Journal report – duben 2026

OBSAH

PREHOSPITAL CARE

– clinical trials & RCT & multicenter study

1: Sebastian-Valles F, Sampedro-Nuñez MA, Arranz-Martin JA, Navas-Moreno V, Marazuela M, López-Izquierdo R, Del Pozo Vegas C, Rabanales Soto J, Martín-Conty JL, Sanz-García A, Martín-Rodríguez F. **Pre- and in-hospital lactate ratio as a predictor of mortality in severe diabetic ketoacidosis: a multicenter prospective cohort study.** Eur J Intern Med. 2026 Apr;146:106706. doi: 10.1016/j.ejim.2026.106706. Epub 2026 Jan 10. PMID: 41521082.

2: Bray JE, Nehme Z, Finn JC, Kasza J, Woods J, Clark RA, Stub D, Cadilhac DA, Kim J, Smith BJ, Cartledge S, Beauchamp A, Bowden R, Dodge N, Flemming-Judge E, Chow C, Cox N, van Gaal W, Nadurata V, Cameron P; Heart Matters Investigators. **Heart Attack Education and EMS Response in High-Risk, Low EMS Usage Areas: A Stepped-Wedge Cluster-Randomized Trial.** JAMA Netw Open. 2026 Apr 1;9(4):e268823. doi: 10.1001/jamanetworkopen.2026.8823. PMID: 42043820; PMCID: PMC13122394.

3: Taghavi S, Simpson JT, Ali A, Nordham KD, Tatebe LC, Haut ER, Anderson C, Salib N, Maher Z, Goldberg AJ, Raza S, Chang G, Toraih E, Mendiola Pla M, Ninokawa S, Maluso P, Keating J, Burruss S, Reeves M, Coleman LE, Shatz DV, Goldenberg Sandau A, Bhupathi A, Spalding MC, LaRiccia A, Bird E, Noorbakhsh MR, Babowice J, Nelson MC, Jacobson LE, Williams J, Hayward TZ 3rd, Holler E, Lieser MJ, Berne JD, Mederos DR, Askari R, Okafor B, Etchill E, Fang R, Roche SL, Whittenburg L, Bernard AC, Haan JM, Lightwine KL, Norwood SH, Murry J, Gamber MA, Carrick MM, Bugaev N, Tatar A, Tatum D. **Time To Tighten Up on Prehospital Tourniquets: An EAST Multicenter Trial of Prehospital Procedures in Penetrating Trauma Shows No Benefit With Current Tourniquet Practices for Extremity Trauma in Urban Settings.** Am Surg. 2026 Apr;92(4):1169-1181. doi: 10.1177/00031348251388954. Epub 2025 Oct 17. PMID: 41105879.

4: Monaco D, Iovino P, Zaghini F, D'Andrea L, Savini S. **Incidence and risk factors of pressure ulcer development in patients receiving a preventive care bundle in two Italian emergency settings: the RUNTIME Study.** J Wound Care. 2026 Apr 2;35(4):312-319. doi: 10.12968/jowc.2025.0089. Epub 2026 Apr 2. PMID: 41926469.

5: Caputo S, Piehl M, Broome J, Holleman G, Taylor C, Dransfield T, Tatum D, Smith A, Marino M, Rayburn D, Azar F, Gomez M, Rodriguez Mederos D, Gibson K, Krause M, Hamilton D, Jacome T, Davis G, Branney S, Harwood L, Dorlac W, Baxter B, Puente I, Duchesne J. **Is There a Role for Prehospital Precision Resuscitation? A Prospective Multi-Institutional Blood**

Analysis. J Am Coll Surg. 2026 Apr 1;242(4):785-793. doi: 10.1097/XCS.0000000000001780. Epub 2026 Mar 26. PMID: 41568824.

6: Koksal A, Saribas MS, Tomakin M, Kalafat YB, Caltekin I, Aygun A. **Effectiveness of Video Call-Assisted Versus Voice Call-Assisted Dispatcher-Guided CPR in Untrained Laypersons: A Randomized Simulation Study.** Prehosp Disaster Med. 2026 Apr 6;41(1):e4. doi: 10.1017/S1049023X26108875. PMID: 41940527.

