Journal report – prosinec 2024

OBSAH

1: Tabas ND, Amouzeshi Z, Vagharseyyedin SA. **Comparison of the effects of group and individual reflection methods on self-regulated learning strategies and learning motivation among emergency medical technicians: a quasi-experimental study.** BMC Emerg Med. 2024 Dec 18;24(1):233. doi: 10.1186/s12873-024-01147-y. PMID: 39695993; PMCID: PMC11657279.

2: Alakrawi GA, Al-Wathinani AM, Gómez-Salgado J, Alobaid AM, Abahussian M, Alhazmi R, Mobrad A, Jebreel A, Althunayyan S, Goniewicz K. **Evaluating the efficacy of full-scale and tabletop exercises in enhancing paramedic preparedness for external disasters: A quasi-experimental study.** Medicine (Baltimore). 2024 Dec 6;103(49):e40777. doi: 10.1097/MD.0000000000040777. PMID: 39654246; PMCID: PMC11630957.

3: van Veelen MJ, Vinetti G, Cappello TD, Eisendle F, Mejia-Aguilar A, Parin R, Oberhammer R, Falla M, Strapazzon G. **Drones reduce the time to defibrillation in a highly visited non-urban area: A randomized simulation-based trial.** Am J Emerg Med. 2024 Dec;86:5-10. doi: 10.1016/j.ajem.2024.09.036. Epub 2024 Sep 17. PMID: 39305698.

4: Foni NO, Accorsi TAD, Correia RFV, Moreira FT, Lima KA, Morbeck RA, Souza JL Jr, Pedrotti CHS, Wolosker N; TeleORTHOPEDICS Trial. **Guideline-Based Telemedicine Assessment of Orthopedic Low-Risk Conditions by General Practitioners is Not Inferior to that of Face-to-Face Consultations with Specialists in the Emergency Department: A Randomized Trial**. Telemed J E Health. 2024 Dec;30(12):2859-2869. doi: 10.1089/tmj.2024.0312. Epub 2024 Aug 21. PMID: 39166332.

5: Chambers LC, Li Y, Hallowell BD, Langdon KJ, Samuels EA, Mahoney LA, Beaudoin FL, Marshall BDL. **Effect of a peer-led emergency department behavioral intervention on non-fatal opioid overdose: 18-month outcome in the Navigator randomized controlled trial.** Addiction. 2024 Dec;119(12):2116-2128. doi: 10.1111/add.16581. Epub 2024 Jul 10. PMID: 38987890; PMCID: PMC11568958.

PREHOSPITAL CARE

– systematic review & meta-analysis

1: Leech C, Nutbeam T, Chu J, Knight M, Hinshaw K, Appleyard TL, Cowan S, Couper K, Yeung J. **Maternal and neonatal outcomes following resuscitative hysterotomy for out of hospital cardiac arrest: a systematic review.** Resuscitation. 2024 Dec 28:110479. doi: 10.1016/j.resuscitation.2024.110479. Epub ahead of print. PMID: 39736393.

2: Zhao Y, Xu Y, Fang S, Zhi S, Ma D, Song D, Gao S, Wu Y, Zhong Q, Jin C, Wang R, Sun J. **Incidence and associated factors of pre-hospital care-seeking delay in people with acute ischemic**

stroke: a systematic review and meta-analysis. Neuroepidemiology. 2024 Dec 19:1-20. doi: 10.1159/000542765. Epub ahead of print. PMID: 39701059.

3: Alharbi SA, du Toit P, Copson J, Smith TO. **Factors Influencing Outcomes of Trauma Patients Transferred in Trauma Systems by Air or Ground Ambulance: A Systematic Review.** Prehosp Emerg Care. 2024 Dec 17:1-23. doi: 10.1080/10903127.2024.2440016. Epub ahead of print. PMID: 39688927.

4: Tahernejad A, Makki F, Rezaei E, Marzban H, Tahernejad S, Sahebi A. **Musculoskeletal disorders in emergency medical services personnel: a systematic review and meta-analysis.** Public Health. 2024 Dec;237:107-115. doi: 10.1016/j.puhe.2024.08.020. Epub 2024 Oct 4. PMID: 39366277.

