Journal report – listopad 2023

OBSAH

PREHOSPITAL CARE

– clinical trials & RCT

1: Droege H, Trentzsch H, Zech A, Prückner S, Imach S. **A simulation-based randomized trial of ABCDE style cognitive aid for emergency medical services Checklist In Prehospital Settings: the CHIPS-study.** Scand J Trauma Resusc Emerg Med. 2023 Nov 17;31(1):81. doi: 10.1186/s13049-023-01144-3. PMID: 37978554; PMCID: PMC10655407.

2: Zheng B, Li Y, Gu G, Yang J, Jiang J, Chen Z, Fan Y, Wang S, Pei H, Wang J. **Comparing 5G mobile stroke unit and emergency medical service in patients acute ischemic stroke eligible for t-PA treatment: A prospective, single-center clinical trial in Ya'an, China.** Brain Behav. 2023 Nov;13(11):e3231. doi: 10.1002/brb3.3231. Epub 2023 Aug 25. PMID: 37632149; PMCID: PMC10636411.

3: Hernández-Tejedor A, González Puebla V, Corral Torres E, Benito Sánchez A, Pinilla López R, Galán Calategui MD. **Ventilatory improvement with mechanical ventilator versus bag in non-traumatic out-of-hospital cardiac arrest: SYMEVECA study, phase 1.** Resuscitation. 2023 Nov;192:109965. doi: 10.1016/j.resuscitation.2023.109965. Epub 2023 Sep 12. PMID: 37709164.

PREHOSPITAL CARE

– systematic review & meta-analysis

1: Buck Sainz-Rozas P, Casal Angulo C, García Molina P. **Quality assessment in initial paediatric trauma care: Systematic review from prehospital care to the paediatric intensive care unit.** Nurs Crit Care. 2023 Nov;28(6):1143-1153. doi:10.1111/nicc.12970. Epub 2023 Aug 24. PMID: 37621180.

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2023 Nov 21;2023:6780941. doi: 10.1155/2023/6780941. PMID: 38035124; PMCID: PMC10684323.

HOSPITAL CARE

– clinical trials & RCT

1: Ahn SY, Chang YS, Lee MH, Sung S, Kim AR, Park WS**. Five-year follow-up of phase II trial of stromal cells for bronchopulmonary dysplasia.** Thorax. 2023 Nov;78(11):1105-1110. doi: 10.1136/thorax-2022-219622. Epub 2023 Aug 21. PMID: 37604693.

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status in spontaneously breathing patients with undifferentiated hypotension? CJEM. 2023 Nov;25(11):902-908. doi: 10.1007/s43678-023-00584-1. Epub 2023 Sep 27. PMID: 37755657.

17: Droege H, Trentzsch H, Zech A, Prückner S, Imach S. **A simulation-based randomized trial of ABCDE style cognitive aid for emergency medical services CHecklist In Prehospital Settings: the CHIPS-study.** Scand J Trauma Resusc Emerg Med. 2023 Nov 17;31(1):81. doi: 10.1186/s13049-023-01144-3. PMID: 37978554; PMCID: PMC10655407.

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Journal report – listopad 2023

HOSPITAL CARE

– systematic review & meta-analysis

1: Gottlieb M, Peksa GD, Carlson JN. **Head impulse, nystagmus, and test of skew examination for diagnosing central causes of acute vestibular syndrome.** Cochrane Database Syst Rev. 2023 Nov 2;11(11):CD015089. doi: 10.1002/14651858.CD015089.pub2. PMID: 37916744; PMCID: PMC10620998.

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dementia: a systematic review and meta-analysis. CJEM. 2023 Nov;25(11):884-892. doi: 10.1007/s43678-023-00578-z. Epub 2023 Sep 2. PMID:37659987.

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Journal report – listopad 2023

PREHOSPITAL CARE

– clinical trials & RCT –

1. Scand J Trauma Resusc Emerg Med.2023Nov 17;31(1):81.doi:10.1186/s13049-023-01144-3.

A simulation-based randomized trial of ABCDE style cognitive aid for emergency medical services CHecklist In Prehospital Settings: the CHIPS-study.

Droege H(1)(2), Trentzsch H(3), Zech A(3), Prückner S(3), Imach S(4).