Journal report – duben 2026

PREHOSPITAL CARE

– systematic review & meta-analysis & scoping review

1: Żuratyński P, Haratake MT. **National AED registries and coordinated AED systems as a system-level intervention to improve outcomes after out-of-hospital cardiac arrest: lessons from Japan for Poland.** Front Public Health. 2026 Apr 15;14:1823265. doi: 10.3389/fpubh.2026.1823265. PMID: 42064887; PMCID: PMC13127115.

2: Zhang Y, Kirchler T, Wang AP. **Evaluating Artificial Intelligence for Sepsis Prediction in Emergency Departments: A Systematic Review and Meta Analysis.** J Med Syst. 2026 Apr 13;50(1):49. doi: 10.1007/s10916-026-02376-3. PMID: 41973329; PMCID: PMC13076368.

3: Lv B, Zhang YX, Tao QF, Lin L, Li XY, Chen BZ, Zheng H. **Evaluating comparative effect of non-pharmacological interventions adjunctive to opioid agonist therapy for opioid use disorder: A systematic review with network meta-analysis.** Addiction. 2026 Apr 28. doi: 10.1111/add.70448. Epub ahead of print. PMID: 42046533.

Journal report – duben 2026

HOSPITAL CARE

– clinical trials & RCT & multicenter study –

1. Eur J Intern Med. 2026 Apr;146:106706. doi: 10.1016/j.ejim.2026.106706. Epub 2026 Jan 10.

Pre- and in-hospital lactate ratio as a predictor of mortality in severe diabetic ketoacidosis: a multicenter prospective cohort study.

Sebastian-Valles F(1), Sampedro-Nuñez MA(2), Arranz-Martin JA(2), Navas-Moreno V(2), Marazuela M(2), López-Izquierdo R(3), Del Pozo Vegas C(4), Rabanales Soto J(5), Martín-Conty JL(6), Sanz-García A(6), Martín-Rodríguez F(7).

OBJECTIVE: Lactate kinetics between prehospital and in-hospital measurements have been associated with prognosis in acute conditions. This study aimed to evaluate the prognostic value of the prehospital-to-hospital lactate ratio in patients with severe diabetic ketoacidosis (DKA).

METHODS: This was a prospective, multicenter cohort study including adults attended by emergency medical services (EMS) with a diagnosis of severe DKA or hyperosmolar hyperglycemic state. The lactate ratio was calculated by dividing the initial prehospital point-of-care lactate value by the in-hospital measurement. The optimal cutoff point was identified via locally weighted scatter plot smoother curve analysis. Survival was analyzed using Kaplan-Meier curves and Cox regression, adjusted for age, age-adjusted Charlson comorbidity index (ACCi), precipitating factor, and prehospital Glasgow Coma Scale (GCS) score.

RESULTS: A total of 128 patients were included (median age 71 years [IQR 58.5-80], 47.7 % female). The median ACCi was 7 (IQR 5-9), and in-hospital mortality was 34.4 %. Patients were stratified by lactate ratio <1.23 or ≥1.23;baseline characteristics were broadly similar between groups, except for a higher prehospital GCS score in patients with a lactate ratio ≥1.23. Mortality was 57.3 % in the <1.23 group versus 14.5 % in the ≥1.23 group (log-rank p<0.001). A lactate ratio <1.23 was independently associated with higher mortality (HR 105.21; p<0.001), along with ACCi (p=0.023) and infectious cause (HR 3.43; p=0.014). Higher prehospital GCS was protective (HR 0.89; p=0.018).

CONCLUSION: Prehospital-to-hospital lactate ratio was independently associated with in-hospital mortality in severe DKA. This accessible biomarker may contribute to risk stratification and support clinical decision-making in this setting.

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PMID: 41521082 [Indexed for MEDLINE]

Journal report – duben 2026

2. JAMA Netw Open. 2026 Apr 1;9(4):e268823. doi: 10.1001/jamanetworkopen.2026.8823.

Heart Attack Education and EMS Response in High-Risk, Low EMS Usage Areas: A Stepped-Wedge Cluster-Randomized Trial.

Bray JE(1)(2), Nehme Z(1)(3)(4), Finn JC(1)(2), Kasza J(1), Woods J(1)(5), Clark RA(6), Stub D(1)(3)(7), Cadilhac DA(8)(9), Kim J(8)(9), Smith BJ(1)(10), Cartledge S(1)(7), Beauchamp A(11), Bowden R(1), Dodge N(1), Flemming-Judge E(1), Chow C(12)(13), Cox N(14)(15), van Gaal W(15)(16), Nadurata V(17), Cameron P(1)(7); Heart Matters Investigators.

