41359999; PMCID: PMC12685386.

Journal report – leden 2026

PREHOSPITAL CARE

– systematic review & meta-analysis & scoping review

1: Shapovalov V, Tran QK, Sarani B, Zohery M, Caggiula A, Ashraf R, Pourmand A. **Comparative Clinical Outcomes of Trauma Transport: Emergency Medical Services vs. Police Transport, A Systematic Review and Meta-Analysis.** J Emerg Med. 2026 Jan;80:8-19. doi: 10.1016/j.jemermed.2025.10.013. Epub 2025 Oct 10. PMID: 41265133.

2: Zarei E, Safari M, Zamani Z, Kakemam E. **Turnover intention and its predictors among Emergency Medical Services (EMS) professionals: a systematic review and meta-analysis.** Scand J Trauma Resusc Emerg Med. 2026 Jan 26. doi: 10.1186/s13049-026-01567-8. Epub ahead of print. PMID: 41588459.

3: Brammer M, Gerstner D, Heinze S, Grümme L, Kneißl K, Trentzsch H, Birk A, Prückner S, Weilnhammer V, Quartucci C. **City characteristics and heat vulnerability: insights from emergency medical services in Bavaria, Germany.** Int J Biometeorol. 2026 Jan 21;70(2):35. doi: 10.1007/s00484-025-03076-2. PMID: 41563511.

4: Saldanha IJ, Zhang A, Everly GS Jr, Roemer EC, Hsu EB, Han G, Sharma R, Asenso E Jr, Bidmead D, Bass EB, Jenkins JL. **Interventions Targeting Resistance and Resilience Among Emergency Medical Service Clinicians: A Systematic Review.** Prehosp Emerg Care. 2026;30(1):78-86. doi: 10.1080/10903127.2025.2465712. Epub 2025 Feb 21. PMID: 39937104.

5: Taghavi S, Chang G, Maher Z, Tatum D, Levy MJ, Raja AS, Tatebe L, Jacovides CL, Park S, Seamon MJ, Haut ER, Goldberg AJ, Freeman J. **Mode of transport and prehospital interventions in urban penetrating trauma: A systematic review and practice management guideline from the Eastern Association for the Surgery of Trauma.** J Trauma Acute Care Surg. 2026 Jan 1;100(1):136-146. doi: 10.1097/TA.0000000000004796. Epub 2025 Sep 19. PMID: 41114708.

6: Melo F, Reis Santos M, Castelo-Branco Sousa M, Mota C, Mota M. **Sources of Discomfort and Treatment Strategies for Trauma Patients in the Pre-Hospital Setting: A Scoping Review.** J Emerg Nurs. 2026 Jan;52(1):218-238.e5. doi: 10.1016/j.jen.2025.08.014. Epub 2025 Oct 3. PMID: 41045286.

7: Valente M, Del Prete C, Facci G, Musso F, Cenati S, Calligaro S, Ragazzoni L, Barone-Adesi F. **The impacts of extreme weather events on health services and systems: A systematic review of reviews.** Public Health. 2026 Jan;250:106049. doi: 10.1016/j.puhe.2025.106049. Epub 2025 Nov 21. PMID: 41274098.

8: Tran KT, Nguyen KD, Nguyen TN, Pham LT, Nguyen LM, Nguyen PH, Tran NH, Le CTK. **The role, challenges, and solutions of laboratories in disaster medicine: a systematic review.** Front Public Health. 2026 Jan 13;13:1726280. doi: 10.3389/fpubh.2025.1726280. PMID: 41607900; PMCID: PMC12834775.

9: Smith R, Carley S, Mills-Moore R. **Haemodynamic monitoring during cardiac arrest: a systematic review of diastolic blood pressure and coronary perfusion pressure.** Emerg Med J. 2026 Jan 27:emermed-2025-215389. doi: 10.1136/emermed-2025-215389. Epub ahead of print. PMID: 41592949.

Journal report – leden 2026

HOSPITAL CARE

– clinical trials & RCT & multicenter study –

1. Crit Care. 2026 Jan 2;30(1):45. doi: 10.1186/s13054-025-05805-w.

Prehospital transesophageal echocardiography versus conventional advanced life support in out-of-hospital cardiac arrest (PHTEE-OHCA) - a randomized controlled pilot study.

Katzenschlager S(1), Kaltschmidt N(2), Dietrich M(2), Fiedler-Kalenka M(2), Klemm S(2), Kofler O(2), Mohr S(2), Eisner C(2), Neuhaus C(2), Simon C(2), Weigand MA(2), Weilbacher F(2), Popp E(2).