BACKGROUND: Checklists are a powerful tool for reduction of mortality and morbidity. Checklists structure complex processes in a reproducible manner, optimize team interaction, and prevent errors related to human factors. Despite wide dissemination of the checklist, effects of checklist use in the prehospital emergency medicine are currently unclear. The aim of the study was to demonstrate that participants achieve higher adherence to guideline-recommended actions, manage the scenario more time-efficient, and thirdly demonstrate better adherence to the ABCDE-compliant workflow in a simulated ROSC situation.

METHODS: CHIPS was a prospective randomized case-control study. Professional emergency medical service teams were asked to perform cardiopulmonary resuscitation on an adult high-fidelity patient simulator achieving ROSC. The intervention group used a checklist which transferred the ERC guideline statements of ROSC into the structure of the 'ABCDE' mnemonic. Guideline adherence (performance score, PS), utilization of process time (items/minute) and workflow were measured by analyzing continuous A/V recordings of the simulation. Pre- and post-questionnaires addressing demographics and relevance of the checklist were recorded. Effect sizes were determined by calculating Cohen's d. The level of significance was defined at $p < 0.05$.

RESULTS: Twenty scenarios in the intervention group (INT) and twenty-one in the control group (CON) were evaluated. The average time of use of the checklist (CU) in the INT was 6.32 min (2.39-9.18 min; SD = 2.08 min). Mean PS of INT was significantly higher than CON, with a strong effect size ($p = 0.001$, $d = 0.935$). In the INT, significantly more items were completed per minute of scenario duration (INT, 1.48 items/min; CON, 1.15 items/min, difference: 0.33/min (25%), $p = 0.001$), showing a large effect size ($d = 1.11$). The workflow did not significantly differ between the groups ($p = 0.079$), although a medium effect size was shown ($d = 0.563$) with the tendency of the CON group deviating stronger from the ABCDE than the INT.

CONCLUSION: Checklists can have positive effects on outcome in the prehospital setting by significantly facilitates adherence to guidelines. Checklist use may be time-effective in the prehospital setting. Checklists based on the 'ABCDE' mnemonic can be used according to the 'do verify' approach. Team Time Outs are recommended to start and finish checklists.

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2. Brain Behav. 2023 Nov;13(11):e3231. doi: 10.1002/brb3.3231. Epub 2023 Aug 25.

Comparing 5G mobile stroke unit and emergency medical service in patients acute ischemic stroke eligible for t-PA treatment: A prospective, single-center clinical trial in Ya'an, China.

Zheng B(1), Li Y(1), Gu G(1), Yang J(1), Jiang J(1), Chen Z(1), Fan Y(1), Wang S(1), Pei H(1), Wang J(1).

BACKGROUND: This study aims to assess and compare the functional outcomes of patients with acute ischemic stroke (AIS) eligible for tissue plasminogen activator (t-PA) treatment who received care from either a fifth-generation(5G) mobile stroke unit (MSU) or traditional emergency medical service (EMS).

METHOD: The study recruited patients between February 2020 and January 2022, with the final 90-day follow-up concluded in April 2022. Prior to enrollment, patients were assigned to either EMS or MSU care based on predetermined rules. The primary outcome measure was the Modified Rankin Scale (mRS) score at 90 days, with secondary outcome measures including time metrics, mRS and National Institutes of Health Stroke Scale scores at 7-day follow-up, and hospitalization costs.

RESULTS: Of the 2281 enrolled patients, 207 were eligible for t-PA treatment, with 101 allocated to MSU care and 106 to EMS care. The percentage of patients achieving a favorable mRS score (0-2) at 90 days was 82.2% in the MSU group compared to 72.6% in the EMS group ($p < .05$). Median times from symptom onset to thrombolysis were 146 min in the MSU group and 204 min in the EMS group, while median times from ambulance alert to computed tomography (CT) completion were 53 and 128 min, respectively. Hospitalization charges averaged approximately $3592 in the MSU group and $4800 in the EMS group.

CONCLUSIONS: Our findings indicate that 5G MSU care significantly reduces the time from symptom onset to stroke diagnosis and intravenous thrombolysis in patients with AIS, resulting in improved functional outcomes compared to EMS care. As China continues its deployment of 5G technology and other digital infrastructures, the adoption of 5G MSU care on a broader scale may eventually supplant traditional stroke treatment approaches.