IMPORTANCE: Patient delays in recognizing and acting on acute coronary syndrome (ACS) symptoms worsen outcomes.

OBJECTIVE: To evaluate the effectiveness of a heart attack education intervention (Heart Matters) aiming to improve recognition and response to ACS symptoms in communities with elevated cardiovascular risk and low emergency medical service (EMS) use.

DESIGN, SETTING, AND PARTICIPANTS: This stepped-wedge cluster randomized clinical trial was conducted in 8 high-risk communities (local government areas; 4 metropolitan and 4 rural with a combined population of approximately 792 000 adult residents) in Victoria, Australia (December 2021 to March 2023 with follow-up to March 2024), with clusters crossing to the intervention every 4 months. Data were obtained from administrative datasets and registries (analysis complete June 2025).

INTERVENTION: A multicomponent community education program including 490 community sessions (approximately 10 088 residents), more than 174 110 households mailouts, more than 50 000 resource handouts, opportunistic media, and a geotargeted social-media campaign (reach of approximately 350 000 residents). The control period did not include any educational campaign.

MAIN OUTCOME AND MEASURES: The primary outcome was the proportion of patients with ACS transported to hospitals by EMS, as recorded in the Victorian Emergency Minimum Dataset. Outcomes were analyzed at the patient level using mixed-effects regression models, reporting risk differences (RDs) and odds ratios (ORs). A program evaluation was also conducted to assess implementation and inform potential replication and scale-up.

RESULTS: Among 1775 patients with ACS (865 intervention and 910 control; 924 [52.1%] aged ≥65 years; 1193 male [67.2%]), EMS use was unexpectedly high during the initial control period, coinciding with a COVID-19 wave. EMS transport occurred in 624 of 910 patients with ACS (68.6%) in the control period and 548 of 865 patients (63.4%) in the intervention period (adjusted RD, -8.98%; 95% CI, -17.50% to -0.46%; P = .04; adjusted OR, 0.67; 95% CI, 0.45 to

1.01; P = .05). Reductions were more pronounced in metropolitan areas (RD -10.73%; 95% CI -20.43% to -1.03%) and during a severe flooding event (RD -13.50%; 95% CI -26.52% to -0.47%). Early treatment-seeking was also lower, although estimates were imprecise. The program evaluation identified COVID-19 pandemic and seasonal impacts, as well as community concerns regarding EMS costs, demand, and wait times.

CONCLUSIONS AND RELEVANCE: In this community ACS education trial conducted in high-risk regions, the intervention did not improve EMS use or prehospital care-seeking. External contextual factors, including the COVID-19 pandemic and natural disasters, appeared to influence patient behavior and may have attenuated intervention effects, highlighting the complexity of achieving behavioral change through community education alone.

TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT04995900.

DOI: 10.1001/jamanetworkopen.2026.8823

PMCID: PMC13122394

PMID: 42043820 [Indexed for MEDLINE]

3. Am Surg. 2026 Apr;92(4):1169-1181. doi: 10.1177/00031348251388954. Epub 2025 Oct 17.

Time To Tighten Up on Prehospital Tourniquets: An EAST Multicenter Trial of Prehospital Procedures in Penetrating Trauma Shows No Benefit With Current Tourniquet Practices for Extremity Trauma in Urban Settings.

Taghavi S(1), Simpson JT(1)(2), Ali A(1)(2), Nordham KD(1)(3), Tatebe LC(4), Haut ER(5), Anderson C(1)(6), Salib N(7), Maher Z(7), Goldberg AJ(7), Raza S(8), Chang G(9), Toraih E(1), Mendiola Pla M(10), Ninokawa S(1)(11), Maluso P(12), Keating J(13), Burruss S(14), Reeves M(14), Coleman LE(15), Shatz DV(15), Goldenberg Sandau A(16), Bhupathi A(16), Spalding MC(17), LaRiccia A(17), Bird E(18), Noorbakhsh MR(19), Babowice J(19), Nelson MC(20), Jacobson LE(21), Williams J(21), Hayward TZ 3rd(22), Holler E(22), Lieser MJ(23), Berne JD(24), Mederos DR(24), Askari R(25), Okafor B(25), Etchill E(26)(27), Fang R(26), Roche SL(26), Whittenburg L(28), Bernard AC(28), Haan JM(29), Lightwine KL(29), Norwood SH(30), Murry J(30), Gamber MA(31), Carrick MM(31), Bugaev N(32), Tatar A(32), Tatum D(1).