BACKGROUND: Transesophageal echocardiography during out-of-hospital cardiac arrest can be performed during ongoing chest compressions and may improve resuscitation quality, but its prehospital use has not been systematically evaluated. To assess the feasibility, diagnostic yield, and impact of prehospital TEE on resuscitation metrics and advanced life support (ALS) interventions during OHCA.

METHODS: We conducted a randomized controlled trial in a physician-staffed two-tiered emergency medical service (EMS). Adults with ongoing non-traumatic OHCA were randomized 1:1 to standard ALS or ALS plus TEE. The primary endpoints were hands-off time and chest compression fraction (CCF) from EMS arrival to return of spontaneous circulation (ROSC) or resuscitation termination. Secondary endpoints included ROSC at hospital admission, survival to hospital discharge, neurological status at hospital discharge, and TEE findings. Analyses followed the intention-to-treat principle.

RESULTS: Of 249 screened patients, 35 were randomized and 32 analyzed (TEE n = 15; control n = 17). Median hands-off time was 4 s in both groups. Mean CCF was higher in the TEE group (96.2%) than the control group (91.6%), with a mean difference of 4.6% (95% confidence interval 2.5-6.7; $p < 0.001$). Sustained ROSC occurred in 40% (TEE) versus 71% (control; $p = 0.083$). The control group had an eCPR rate of 41%, compared to 20% in the TEE group. Using TEE, an incorrect area of maximal compression or inadequate depth was identified in 23% and 14%, respectively.

CONCLUSION: Prehospital TEE during OHCA was feasible without negatively interfering with CPR metrics, and provided clinically relevant diagnostic information and procedural guidance, warranting further evaluation in larger trials.

TRIAL REGISTRATION: German Clinical Trials Register DRKS00028695 registered on 28 April 2022.

DOI: 10.1186/s13054-025-05805-w

2. Acad Emerg Med. 2026 Jan;33(1):e70213. doi: 10.1111/acem.70213.

Diagnostic Accuracy of a Novel Point of Care High-Sensitivity Troponin Assay in the Prehospital Environment.

Gilman J(1), Alghamdi A(2)(3), Hann M(4), Carlton E(5), Cooper JG(6)(7), Cook E(8), Siriwardena AN(9), Phillips J(10), Thompson A(4), Bell S(11), Kirby K(12), Rosser A(13), Body R(8)(14).

OBJECTIVE: To evaluate the diagnostic accuracy of a novel point of care (POC) high-sensitivity troponin (hs-cTn) assay, used alone or incorporated within validated decision aids, for acute myocardial infarction (AMI) in the prehospital setting.

METHODS: A pre-specified secondary analysis of the Prehospital Evaluation of Sensitive Troponin (PRESTO) prospective diagnostic accuracy study, conducted in four ambulance services and 12 Emergency Departments (EDs; February 2019-March 2020). Paramedics included consenting adults with suspected AMI and no other reason for conveyance. Clinical data and venous blood were collected at the scene, and samples conveyed to hospital with participants. Plasma samples were later analyzed for hs-cTn using a novel POC hs-cTn assay (Abbott Point of Care i-STAT hs-TnI). The target condition was an adjudicated index diagnosis of type 1 AMI.

RESULTS: Of 817 consenting participants, 704 were eligible for inclusion in this analysis, with type 1 AMI occurring in 89 (12.6%). At the limit of detection (< 2 ng/L), POC hs-cTn had 100.0% sensitivity (95% CI 95 9%-100.0%) but only 4.6% specificity (95% CI 3.1%-6.5%). A Troponin-only Manchester Acute Coronary Syndromes (T-MACS) very-low risk outcome identified 134 (19.7%) patients for non-conveyance with 98.9% sensitivity (95% CI 94.9%-100.0%), 99.3% negative predictive value (NPV, 95% CI 95.0%-99.9%), and 22.5% specificity (95% CI 19.2%-26.1%). A low-risk modified HEART score identified 150 (22.0%) patients with 93.2% sensitivity (95% CI 85.8%-97.5%), 96.0% NPV (91.6%-98.1%), and 24.3% specificity (95% CI 20.9%-27.9%). In an exploratory analysis, hs-cTn < 5 ng/L identified 295 (41.9%) patients with 98.9% sensitivity (93.9%-100.0%), 99.7% NPV (97.7%-100.0%), and 47.8% specificity (95% CI 43.8%-51.8%).

CONCLUSIONS: This novel POC hs-cTn assay achieves high sensitivity and NPV when used alongside the T-MACS decision aid, but efficiency may be greater at a 5 ng/L threshold without requiring any decision aid.

TRIAL REGISTRATION: ClinicalTrials.gov identifier: NCT03561051.