Journal report – prosinec 2024

PREHOSPITAL CARE

– clinical trials & RCT & multicenter study –

1. BMC Emerg Med. 2024 Dec 18;24(1):233. doi: 10.1186/s12873-024-01147-y.

Comparison of the effects of group and individual reflection methods on self-regulated learning strategies and learning motivation among emergency medical technicians: a quasi-experimental study.

Tabas ND(1), Amouzeshi Z(2), Vagharseyyedin SA(1).

BACKGROUND: Reflection is an essential educational practice often characterized as a self-regulated learning activity. Self-regulated learning has been shown to positively influence learning motivation and metacognition. This study aimed to compare the effect of group and individual reflection methods on self-regulation learning strategies and motivational components among emergency medical technicians.

METHODS: This quasi-experimental study was conducted on 54 emergency medical technicians in South Khorasan province in 2023. Thirty pre-hospital emergency centers affiliated to Birjand University of Medical Sciences were randomly assigned to three blocks (A, B, and C). Participants were then selected through convenience sampling based on predetermined inclusion and exclusion criteria. Eighteen participants working in pre-hospital emergency centers were selected from each block. The three blocks (A, B, and C) were randomly assigned into three arms: individual reflection, group reflection, and control. The individual reflection group members were asked to record their feelings and experiences using the Gibbs model in provided notebooks during four weeks (at the end of each week). The group reflection members, after forming groups and selecting leaders, engaged in the group reflection sessions in a designated room, following the Gibbs model for four weeks. The self-regulated learning strategies and learning motivation components of all participants were measured using standardized questionnaires before and after the intervention. Data were analyzed using paired t-test, one-way analysis of variance, Tukey's post hoc test, and Fisher's exact test.

RESULTS: The mean score of self-regulation learning strategies and learning motivation significantly increased in the group reflection arm after the intervention ($p < 0.05$). While the mean scores of motivational component and its individual components increased significantly in the individual reflection group after the intervention ($p < 0.05$), no significant difference was observed in the mean scores of self-regulation learning strategies and their components before and after the intervention ($p > 0.05$).

CONCLUSION: The results of this research highlight the superiority of group reflection method over individual reflection in promoting self-regulated learning. While both methods were effective in enhancing learning motivation, group reflection proved to be more beneficial. Therefore, it is recommended that Emergency Medical Services managers provide training programs that incorporate group reflection to enable technicians to benefit from its advantages in terms of self-regulated learning strategies and learning motivation.

2. Medicine (Baltimore). 2024 Dec 6;103(49):e40777. doi: 10.1097/MD.0000000000040777.

Evaluating the efficacy of full-scale and tabletop exercises in enhancing paramedic preparedness for external disasters: A quasi-experimental study.

Alakrawi GA(1), Al-Wathinani AM(1), Gómez-Salgado J(2)(3), Alobaid AM(4), Abahussian M(1), Alhazmi R(1), Mobrad A(1), Jebreel A(1), Althunayyan S(4), Goniewicz K(5).

BACKGROUND: The increasing frequency and severity of disasters worldwide needs effective disaster management training to enhance the preparedness and response capabilities of emergency responders. This study compares the outcomes of tabletop exercises (TTEs) and full-scale exercises (FSEs) in training senior paramedic students at Prince Sultan bin Abdul Aziz College for Emergency Medical Services, King Saud University, Riyadh, Saudi Arabia.

METHODS: A nonequivalent two-group quasi-experimental design was used. Forty-five senior paramedic students who had completed a disaster management course were randomly assigned to either TTE or FSE groups. Both groups participated in a simulated multi-vehicle accident scenario. Data were collected using an adapted CLUT Scale survey, which measured learning, trust, and usefulness immediately after the exercises. The Mann-Whitney U test was applied to compare outcomes between the 2 groups.