Background Prehospital tourniquet (PHT) use has become widespread. However, whether it improves outcomes after penetrating proximal extremity trauma in urban settings remains unknown. We hypothesized that PHT improves mortality in this setting.

Materials and Methods This was a post hoc analysis of a multicenter study of adults (18+ years) with penetrating torso and/or proximal extremity trauma from 25 urban trauma centers. Subjects were allocated via nearest neighbor propensity matching (chest, abdominal, or extremity injury, GSW vs stab, and vascular injuries) to compare similarly-injured PHT and non-PHT patients.

Results Among 2352 patients, 117 (4.9%) received PHT. Prehospital tourniquet patients had 22 (18.84%) arterial injuries, 8 (6.8%) venous injuries, and 92 (78.6%) non-vascular injuries. Most PHTs (86, 73.5%) were placed on-scene, and 22 (18.8%) en-route. Admission of systolic blood pressure was not different between PHT and non-PHT patients. Prehospital tourniquet did not impact survival on regression analysis. After propensity matching, 218 patients remained, who were primarily male (n = 182, 83.9%) with median (IQR) age 30 (23-39) years and new injury severity score 9 (3-17). Mortality was similar between PHT and non-PHT groups (6.4% vs 7.3%; P = 1.0). Matched comparison of patients with vascular injury showed similar mortality for PHT vs non-PHT (3.7% vs 3.7%, P = 1.00). The same was true for isolated extremity trauma (4.1% vs 0.0%, P = 0.25).

Conclusions PHT use for urban, penetrating proximal extremity trauma was not associated with decreased mortality or complications. Further research may determine whether modified tourniquet training improves outcomes, or whether immediate transport to a trauma center is more beneficial for these patients.

DOI: 10.1177/00031348251388954

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4. J Wound Care. 2026 Apr 2;35(4):312-319. doi: 10.12968/jowc.2025.0089. Epub 2026 Apr 2.

Incidence and risk factors of pressure ulcer development in patients receiving a preventive care bundle in two Italian emergency settings: the RUNTIME Study.

Monaco D(1), Iovino P(2), Zaghini F(1), D'Andrea L(1), Savini S(3).

OBJECTIVE: This study aimed to assess the incidence of pressure ulcers (PUs) in two Italian emergency departments (EDs) in a cohort of patients cared for with a standardised preventive care bundle, and to identify risk factors associated with PU development during the ED stay.

METHOD: In the RUNTIME Study-a prospective observational cohort study-patients with any critical illness, ≥18 years of age and at risk of developing a PU were included. Those with a pre-existing PU and significant cognitive decline were excluded. Sociodemographic and clinical characteristics were collected at baseline and follow-up. PU risk was ascertained at admission

with the Braden scale. Cumulative survival and risk factors associated with PU were estimated with Kaplan-Meier curves and Cox proportional regression.

RESULTS: A total of 201 patients (mean age: 81±8.3 years; male: 53%) were included. After a mean of 84.7±46.6 hours, 12 patients developed a PU (incidence: 6%). Lesions were at the first stage and located at the sacrum. The probability of remaining free from PUs dropped from 98% at 24 hours to 80% at 168 hours. Risk of PU increased with age (hazard ratio (HR): 1.13; p=0.004) and decreased with longer ED stays (HR: 0.36; p<0.001).

CONCLUSION: The findings of this study offer additional knowledge about PU incidence and risk factors in ED patients followed by a standardised preventive bundle. The low incidence and presence of risk factors suggests that a preventive protocol led by ED nurses trained in wound care can reduce the incidence and risk factors for PUs. However, the study included only 12 cases of PU development, which limits the robustness of the statistical conclusions. Therefore, the findings should be interpreted with caution and confirmed in studies with larger populations.

DOI: 10.12968/jowc.2025.0089

PMID: 41926469 [Indexed for MEDLINE]

5. J Am Coll Surg. 2026 Apr 1;242(4):785-793. doi: 10.1097/XCS.0000000000001780. Epub 2026 Mar 26.

Is There a Role for Prehospital Precision Resuscitation? A Prospective Multi-Institutional Blood Analysis.