DOI: 10.1002/brb3.3231

PMCID: PMC10636411

PMID: 37632149 [Indexed for MEDLINE]

3. Resuscitation. 2023 Nov;192:109965. doi: 10.1016/j.resuscitation.2023.109965. Epub 2023 Sep 12.

Ventilatory improvement with mechanical ventilator versus bag in non-traumatic out-of-hospital cardiac arrest: SYMEVECA study, phase 1.

Hernández-Tejedor A(1), González Puebla V(2), Corral Torres E(3), Benito Sánchez A(4), Pinilla López R(5), Galán Calategui MD(6).

AIM: To analyze differences in ventilatory parameters and outcome with different ventilatory methods during CPR.

METHODS: Pragmatic prospective quasi-experimental study in out-of-hospital urban environment. Patients over 18 years of age in non-traumatic cardiac arrest, attended by an emergency medical service between April 2021 and September 2022, were included. Two groups were compared according to the ventilatory method: mechanical ventilator (IPPV, tidal volume 7 ml/kg, frequency 10-12 bpm) or manual resuscitator bag. The main variables of interest are those of gasometry performed 15 minutes after intubation or when spontaneous circulation is recovered and final outcome. Patients were followed up to hospital discharge.

RESULTS: Of the 359 patients attended, 150 were included (71 in IPPV and 79 with a bag). In patients with arterial blood gases, pCO2 was 67.8 ± 21.1 in the IPPV group vs 95.9 ± 39.0 mmHg in the bag group ($p = 0.006$) and pH was 7.00 ± 0.18 vs 6.92 ± 0.18 ($p = 0.18$). With a venous sample, the pCO2 was 68.1 ± 18.9 vs 89.5 ± 26.5 mmHg ($p < 0.001$) and the pH was 7.03 ± 0.15 vs 6.94 ± 0.17 ($p = 0.005$), respectively. Survival with CPC 1-2 to hospital discharge was 15.6% with IPPV and 11.3% with bag ($p = 0.44$).

CONCLUSION: The use of a mechanical ventilator in IPPV was associated with a better ventilatory status during CPR compared to the use of the bag, without conclusive data regarding its clinical repercussion with the sample collected.

DOI: 10.1016/j.resuscitation.2023.109965

PMID: 37709164 [Indexed for MEDLINE]

PREHOSPITAL CARE

– systematic review & meta-analysis –

4. Nurs Crit Care. 2023 Nov;28(6):1143-1153. doi: 10.1111/nicc.12970. Epub 2023 Aug 24.

Quality assessment in initial paediatric trauma care: Systematic review from prehospital care to the paediatric intensive care unit.

Buck Sainz-Rozas P(1)(2), Casal Angulo C(1)(3), García Molina P(1)(4).

BACKGROUND: Trauma is the most common cause of death and disability in the paediatric population. There are a huge number of variables involved in the care they receive from health care professionals.

AIM: The aim of this study was to review the available evidence of initial paediatric trauma care throughout the health care process with a view to create quality indicators (QIs).

STUDY DESIGN: A systematic review was performed from Cochrane Library, Medline, Scopus and SciELO between 2010 and 2020. Studies and guidelines that examined quality or suggested QI were included. Indicators were classified by health care setting, Donabedian's model, risk of bias and the quality of the publication with the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) assessment.

RESULTS: The initial search included 686 articles, which were reduced to 22, with 15 primary and 7 secondary research articles. The snowball sampling technique was used to add a further seven guidelines and two articles. From these, 534 possible indicators were extracted, summarizing them into 39 and grouping the prehospital care indicators as structure (N = 5), process (N = 12) and outcome (N = 3) indicators and the hospital care indicators as structure (N = 4), process (N = 10) and outcome (N = 6) indicators. Most of the QIs have been extracted from US studies. They are multidisciplinary and in some cases are based on an adaptation of the QIs of adult trauma care.

CONCLUSIONS: There was a clear gap and large variability between the indicators, as well as low-quality evidence. Future studies will validate indicators using the Delphi method.

RELEVANCE TO CLINICAL PRACTICE: Design a QI framework that may be used by the health system throughout the process. Indicators framework will get nurses, to assess the quality of health care, detect deficient areas and implement improvement measures.

DOI: 10.1111/nicc.12970

PMID: 37621180 [Indexed for MEDLINE]

5. BMC Emerg Med. 2023 Nov 13;23(1):135. doi: 10.1186/s12873-023-00908-5.

Factors affecting the preparedness of Helicopter Emergency Medical Services (HEMS) in disasters: a systematic review.