RESULTS: Both TTE and FSE resulted in high levels of perceived learning, trust, and usefulness among participants, indicating a positive impact on disaster preparedness. While the TTE group scored slightly higher on average across all variables, these differences were not statistically significant, suggesting that both exercise types are similarly effective. The findings underscore the cost-effectiveness of TTEs and their potential to foster collaborative learning environments.

CONCLUSIONS: Both TTE and FSE are effective in enhancing disaster preparedness among senior paramedic students. Given their adaptability and cost-effectiveness, TTEs may be particularly valuable for resource-constrained training settings. Further research with larger, more diverse samples and pre-/post-intervention assessments is recommended to validate these findings and improve disaster management training programs.

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PMID: 39654246 [Indexed for MEDLINE]

Journal report – prosinec 2024

3. Am J Emerg Med. 2024 Dec;86:5-10. doi: 10.1016/j.ajem.2024.09.036. Epub 2024 Sep 17.

Drones reduce the time to defibrillation in a highly visited non-urban area: A randomized simulation-based trial.

van Veelen MJ(1), Vinetti G(2), Cappello TD(2), Eisendle F(3), Mejia-Aguilar A(4), Parin R(5), Oberhammer R(6), Falla M(7), Strapazzon G(8).

INTRODUCTION: Out-of-hospital cardiac arrest (OHCA) has a high global incidence and mortality rate, with early defibrillation significantly improving survival. Our aim was to assess the feasibility of autonomous drone delivery of automated external defibrillators (AED) in a non-urban area with physical barriers and compare the time to defibrillate (TTD) with bystander retrieval from a public access defibrillator (PAD) point and helicopter emergency medical services (HEMS) physician performed defibrillation.

METHODS: This randomized simulation-based trial with a cross-over design included bystanders performing AED retrievals either delivered by automated drone flight or on foot from a PAD point, and simulated HEMS interventions. The primary outcome was the time to defibrillation, with secondary outcomes comparing workload, perceived physical effort, and ease of use.

RESULTS: Thirty-six simulations were performed. Drone-delivered AED intervention had a significantly shorter TTD [2.2 (95 % CI 2.0-2.3) min] compared to PAD retrieval [12.4 (95 % CI 10.4-14.4) min] and HEMS [18.2 (95 % CI 17.1-19.2) min]. The self-reported physical effort on a visual analogue scale for drone-delivered AED was significantly lower versus PAD [2.5 (1 - 22) mm vs. 81 (65-99) mm, p = 0.02]. The overall mean workload measured by NASA-TLX was also significantly lower for drone delivery compared to PAD [4.3 (1.2-11.7) vs. 11.9 (5.5-14.5), p = 0.018].

CONCLUSION: The use of drones for automated AED delivery in a non-urban area with physical barriers is feasible and leads to a shorter time to defibrillation. Drone-delivered AEDs also involve a lower workload and perceived physical effort than AED retrieval on foot.

DOI: 10.1016/j.ajem.2024.09.036

PMID: 39305698 [Indexed for MEDLINE]

4. Telemed J E Health. 2024 Dec;30(12):2859-2869. doi: 10.1089/tmj.2024.0312. Epub 2024 Aug 21.

Guideline-Based Telemedicine Assessment of Orthopedic Low-Risk Conditions by General Practitioners is Not Inferior to that of Face-to-Face Consultations with Specialists in the Emergency Department: A Randomized Trial.

Foni NO(1), Accorsi TAD(2), Correia RFV(1), Moreira FT(2), Lima KA(2), Morbeck RA(2), Souza JL Jr(1), Pedrotti CHS(2), Wolosker N(3); TeleORTHOPEDICS Trial.

Background: There is a lack of randomized controlled trials focusing on orthopedic telemedicine (TM). The objective of this research was to compare the diagnostic accuracy and pattern of TM consultations of low-risk orthopedic patients performed by general practitioners (GPs) with those of face-to-face evaluations by orthopedists at an emergency department (ED).