DOI: 10.1111/acem.70213

PMID: 41528153 [Indexed for MEDLINE]

Journal report – leden 2026

3. Am Heart J. 2026 Jan;291:144-152. doi: 10.1016/j.ahj.2025.08.012. Epub 2025 Aug 22.

Association between conversion from an initial shockable rhythm to pulseless electrical activity before extracorporeal cardiopulmonary resuscitation and outcome: A secondary analysis of the SAVE-J II study.

Ijuin S(1), Inoue A(2), Hifumi T(3), Taira T(4), Moriyama T(2), Suga M(2), Nishimura T(2), Sakamoto T(5), Kuroda Y(4), Ishihara S(2); SAVE-J II Study Group.

AIM: Shockable rhythm on initial electrocardiogram is a predictor of favorable neurological outcomes of out-of-hospital cardiac arrest in patients undergoing extracorporeal cardiopulmonary resuscitation (ECPR). The present study evaluated the impact of conversion from shockable rhythm to pulseless electrical activity (PEA) before ECPR on patient outcomes.

METHODS: In this secondary analysis of the data from SAVE-J II, a retrospective multicenter registry including 36 participating institutions in Japan, patients with initial shockable rhythm were categorized into those with conversion to PEA and sustained shockable rhythm. The primary outcome was favorable neurological outcome, defined as a cerebral performance category of 1-2 at hospital discharge.

RESULTS: The final cohort included 718 patients. The rate of favorable neurological outcomes was lower in patients who were converted to PEA than in those with sustained shockable rhythm (12.9 % vs 26.4 %, P < .01). By multivariable analysis, conversion to PEA was significantly associated with a lower rate of favorable neurological outcomes (odds ratio 0.42, 95% confidence interval 0.27-0.66; P < .01). The rates of favorable neurologic outcomes were 9.8%, 18.0%, and 21.4% (P = .06) in patients who converted to PEA, during emergency medical services transport, at hospital arrival, and before ECMO initiation, respectively. However, outcomes did not significantly differ between the patients who converted to PEA after hospital arrival and those with sustained shockable rhythm (19.6% vs 26.4%, P = .19).

CONCLUSIONS: Patients with conversion to PEA before ECPR were associated with a lower rate of favorable neurological outcomes in those with an initial shockable rhythm. Especially, early conversion to PEA, ie, during EMS transport, may be a factor for lower favorable neurological outcomes compared to those with sustained shockable rhythm.

DOI: 10.1016/j.ahj.2025.08.012

PMID: 40850602 [Indexed for MEDLINE]

4. Eur Stroke J. 2026 Jan 1;11(1):23969873251360592. doi: 10.1093/esj/23969873251360592.

Presenting symptoms and diagnostic accuracy of prehospital stroke scales for patients with suspected mild minor stroke.

Fagerheim Bugge H(1)(2)(3), Guterud M(2), Larsen K(2)(3), Toft M(1)(3), Hov MR(2)(3)(4), Sandset EC(1)(2)(3).

INTRODUCTION: Identifying patients with minor stroke is challenging in the prehospital setting due to subtle symptoms. The majority of studies evaluating prehospital stroke scales include patients with high median NIHSS at admission. ParaNASPP, a stepped-wedge cluster-randomized controlled trial found that prehospital NIHSS identified more patients with minor symptoms. Further knowledge on presenting symptoms of patients with suspected minor stroke, and the accuracy of prehospital stroke scales on minor stroke is needed.

METHODS: A post-hoc analysis of data from the ParaNASPP trial describes prehospital presenting signs and symptoms of patients with suspected mild minor stroke. We defined mild minor stroke as NIHSS 0-2 at hospital admission. Furthermore, we reconstructed and evaluated nine prehospital stroke scales (NIHSS, FAST/CPSS, BE-FAST, LAPSS, MASS, MedPacs, PreHAST, and sNIHSS-EMS) in patients with mild minor stroke.

RESULTS: Four hundred and thirty-one patients in the ParaNASPP trial had NIHSS 0-2 at hospital admission. Of these, 152 (35%) were discharged from hospital with a stroke diagnosis. When examined by paramedics, stroke patients presented with speech disturbance, facial palsy, and motor weakness in arm or leg, while stroke mimics presented with dizziness, headache, and nausea/vomiting. NIHSS had the highest sensitivity (95%) and lowest specificity (16%), while LAPSS had the lowest sensitivity (42%) and highest specificity (80%) in the patients with suspected mild minor stroke. The remaining scales had sensitivity between 67% and 93%, and specificity between 23% and 67%.