Caputo S(1), Piehl M(2), Broome J(3), Holleman G(4), Taylor C(4), Dransfield T(5), Tatum D(4), Smith A(6), Marino M(5), Rayburn D(6), Azar F(7), Gomez M(8), Rodriguez Mederos D(8), Gibson K(9), Krause M(9), Hamilton D(10), Jacome T(11), Davis G(11), Branney S(12), Harwood L(12), Dorlac W(13), Baxter B(13), Puente I(14), Duchesne J(15).

BACKGROUND: Military experience has paved the way for the development of civilian prehospital (PH) blood programs. Although whole blood (WB) is considered the product of choice for prehospital transfusion, data comparing WB to packed RBC (pRBCs) are lacking. We aimed to compare patient outcomes among multiple fast-paced emergency medical services systems nationwide, hypothesizing that overall patient outcomes with WB would be superior to pRBCs.

STUDY DESIGN: This was a prospective multicenter analysis of adult trauma patients who received prehospital transfusion within 9 emergency medical services systems from January

2020 to December 2024. Patients with isolated traumatic brain injury, penetrating injury to the head, or PH cardiac arrest were excluded. The primary endpoint was in-hospital mortality.

RESULTS: A total of 339 patients were included, 84 (24.9%) received WB and 255 (75.1%) pRBCs. Penetrating injury was more common in the pRBC group than in the WB group (54.1% vs 39.3%, p = 0.006). No differences were observed between groups in age, injury severity, or initial PH vital signs. In-hospital transfusion requirements at 24 hours were lower in the WB vs pRBC groups: pRBC units (2 vs 3, p < 0.001) and plasma units (0 vs 2, p < 0.001). Kaplan-Meier survival analysis revealed no difference in 24-hour mortality (3.5% vs 6.25%, p = 0.34) or mortality at hospital discharge (7.1% vs 13.7 %, p = 0.11) between WB and pRBCs groups, respectively (KM1). Subgroup analysis of only blunt injury (KM2) showed a survival advantage for WB vs pRBCs (94.1% vs 79.5%, p = 0.02).

CONCLUSIONS: Although pRBCs were not inferior to WB overall, prehospital WB was associated with improved survival in blunt trauma patients and reduced subsequent in-hospital transfusion requirements, supporting injury-specific precision resuscitation strategies.

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PMID: 41568824 [Indexed for MEDLINE]

6. Prehosp Disaster Med. 2026 Apr 6;41(1):e4. doi: 10.1017/S1049023X26108875.

Effectiveness of Video Call-Assisted Versus Voice Call-Assisted Dispatcher-Guided CPR in Untrained Laypersons: A Randomized Simulation Study.

Koksal A(1), Saribas MS(1), Tomakin M(2), Kalafat YB(1), Caltekin I(1), Aygun A(1).

INTRODUCTION: Out-of-hospital cardiac arrest (OHCA) remains a major cause of mortality world-wide. Early bystander cardiopulmonary resuscitation (CPR) is a critical determinant of survival; however, many witnessed arrests are managed by untrained laypersons. Dispatcher-assisted CPR (DA-CPR) increases bystander intervention rates, but telephone-based guidance limits real-time assessment of compression quality. Video-assisted CPR (V-CPR) may overcome these limitations by enabling visual feedback and demonstration-based guidance.

STUDY OBJECTIVE: The aim of this study was to evaluate whether video call-assisted dispatcher guidance incorporating simultaneous real-time demonstration improves CPR performance quality compared with voice call-assisted guidance in untrained laypersons during a simulated adult OHCA scenario.

METHODS: This prospective, randomized, single-blind, manikin-based trial included 85 university students without prior CPR training. Participants were randomized to telephone-assisted CPR (T-CPR; n = 40) or video-assisted CPR (V-CPR; n = 45). All participants performed standardized hands-only CPR for five minutes following dispatcher instructions. In the V-CPR group, the dispatcher simultaneously demonstrated CPR on a manikin during the video call. The primary outcome was the composite CPR Quality Score generated by the manikin feedback system. Secondary exploratory outcomes included compression depth, compression rate, interruption time, and Emergency Medical Services (EMS)-related time intervals. Robust regression analysis adjusted for age, sex, dominant hand, height, and weight was performed.