Methods: This randomized, single-center study was conducted between October 2021 and November 2022 on patients at an ED. Inclusion criteria were age >18 years, low back pain, extremity contusion, ankle sprain, or neck pain. Eligible patients were randomized 1:1 for TM consultations by generalist physicians with subsequent face-to-face orthopedic evaluations (TM-ED group) or face-to-face evaluations by orthopedic physicians (ED group). Primary outcomes were syndromic diagnosis, physical examination, and tests ordered. Secondary analysis included a satisfaction survey.

Results: A total of 99 patients were enrolled; mean age was 41 ± 10.1 years, and 62.6% were female. The most common conditions were foot contusion (28.3%), ankle sprain (27.3%), hand contusion (19.2%), low back pain (19.2%), and neck pain (6.1%). Syndromic diagnosis showed no difference between groups (p = 0.231). In the TM-ED group (n = 51), self-examination demonstrated moderate to good agreement with face-to-face evaluations in several areas. Both groups showed similar tests practices. Patient satisfaction was higher in the TM-ED group across multiple measures.

Conclusion: TM consultations for low-risk orthopedic patients by GPs are not inferior to face-to-face specialist evaluations at the ED. Virtual assessments are associated with higher patient satisfaction.

Clinical Trial Identifier: NCT04981002.

DOI: 10.1089/tmj.2024.0312

PMID: 39166332 [Indexed for MEDLINE]

5. Addiction. 2024 Dec;119(12):2116-2128. doi: 10.1111/add.16581. Epub 2024 Jul 10.

Effect of a peer-led emergency department behavioral intervention on non-fatal opioid overdose: 18-month outcome in the Navigator randomized controlled trial.

Chambers LC(1), Li Y(1), Hallowell BD(2), Langdon KJ(3)(4), Samuels EA(5), Mahoney LA(6), Beaudoin FL(1), Marshall BDL(1).

BACKGROUND AND AIMS: Emergency departments (EDs) provide an opportunity to identify people at risk of overdose and reduce the risk. We evaluated the effect of an ED behavioral intervention delivered by peer recovery support specialists (PRSSs) on non-fatal opioid overdose.

DESIGN: Two-arm, randomized trial.

SETTING: Two EDs in Rhode Island, USA.

PARTICIPANTS: ED patients presenting with an opioid overdose, complications of opioid use disorder or a recent history of opioid overdose (November 2018-May 2021). Among 648 participants, the mean age was 36.9 years, 68.2% were male and 68.5% were White.

INTERVENTION AND COMPARATOR: Participants were randomized to receive a behavioral intervention from a PRSS (n = 323) or a licensed clinical social worker (LICSW) (n = 325). PRSS and LICSW used evidence-based interviewing and intervention techniques, informed by their lived experience (PRSS) or clinical theory and practice (LICSW).

MEASUREMENTS: We identified non-fatal opioid overdoses in the 18 months following the ED visit through linkage to statewide emergency medical services data using a validated case definition. The primary outcome was any non-fatal opioid overdose during the 18-month follow-up period.

FINDINGS: Among 323 participants randomized to the PRSS arm, 81 (25.1%) had a non-fatal opioid overdose during follow-up, compared with 95 (29.2%) of 325 participants randomized to the LICSW arm (P = 0.24). There was no statistically significant difference in the effectiveness of randomization to the PRSS arm versus the LICSW arm on the risk of non-fatal opioid overdose, adjusting for the history of previous overdose (relative risk = 0.86, 95% confidence interval = 0.67-1.11).

CONCLUSIONS: In Rhode Island, USA, over one-in-four emergency department patients at high risk of overdose experience a non-fatal opioid overdose in the 18 months post-discharge. We found no evidence that the risk of non-fatal opioid overdose differs for emergency department patients receiving a behavioral intervention from a peer recovery support specialist versus a licensed clinical social worker.

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Journal report – prosinec 2024

PREHOSPITAL CARE

– systematic review & meta-analysis –

1. Resuscitation. 2024 Dec 28:110479. doi: 10.1016/j.resuscitation.2024.110479. Online ahead of print.

Maternal and neonatal outcomes following resuscitative hysterotomy for out of hospital cardiac arrest: a systematic review.