CONCLUSIONS: In patients with mild minor stroke, substantial overlap in presentation between stroke and stroke mimics makes triage challenging. Prehospital stroke scales provide either high sensitivity or specificity. Competence and training of paramedics in when and how to use, and interpret, these scales is key for recognizing and correctly triaging stroke patients. The ParaNASPP trial was registered at Clinicaltrials.gov with registration number NCT04137874.

DOI: 10.1093/esj/23969873251360592

PMID: 41614523 [Indexed for MEDLINE]

Journal report – leden 2026

5. Acta Anaesthesiol Scand. 2026 Jan;70(1):e70161. doi: 10.1111/aas.70161.

Association of Cerebral Oxygenation During Prehospital Anaesthesia and Functional Outcome: A Prospective, Observational Multi-Centre Cohort Study of 1014 Patients.

Saviluoto A(1)(2), Raatiniemi L(3)(4)(5), Mäkelä S(6), Toivonen T(7), Setälä P(8), Kirves H(1), Tommila M(9), Toivonen P(10), Tukia S(11), Nurmi J(1)(7).

BACKGROUND: Many patients undergoing prehospital anaesthesia may be at risk of inadequate cerebral oxygenation due to underlying conditions or adverse events like hypotension or hypoxia. This study examined whether a decrease in regional cerebral oxygen saturation (rSO2) measured with near-infrared spectroscopy (NIRS) during prehospital anaesthesia associates with worse outcomes.

METHODS: We conducted a prospective, observational study including adult patients anaesthetised by six prehospital critical care teams. A relative cerebral desaturation event (rCDE) was defined as a ≥ 10% decrease in rSO2 for ≥ 5 min from baseline. An absolute cerebral desaturation event (aCDE) was defined as rSO2 < 60% during anaesthesia or lower than baseline if already < 60%. The primary outcome was favourable functional outcome (modified Rankin Scale ≤ 2) at 30 days and secondary outcomes included 30-day survival, 1-year functional outcome, and 1-year survival.

RESULTS: Among 1014 patients, 199 experienced an rCDE, with 125 (63%) having supraphysiological baseline. rCDE was not associated with outcomes. Of 182 patients with aCDE, 30-day favourable outcomes were not significantly different (30% vs. 36%, p = 0.14, adjusted OR 0.92, 95% confidence interval 0.62-1.34). However, aCDE was associated with lower 30-day survival (46% vs. 58%, p = 0.006) and less favourable 1-year outcomes (31% vs. 41%, p = 0.043). Adjusted analyses showed no significant associations.

CONCLUSION: An rCDE was not associated with worse functional outcomes. While aCDEs were linked to unfavourable outcomes in unadjusted analyses, these associations were not significant after adjustment, highlighting the complexity of interpreting NIRS in heterogeneous populations. Condition-specific studies are needed to clarify its role.

EDITORIAL COMMENT: Cerebral oxygen delivery may be jeopardized in critically ill patients undergoing prehospital anaesthesia. This study assessed near-infrared spectroscopy on the forehead in a large number of cases requiring general anaesthesia and subsequent transportation to hospital by helicopter. In unadjusted analysis, patients with an at least 10% decline in forehead saturation had higher survival and better functional outcome, whereas those with a forehead saturation below 60% had lower survival and worse functional outcome. Upon multivariable regression, age, patient category, systemic oxygen saturation and Glasgow

Coma Scale score were independent predictors of worse outcomes, but forehead oxygen saturation was not. NIRS-measured forehead saturation decrease appears to associate in a complex fashion with more traditional predictors of patient outcomes. Whether effects of resuscitation interventions like these can be assessed reliably by NIRS is not yet well understood.

TRIAL REGISTRATION: The study protocol was published beforehand on clinicaltrials.gov (NCT04144803) on 7th October 2019.

DOI: 10.1111/aas.70161

PMCID: PMC12685386

PMID: 41359999 [Indexed for MEDLINE]

Journal report – leden 2026

PREHOSPITAL CARE

– systematic review & meta-analysis & scoping review –

1. J Emerg Med. 2026 Jan;80:8-19. doi: 10.1016/j.jemermed.2025.10.013. Epub 2025 Oct 10.

Comparative Clinical Outcomes of Trauma Transport: Emergency Medical Services vs. Police Transport, A Systematic Review and Meta-Analysis.

Shapovalov V(1), Tran QK(2), Sarani B(3), Zohery M(4), Caggiula A(4), Ashraf R(4), Pourmand A(5).

BACKGROUND: In many urban settings, police transport (PT) is increasingly used as an alternative to traditional Emergency Medical Services (EMS). PT follows a "scoop and run" strategy, aiming to minimize prehospital interventions to rapidly deliver patients to the nearest trauma center. Conversely, EMS teams typically provide stabilizing medical care on site before transport.