RESULTS: The mean age of participants was 20.13 (SD = 1.81) years, and 54.1% were female. The CPR Quality Score was significantly higher in the V-CPR group than in the T-CPR group (median difference -47; 95% CI, -60 to -36; P < .001). The V-CPR group demonstrated greater mean compression depth, higher proportions of compressions within recommended rate and depth ranges, and shorter interruption times between compressions. The T-CPR group showed shorter time from case recognition to EMS call, while the interval from dispatcher contact to CPR initiation was similar between groups. In multivariable robust regression analysis, allocation to the V-CPR group remained independently associated with higher CPR Quality Score and improved compression performance metrics.

CONCLUSION: Video call-assisted dispatcher guidance incorporating simultaneous real-time visual demonstration significantly improves CPR quality in untrained lay rescuers compared with voice-only guidance. These findings suggest that structured visual modeling integrated into DA-CPR systems may enhance bystander resuscitation performance and help bridge gaps in community CPR training.

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PMID: 41940527 [Indexed for MEDLINE]

Journal report – duben 2026

PREHOSPITAL CARE

– systematic review & meta-analysis & scoping review –

1. Front Public Health. 2026 Apr 15;14:1823265. doi: 10.3389/fpubh.2026.1823265. eCollection 2026.

National AED registries and coordinated AED systems as a system-level intervention to improve outcomes after out-of-hospital cardiac arrest: lessons from Japan for Poland.

Żuratyński P(1), Haratake MT(2).

BACKGROUND: Out-of-hospital cardiac arrest (OHCA) survival depends critically on early defibrillation. Coordinated automated external defibrillator (AED) systems, including registries, mapping initiatives, and integration with emergency medical services (EMS), enable real-time device location, strategic placement, and system-level quality improvement. However, implementation varies widely between countries.

OBJECTIVE: To synthesize evidence on the impact of coordinated AED systems, including registries and public-access defibrillation programs, on OHCA outcomes and to identify lessons from Japan applicable to Poland.

METHODS: A systematic review was conducted according to PRISMA guidelines. PubMed/MEDLINE, EMBASE, Cochrane Library, and Scopus were searched (January 2015-June 2025) for studies evaluating AED registries, mapping systems, and public-access defibrillation programs. Eligible designs included randomized trials, observational registry studies, economic evaluations, and policy analyses. Inclusion criteria comprised studies evaluating AED registries, mapping systems, or public-access defibrillation in OHCA settings with reported clinical, operational, or economic outcomes. Exclusion criteria included studies without primary data, conference abstracts without full text, animal studies, and studies focused solely on in-hospital cardiac arrest. Study quality was assessed using the Newcastle-Ottawa Scale, AMSTAR 2, and CHEERS 2022.

RESULTS: Seventeen studies met inclusion criteria. Japan's coordinated system, combining nationwide OHCA surveillance, public-access defibrillation programs, AED mapping initiatives, and EMS integration, has been associated in observational studies with increased bystander AED use among patients with bystander-witnessed OHCA with shockable rhythm (from 1.1 to 16.5%), reduced time to defibrillation, and improved neurological outcomes. In contrast, Poland currently lacks a fully coordinated national system, resulting in fragmented AED data and limited integration with emergency response. Modeling studies suggest that

implementing a national system incorporating an AED registry, dispatcher integration, and community responder networks would be cost-effective.

CONCLUSION: Coordinated AED systems, rather than standalone registries, represent an effective system-level approach to improving OHCA outcomes. Japan's experience highlights the importance of integrating AED mapping, OHCA surveillance, EMS systems, and public training. Implementing such a coordinated approach in Poland could substantially improve survival and neurological outcomes after cardiac arrest. However, the observed benefits are likely multifactorial and reflect the combined effect of system-level interventions rather than a single component.

DOI: 10.3389/fpubh.2026.1823265

PMCID: PMC13127115

PMID: 42064887 [Indexed for MEDLINE]

2. J Med Syst. 2026 Apr 13;50(1):49. doi: 10.1007/s10916-026-02376-3.

Evaluating Artificial Intelligence for Sepsis Prediction in Emergency Departments: A Systematic Review and Meta Analysis.

Zhang Y(1), Kirchler T(1), Wang AP(2).