Leech C(1), Nutbeam T(2), Chu J(3), Knight M(4), Hinshaw K(5), Appleyard TL(6), Cowan S(7), Couper K(8), Yeung J(8).

OBJECTIVE: To examine maternal and neonatal outcomes following Resuscitative Hysterotomy for out of hospital cardiac arrest (OHCA) and to compare with timing from cardiac arrest to delivery.

METHODS: The review was registered with PROSPERO (CRD42023445064). Studies included pregnant women with out of hospital cardiac arrest and resuscitative hysterotomy performed (in any setting) during cardiac arrest. We searched MEDLINE, EMBASE, and Cochrane Central Register of Controlled Trials (CENTRAL), from inception to 25th May 2024, restricted to humans. We included randomised controlled trials, observational studies, cases series or case reports. Two reviewers independently assessed study eligibility, extracted study data, and assessed risk of bias using validated tools. Data are summarised in a narrative synthesis.

RESULTS: We included 42 publications (one cohort study, three case series and 38 case reports) including a total of 66 women and 68 neonates. Maternal and newborn survival to hospital discharge was 4.5% and 45.0% respectively. The longest duration from collapse to resuscitative hysterotomy for maternal survival with normal neurological function was 29 minutes and for neonates was 47 minutes. There were reported neonatal survivors born at 26 weeks gestation with good outcomes. The certainty of evidence was very low due to risk of bias.

CONCLUSION: There are low rates of maternal survival following resuscitative hysterotomy for OHCA. There are documented neonatal survivors after extended periods of maternal resuscitation, and at extremely preterm gestations (<28 weeks). Further prospective research should assess both maternal and neonatal outcomes to better inform future clinical practice.

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PMID: 39736393

Journal report – prosinec 2024

2. Neuroepidemiology. 2024 Dec 19:1-20. doi: 10.1159/000542765. Online ahead of print.

Incidence and associated factors of pre-hospital care-seeking delay in people with acute ischemic stroke: a systematic review and meta-analysis.

Zhao Y, Xu Y, Fang S, Zhi S, Ma D, Song D, Gao S, Wu Y, Zhong Q, Jin C, Wang R, Sun J.

BACKGROUND: Despite decades of educational efforts, patients with acute ischemic stroke (AIS) remain delayed in seeking medical care, which becomes the greatest obstacle to the successful management of the condition.

OBJECTIVE: To systematically explore the incidence and influencing factors of pre-hospital care-seeking delay in acute ischemic stroke patients.

METHODS: We systematically searched the PubMed, Embase, Cochrane Library, Web of Science, and Cumulative Index to Nursing and Allied Health Literature from database inception to September 30, 2023. Meta-analysis was conducted using the Stata 15.0 software package. The pooled incidence was calculated using a random-effects model. The quality of studies reporting incidence data was assessed using Joanna Briggs Institute's Critical Appraisal Checklist and Newcastle-Ottawa Scale. Subgroup analyses were performed according to study location, country income, recruitment date, and age.

RESULTS: Finally, 30 related articles were included, involving a total of 287,102 people. The estimated incidence of pre-hospital care-seeking delay was 68%,and there were differences in this incidence in different countries (P= 0.035). Meta-analysis results showed that the delay rate was highest in low-income countries (85%) and lowest in high-income countries (62%). Patients who live farther from hospitals, have a lower level of education, diabetes, hyperlipidemia, or a history of stroke are more likely to experience delays (all P <0.05). Conversely, those who can recognize stroke symptom , perceive the severity of early symptom, understand thrombolysis treatment, atrial fibrillation, consciousness disturbance, visual disturbance, and symptom score at admission, Emergency Medical Services use, and immediate help-seeking have a lower risk of delay (all P < 0.05).

CONCLUSIONS: Pre-hospital care-seeking delays are common among patients with AIS, especially in low-income countries. To reduce delays, it is crucial to increase public awareness of stroke symptoms, improve education levels, and optimize healthcare accessibility.