OBJECTIVES: This study aimed to compare outcomes, specifically rates of surgical intervention and mortality, for patients transported by police vs. EMS.

METHODS: PubMed, Scopus, and Cochrane databases were searched from inception to January 1, 2025 for studies meeting inclusion criteria. A random-effects meta-analysis was performed to assess the primary outcome of mortality for PT vs. EMS, and the secondary outcome of surgical intervention in penetrating injuries. Study quality was evaluated using the Newcastle-Ottawa Scale; heterogeneity was assessed with Q-statistics and I^2 values.

RESULTS: Ten studies met criteria, totaling 112,570 patients: 100,716 (89%) transported via EMS and 11,854 (11%) by police. All-cause mortality was 13% (12,742/100,716) for EMS patients vs. 25% (2922/11,854) for PT patients. Police transport was associated with a 1.5-fold higher mortality rate (odds ratio 1.50, 95% confidence interval 1.34-1.69, $p < 0.001$). No statistically significant difference was found in surgical intervention rates for penetrating injuries (odds ratio 1.19, 95% confidence interval 0.98-1.45, $p = 0.082$). Heterogeneity was significant for both mortality (I2 = 66%) and surgical interventions (I2 = 74%).

CONCLUSION: Police transport was associated with higher odds of all-cause mortality compared with EMS, with no difference in surgical intervention rates. Prospective, methodologically robust studies are needed to guide future practice.

DOI: 10.1016/j.jemermed.2025.10.013

PMID: 41265133 [Indexed for MEDLINE]

Journal report – leden 2026

2. Scand J Trauma Resusc Emerg Med. 2026 Jan 26. doi: 10.1186/s13049-026-01567-8.

Turnover intention and its predictors among Emergency Medical Services (EMS) professionals: a systematic review and meta-analysis.

Zarei E(1), Safari M(2), Zamani Z(3), Kakemam E(4).

BACKGROUND: High turnover intention among pre-hospital Emergency Medical Services (EMS) professionals threatens the sustainability of these vital health services. This study aimed to determine the global prevalence of turnover intention and identify its predictive factors to inform effective retention strategies.

METHODS: This systematic review and meta-analysis followed the PRISMA 2020 guidelines. The PubMed, Web of Science, and Scopus databases were comprehensively searched up to August 31, 2025. Observational studies reporting on turnover intention and its associated factors were included. The pooled prevalence was calculated using a random-effects model, and influencing factors were analyzed within the expanded Job Demands-Resources (JD-R) framework.

RESULTS: From 2,077 identified records, 27 studies with an overall sample size of 129,580 participants were eligible for the systematic review. A meta-analysis of 19 studies revealed a global pooled prevalence of turnover intention of 23.5% (95% CI: 16.6%-32.1%). The prevalence was significantly higher in studies with small sample sizes (36.4%) compared to those with large sample sizes (11.7%) ($p < 0.001$). The pooled prevalence also differed significantly across North America (13.4%), Europe (31.6%), and other regions (45.7%) ($p < 0.001$). Job dissatisfaction and job stress were the most frequently reported predictors, followed by burnout, high workload, inadequate compensation, and poor physical and mental health.

CONCLUSION: Approximately one in four EMS professionals worldwide intend to leave their job. This phenomenon is a response to the imbalance between high job demands and inadequate resources. Retaining this critical workforce requires a dual approach: strengthening resources at the organizational level and implementing structural reforms at the macro-policy level.

DOI: 10.1186/s13049-026-01567-8

PMID: 41588459

3. Int J Biometeorol. 2026 Jan 21;70(2):35. doi: 10.1007/s00484-025-03076-2.

City characteristics and heat vulnerability: insights from emergency medical services in Bavaria, Germany.

Brammer M(1)(2)(3), Gerstner D(4), Heinze S(4)(5), Grümme L(4), Kneißl K(6), Trentzsch H(6), Birk A(6), Prückner S(6), Weilnhammer V(4), Quartucci C(4)(5).

Heat events pose a significant risk to public health. Cities are particularly at risk due to the urban heat island effect. The evidence for modifying effects of city characteristics on morbidity outcomes is weak. This research investigates the impact of heat on emergency medical services (EMS) utilization across 25 Bavarian (Germany) cities from 2018 to 2020, as well as the modifying influences of various city characteristics. Using the EMS data linked to the corresponding weather records, we quantified the impact of heat utilizing negative binomial modelling for each city individually. Overall estimates, expressed as the Population Attributable Fraction (PAF), were derived by fixed-effects meta-analysis. We evaluated the potential effect modification of city characteristics such as demographic factors, land use proportions and air pollution, using extended meta-analysis and meta-regression procedures. Datasets from government agencies were used for the indicators. Our dataset included 302,353 EMS operations across 25 cities. We identified a pooled PAF of 9.34% (95% Confidence interval [CI]: 7.72%, 10.96%). In meta-regression, indicators representing a high proportion of elderly people, people in need of care and people with ischemic heart disease, significantly increased the heat effect. Among the air pollutants, nitrogen dioxide (NO2) was found to be a significant amplifying effect modifier. In this study, we found that heat significantly increases the number of EMS operations, with some city characteristics modifying the effects. These insights can guide targeted mitigation measures and improve EMS planning under future sociodemographic and climate change scenarios.