This study aims to synthesize current evidence on artificial intelligence-based sepsis prediction models for emergency department patients and propose practical benchmarks that emphasize standardized data preparation and reproducible model characterization. Literature searches were conducted across Scopus, Web of Science, PubMed, MEDLINE, and Embase. Eligible studies were selected through a two-tiered screening process, followed by data extraction and assessment according to predefined criteria. Random-effects meta-analysis was used to quantify model performance, and heterogeneity was explored by subgroup, regression, and sensitivity analyses. A total of 36 studies comprising 98 predictive models were included, with a pooled area under the receiver operating characteristic curve of 0.87 (95% CI: 0.86–0.88). Differences in performance were associated with study-level methodologies, including target definition, data provenance, cohort scale, data preprocessing, feature representation, and model development. The integrated meta-regression further identified independent methodologies influencing model performance. Artificial intelligence-based models showed higher pooled predictive performance than widely used traditional scoring systems for sepsis in emergency departments. However, translation into practice remains limited by inconsistent evaluation and reporting, and by inadequate external validation. Standardized methodological

benchmarks have the potential to improve reproducibility, comparability, and clinical applicability.

SUPPLEMENTARY INFORMATION: The online version contains supplementary material available at 10.1007/s10916-026-02376-3.

DOI: 10.1007/s10916-026-02376-3

PMCID: PMC13076368

PMID: 41973329

3. Addiction. 2026 Apr 28. doi: 10.1111/add.70448. Online ahead of print.

Evaluating comparative effect of non-pharmacological interventions adjunctive to opioid agonist therapy for opioid use disorder: A systematic review with network meta-analysis.

Lv B(1), Zhang YX(1), Tao QF(1), Lin L(1), Li XY(1), Chen BZ(1), Zheng H(1).

BACKGROUND AND AIMS: Non-pharmacological therapies are critical for disease management, particularly when pharmacological approaches are limited. Investigating their role as adjuncts to pharmacotherapy to improve outcomes in opioid use disorder (OUD) is of substantial clinical importance. This study aimed to evaluate the efficacy of non-pharmacological therapies as adjuncts to opioid agonist therapy (OAT) management for OUD.

METHODS: We systematically searched PubMed, Cochrane Controlled Register of Trials, Embase and Web of Science from inception to 8 February 2025 for randomized controlled trials (RCTs) comparing OAT alone versus OAT combined with non-pharmacological interventions in OUD. Outcomes of interest included treatment retention [assessed via odds ratios (ORs)], negative urine test results (specimen and the longest duration of continuous drug abstinence) and opioid craving scores [both evaluated via standard mean differences (SMDs)]. Bayesian network meta-analysis (NMA) using a random-effects consistency model was conducted to compare the relative effects of all non-pharmacological interventions. Local inconsistency was evaluated through node-splitting analysis, and global inconsistency was assessed using the non-consistency model. The certainty of the evidence was assessed using the GRADE framework (Grading of Recommendations, Assessment, Development and Evaluation) for network meta-analysis.

RESULTS: Forty-two RCTs involving 5113 participants were included. For treatment retention, contingency management (CM) combined with OAT likely results in an increase [low-certainty evidence; OR = 1.64, 95% credible interval (CrI) = 1.03-2.57], while the combination of OAT

with contingency management plus cognitive behavioral therapy (CBT + CM; very low-certainty evidence; OR = 2.47, 95% CrI = 1.10-5.67) or with enhanced methadone services (EMS; very low-certainty evidence; OR = 5.48, 95% CrI = 1.47-22.61) may result in an increase, compared with OAT alone. No intervention statistically significantly improved opioid-negative urine tests over OAT alone (very low certainty). For craving, acupuncture (very low certainty; SMD = -2.13, 95% CrI = - 3.09 to -1.15) and sham acupuncture (low certainty; SMD = -1.49, 95% CrI = - 2.69 to -0.31) combined with OAT may reduce craving scores.

CONCLUSION: Contingency management, as adjunctive therapies for opioid agonist therapy (OAT), may improve treatment retention in patients with opioid use disorder compared with traditional OAT. Enhanced methadone services and contingency management plus cognitive behavioral therapy may improve treatment retention too but the evidence is very uncertain. Compared with OAT, sham acupuncture as an adjunct therapy may help reduce opioid cravings; acupuncture may reduce cravings too but evidence is very uncertain.

DOI: 10.1111/add.70448

PMID: 42046533