3. Prehosp Emerg Care. 2024 Dec 17:1-23. doi: 10.1080/10903127.2024.2440016. Online ahead of print.

Factors Influencing Outcomes of Trauma Patients Transferred in Trauma Systems by Air or Ground Ambulance: A Systematic Review.

Alharbi SA(1)(2), du Toit P(1), Copson J(1), Smith TO(1)(3).

OBJECTIVES: This systematic review aims to determine the effectiveness of ambulance transportation versus helicopter transportation on mortality for trauma patients.

METHODS: A systematic review of published and unpublished databases (to August 2023) was performed. Studies, reporting mortality, for people who experienced trauma and were transported to a trauma unit by ambulance or helicopter were eligible. The Newcastle-Ottawa scale was employed to evaluate study quality.

RESULTS: Of the 7323 studies screened, 63 met the inclusion criteria. Thirty-two percent of these studies included patients with diverse injury types, while nine studies included patients across all age groups. The majority (92%) of the included data were retrospective in nature. Eighteen studies (28.57%) achieved the highest score on the Newcastle-Ottawa scale suggesting high-quality evidence. Seven studies examining 24-hour mortality reported variable findings. Eighteen studies reported mortality without exact time points through adjusted analyses, 17 favored air transport. Air transport showed an advantage across all subgroups in the adjusted data, while the unadjusted data presented relatively similar outcomes between the two modes of transport.

CONCLUSIONS: This systematic review found that adjusted analyses consistently favored air transport over ground transport. Unadjusted analyses showed no significant difference between the two modes of transport, except in specific subgroups. Further subgroup analyses revealed notable disparities between the two modalities, suggesting that these differences may be influenced by multiple factors. These findings highlight the need for further research to clarify the true impact of transport modality on trauma outcomes.

DOI: 10.1080/10903127.2024.2440016

PMID: 39688927

4. Public Health. 2024 Dec;237:107-115. doi: 10.1016/j.puhe.2024.08.020. Epub 2024 Oct 4.

Musculoskeletal disorders in emergency medical services personnel: a systematic review and meta-analysis.

Tahernejad A(1), Makki F(2), Rezaei E(2), Marzban H(2), Tahernejad S(2), Sahebi A(3).

OBJECTIVES: Emergency medical services personnel are frequently subjected to strenuous physical tasks, such as lifting and moving patients, as well as working in awkward postures. These activities can result in a variety of debilitating injuries, including musculoskeletal disorders (MSDs). As a result, this systematic review and meta-analysis study aimed to examine the frequency of MSDs among emergency medical services personnel.

STUDY DESIGN: Systematic review and meta-analysis.

METHODS: This systematic review and meta-analysis study was conducted based on the PRISMA guidelines. The protocol of this work is registered in PROSPERO with the code CRD42024506958. Searches were conducted without time limits in several databases including PubMed, Scopus, Web of Science, Science Direct, SID, ISC, and Google Scholar until February 12, 2024. The I2 index was used to assess heterogeneity, and random effects model was used for meta-analysis. Data were analyzed using STATA version 14.

RESULTS: A total of 709 articles were obtained by initial search in the mentioned databases. Following a thorough screening and quality assessment, 27 articles were chosen for meta-analysis. The findings revealed that the overall prevalence of MSDs among emergency medical services personnel is 56.52% (95% CI: 35-78.04, I2 = 99.8%, P < 0.001) and the prevalence in different areas of the body are as follows: the low back (47.38%), upper back (35.15%), neck (31.19%), shoulder (30%), knee (27.07%), hand (20.70%), hip/thigh (19.48%), feet (19.11%), and elbow (17.36%).

CONCLUSION: The prevalence of MSDs among emergency medical services personnel is very high. Considering the importance of the role of these employees and the specific risk factors of their jobs, it is recommended that periodic screening is prioritized. In addition, attention should be paid to the ergonomic evaluation of the work environment and the design of appropriate ergonomic interventions.

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