DOI: 10.1007/s00484-025-03076-2

PMID: 41563511 [Indexed for MEDLINE]

4. Prehosp Emerg Care. 2026;30(1):78-86. doi: 10.1080/10903127.2025.2465712. Epub 2025 Feb 21.

Interventions Targeting Resistance and Resilience Among Emergency Medical Service Clinicians: A Systematic Review.

Saldanha IJ(1), Zhang A(2), Everly GS Jr(3), Roemer EC(4), Hsu EB(5), Han G(2), Sharma R(2), Asenso E Jr(6), Bidmead D(7), Bass EB(7), Jenkins JL(5).

OBJECTIVES: To systematically review the effectiveness and harms of interventions to promote resistance and resilience regarding mental health and occupational stress issues among emergency medical service (EMS) clinicians.

METHODS: We registered the systematic review prospectively on PROSPERO (CRD42023465325). We searched Medline, Embase, CENTRAL, CINAHL, ClinicalTrials.gov, journals, and websites for studies published from January 1, 2001, through June 30, 2024. We conducted duplicate screening of titles and abstracts followed by full texts of potentially relevant abstracts. We included studies of EMS clinicians in high-income countries that evaluated interventions targeting resistance or resilience regarding mental health or occupational stress issues. We assessed the risk of bias and evaluated strength of evidence (SoE) using standard methods.

RESULTS: We included seven studies (one randomized controlled trial, one controlled trial with a waitlist control, four pre-post studies, and one prospective cohort [single group] study) that evaluated a total of 425 EMS clinicians. We deemed five of the seven studies to have high risk of bias, one moderate risk, and one low risk. No meta-analysis was feasible because of heterogeneity in the interventions evaluated across studies. Mindfulness-building interventions targeting resistance and resilience among EMS clinicians were associated with reduced burnout at up to 6 months of follow-up (low SoE). The evidence was insufficient regarding the impacts of interventions targeting both resistance and resilience on anxiety and depression. No conclusions are possible for resistance-only or resilience-only interventions. No studies reported on the effectiveness of any interventions in reducing hospitalizations, post-traumatic stress disorder, substance use, suicidality, or withdrawals from the workforce. No studies reported on unintended harms of interventions.

CONCLUSIONS: Given the sparse evidence identified in this systematic review, evidence-based options to improve mental health outcomes for EMS clinicians are very limited. Future research is urgently needed to inform strategies to address the many mental health and occupational stress issues that face the EMS clinician workforce.

DOI: 10.1080/10903127.2025.2465712

5. J Trauma Acute Care Surg. 2026 Jan 1;100(1):136-146. doi: 10.1097/TA.0000000000004796. Epub 2025 Sep 19.

Mode of transport and prehospital interventions in urban penetrating trauma: A systematic review and practice management guideline from the Eastern Association for the Surgery of Trauma.

Taghavi S(1), Chang G, Maher Z, Tatum D, Levy MJ, Raja AS, Tatebe L, Jacovides CL, Park S, Seamon MJ, Haut ER, Goldberg AJ, Freeman J.

BACKGROUND: Prehospital procedures in urban penetrating trauma (UPT) are controversial. In certain locales, modes of immediate transport, such as police and private vehicle transport, are used with varying frequencies. We performed a systematic review and meta-analysis and developed evidence-based recommendations on whether UPT patients should receive police or private vehicle transport over waiting for emergency medical services (EMS) transport.

METHODS: Published literature was searched through MEDLINE (via PubMed), Embase (via Elsevier), Web of Science (via Clarivate), and CINAHL Complete (via EBSCO) databases by a professional librarian. The date ranges for our literature search were January 1900 to July 2023. A systematic review and meta-analysis of currently available evidence were performed using the Grading of Recommendations Assessment, Development and Evaluation methodology.

RESULTS: A total of six relevant studies were analyzed for police transport, with all being retrospective or prospective, observational studies. The pooled data found that EMS transport did not improve survival to admission (odds ratio [OR], 1.06; 95% confidence interval [CI], 0.83-1.35) or discharge (OR, 1.06; 95% CI, 0.84-1.35) over police transport. A total of two relevant studies were analyzed for private vehicle transport, with both being retrospective studies. The pooled data found that private vehicle transport improved survival (OR, 0.31; 95% CI, 0.11-0.85) to admission over waiting for EMS transport.

CONCLUSION: In UPT patients, we conditionally recommend police or private vehicle transport over waiting for EMS transport as adjuncts to traditional prehospital care.

STUDY TYPE: Systemic Review and Meta-analysis; Level III.

DOI: 10.1097/TA.0000000000004796

PMID: 41114708 [Indexed for MEDLINE]

Journal report – leden 2026

6. J Emerg Nurs. 2026 Jan;52(1):218-238.e5. doi: 10.1016/j.jen.2025.08.014. Epub 2025 Oct 3.

Sources of Discomfort and Treatment Strategies for Trauma Patients in the Pre-Hospital Setting: A Scoping Review.

Melo F, Reis Santos M, Castelo-Branco Sousa M, Mota C, Mota M.

INTRODUCTION: Trauma remains a leading cause of mortality and long-term disability worldwide, often causing significant discomfort during prehospital care. Addressing these discomforts effectively is crucial for improving patient outcomes. This scoping review aimed to identify and categorize the types of discomforts experienced by adult trauma victims in prehospital settings and map the pharmacologic and nonpharmacologic interventions used to mitigate them.

METHODS: This scoping review followed the Joanna Briggs Institute framework and Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews guidelines. A comprehensive search was performed in databases including MEDLINE, CINAHL, Scopus, Embase, PsycINFO, Joanna Briggs Institute Evidence Synthesis, Cochrane Database, and relevant gray literature sources. Studies involving adult trauma patients (≥18 years) in prehospital care that reported on discomfort and interventions were included without restrictions on publication date.

RESULTS: Seventeen studies met the inclusion criteria, covering various international contexts. Acute pain was the most frequently reported discomfort, followed by anxiety, fear, cold-induced discomfort, and discomfort caused by immobilization. Pharmacologic interventions predominantly included opioids, nonsteroidal anti-inflammatory drugs, paracetamol, ketamine, and methoxyflurane, whereas nonpharmacologic interventions comprised acupressure, transcutaneous electrical nerve stimulation, cryotherapy, warming measures, communication strategies, and emotional support. Nonpharmacologic interventions, especially acupressure and communication techniques, showed promising results in reducing pain and anxiety.

DISCUSSION: The findings underline the multidimensional nature of discomfort in prehospital trauma care and highlight effective interventions, including pharmacologic and complementary nonpharmacologic strategies. However, significant gaps remain regarding standardized assessment tools for non-pain-related discomforts and combined interventions. This review underscores the necessity for comprehensive management protocols and further research to optimize patient comfort and care outcomes in trauma settings.

DOI: 10.1016/j.jen.2025.08.014

Journal report – leden 2026

7. Public Health. 2026 Jan;250:106049. doi: 10.1016/j.puhe.2025.106049. Epub 2025 Nov 21.

The impacts of extreme weather events on health services and systems: A systematic review of reviews.

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OBJECTIVES: Beyond health impacts, Extreme Weather Events (EWEs) disrupt health services and systems, an aspect often overlooked in favour of individual health outcomes. This systematic review of reviews aimed to systematically map the diverse impacts of EWEs on health services and systems, offering essential information to enhance disaster preparedness across different healthcare delivery settings.

STUDY DESIGN: A systematic review of reviews was chosen as the best method to achieve the study objective, following PRISMA guidelines for conduct and reporting.

METHODS: PubMed, Scopus, and Web of Science were searched for narrative or systematic reviews, with or without a meta-analysis, published in the past 10 years. We evaluated the impact of floods, storms, heatwaves, cold spells, and wildfires on different components, from pre-hospital care to primary care and pharmacies. Results were thematically analysed to categorise impacts by hazard type, affected component, and impact type.

RESULTS: A total of 114 reviews were included, detailing EWEs' consequences on health services and systems, and showcasing the heterogeneity of impacts across different healthcare delivery settings and hazard types. Floods and storms disrupt hospital and pre-hospital services through infrastructure damage and road closures. Heatwaves increase ambulance dispatches, emergency department visits, hospitalisations, and primary care use, due to heat exposure and chronic disease exacerbation. Increased particulate matter levels during wildfires was also associated with increased healthcare use.

CONCLUSIONS: These findings highlight the significant impact of EWEs on health services and systems, and underscore the need for appropriate adaptation measures. They offer practical evidence to enhance health system preparedness and reduce the impact of EWEs.

DOI: 10.1016/j.puhe.2025.106049

PMID: 41274098 [Indexed for MEDLINE]

8. Front Public Health. 2026 Jan 13;13:1726280. doi: 10.3389/fpubh.2025.1726280. eCollection 2025.

The role, challenges, and solutions of laboratories in disaster medicine: a systematic review.

Tran KT(1), Nguyen KD(1), Nguyen TN(1), Pham LT(1), Nguyen LM(1), Nguyen PH(1), Tran NH(2), Le CTK(1)(3).

OBJECTIVES: Laboratory systems play a critical role in disaster response, yet evidence remains fragmented. This systematic review aimed to describe the roles of clinical, public health, and veterinary laboratories, specifically characterizing Point-of-Care Testing (POCT) and Mobile Laboratories (ML) as flexible operational extensions of the central laboratory system across disaster phases; identify and compare laboratory-related challenges by disaster type; and synthesize documented solutions and their effectiveness.

METHODS: 4,323 studies published between 2000 and 2025 were identified through searches in PubMed, Embase, Scopus, grey literature, and snowballing. Study screening, data extraction, and methodological quality appraisal were conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement. Risk of bias was assessed using the critical appraisal checklist for qualitative research developed by the Joanna Briggs Institute (JBI).

RESULTS: Fifty-two studies were included. While clinical, public health, and veterinary laboratories form the "National Core Layer," POCT and rapid response mobile laboratory were identified as the "Surge Capacity Layer," functioning as flexible extended arms. Instead of random barriers, laboratory challenges were found to align along three operational axes: (1) Scarcity (infrastructure fragility and workforce shortages), predominantly in low-resource settings; (2) Complexity (data fragmentation and quality assurance variability), driven by technological heterogeneity in high-income settings; and (3) Security (regulatory barriers and cybersecurity risks), characterizing conflict and bio-risk environments. Documented solutions showed mixed effectiveness.

CONCLUSION: Building on these insights, we propose a structured framework to guide scalable strategies that enhance laboratory system resilience for disaster preparedness and response.

SYSTEMATIC REVIEW REGISTRATION: The protocol was prospectively registered in PROSPERO (CRD420251053068) https://www.crd.york.ac.uk/PROSPERO/view/CRD420251053068.

DOI: 10.3389/fpubh.2025.1726280

PMCID: PMC12834775

PMID: 41607900 [Indexed for MEDLINE]

9. Emerg Med J. 2026 Jan 27:emermed-2025-215389. doi: 10.1136/emermed-2025-215389.

Haemodynamic monitoring during cardiac arrest: a systematic review of diastolic blood pressure and coronary perfusion pressure.

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OBJECTIVE: To evaluate whether intra-arrest diastolic blood pressure (DBP) and coronary perfusion pressure (CPP) are associated with improved return of spontaneous circulation (ROSC) in cardiac arrest.

METHODS: A systematic search (PROSPERO registration: CRD420251042344) was conducted in English on EMBASE, MEDLINE, CINAHL and the Cochrane Library from inception to 1 May 2025. Grey literature sources (trial registries, conference abstracts, Google Scholar) were searched. Key resuscitation experts were contacted to identify unpublished or ongoing studies. The search strategy was peer-reviewed using the Peer Review of Electronic Search Strategies checklist. Eligible studies included randomised controlled trials (RCTs) contributing cohort data, observational studies and case series (≥10 patients) monitoring intra-arrest DBP or CPP in adult patients with cardiac arrest managed in prehospital or emergency department settings. Study selection involved two reviewers independently screening titles and abstracts, and full-text articles. Risk of bias was assessed using the Risk of Bias 2 and Risk of Bias in Non-randomised Studies of Interventions tools. This research received no funding.

RESULTS: 15 studies (n=970 patients) across seven countries were included: 3 RCT-based prospective cohort studies and 12 observational studies. Meta-analysis was not performed due to heterogeneity in study designs. Aziz et al identified a DBP threshold of 35 mm Hg associated with ROSC ($p<0.001$), reporting a 5% increase in ROSC odds for every 1 mm Hg rise in DBP. This finding was supported by other observational studies reporting significantly higher maximum DBP values in patients with ROSC (34-56.5 mm Hg) compared with those without ROSC. Interventional studies aimed at augmenting DBP or CPP-including resuscitative endovascular balloon occlusion of the aorta-generally reported increases in ROSC, though studies were underpowered and at high risk of bias.

CONCLUSIONS: This review demonstrates an association between intra-arrest DBP and CPP and ROSC. DBP may provide a feasible clinical target, but definitive thresholds and their impact on survival to hospital discharge remain undefined.

PROSPERO REGISTRATION NUMBER: CRD420251042344.

DOI: 10.1136/emermed-2025-215389

PMID: 41592949