Hatami M(1), Marzaleh MA(1), Bijani M(2), Peyravi M(3).

BACKGROUND: One of the most significant advantages of Helicopter Emergency Medical Service (HEMS) in disaster relief efforts is their ability to reach inaccessible or remote areas quickly. This is especially important in the aftermath of natural disasters such as earthquakes, floods, or hurricanes, where roads may be blocked or damaged, and conventional ground transportation may not be available. There are many factors can affect the performance of Helicopter Emergency Medical Service (HEMS) in disasters. This study aims to investigate the factors affecting the Helicopter Emergency Medical Service (HEMS) in disasters.

METHODS: The systematic search in Cochran Library, PubMed, Scopus, Science Direct, Web of Science, ProQuest, and Google Scholar databases between the first of January in 1975 and the thirty-first of May in 2023. The articles were selected based on the keywords of the authors. At last, the criteria were extracted from the selected ones.

RESULTS: The primary search included 839 articles. After studying their title, abstract, and full context, only nine articles, including two qualitative and seven quantitative ones, were chosen for analysis. After analysis and extracting data from the final studies, the preparation factors were categorized into 6 general classes of human resources: training and practicing, management, instructions and standards, equipment, and structure. Among these, the role of training is highlighted by holding practice and maneuvers to improve and prepare the personnel and manage disasters and incidents.

CONCLUSION: The results obtained from this systematic review provide a total view of the factors affecting the preparation of the air ambulance during disasters and incidents. It is recommended that senior managers and policy makers use the findings of the present study to identify the factors which affect preparedness of HEMS in disasters and take the necessary measures to eliminate to obstacles.

DOI: 10.1186/s12873-023-00908-5

PMCID: PMC10641982

PMID: 37953223 [Indexed for MEDLINE]

6. Drug Metab Rev. 2023 Nov;55(4):428-440. doi: 10.1080/03602532.2023.2271195. Epub 2023 Oct 28.

Clinical pharmacokinetics of nebivolol: a systematic review.

Hanif N(1), Zamir A(1), Imran I(2), Saeed H(3), Majeed A(4), Rehman AU(1), Ashraf W(2), Alqahtani F(5), Rasool MF(1).

Nebivolol is a beta-1 receptor blocker used to treat hypertension, heart failure, erectile dysfunction, vascular disease, and diabetes mellitus. This review investigated the data regarding pharmacokinetic (PK) parameters, drug-drug interactions, dextrorotatory (D), and levorotatory (L) stereoisomers of nebivolol. The articles related to the PK of nebivolol were retrieved by searching the five databases; Google Scholar, PubMed, Cochrane Library, ScienceDirect, and EBSCO. A total of 20 studies comprising plasma concentration-time profile data following the nebivolol's oral and intravenous (IV) administration were included. The area under the concentration-time curve from zero to infinity (AUC0-∞) was 15 times greater in poor metabolizers (PMs) than in extensive metabolizers (EMs). In hypertensive patients, L-nebivolol expressed a higher maximum plasma concentration (Cmax) than D-nebivolol, i.e. 2.5 ng/ml vs 1.2 ng/ml. The AUC0-∞ of nebivolol was 3-fold greater in chronic kidney disease (CKD). The clearance (CL) was increased in obese than in controls from 51.6 ± 11.6 L/h to 71.6 ± 17.4 L/h when 0.5 mg/ml IV solution was infused. Nebivolol showed higher Cmax, AUC0-∞ and half-life (t1/2) when co-administered with bupropion, duloxetine, fluvoxamine, paroxetine, lansoprazole, and fluoxetine. This concise review of nebivolol would be advantageous in assessing all PK parameters, which may be crucial for clinicians to avoid drug-drug interactions, prevent adverse drug events and optimize the dosage regimen in diseased patients diagnosed with hypertension and cardiovascular disorders.

DOI: 10.1080/03602532.2023.2271195

PMID: 37849071 [Indexed for MEDLINE]

7. Aust Crit Care. 2023 Nov;36(6):1159-1171. doi: 10.1016/j.aucc.2023.01.007. Epub 2023 Feb 28.

Effectiveness of nontechnical skills educational interventions in the context of emergencies: A systematic review and meta-analysis.

Sánchez-Marco M(1), Escribano S(2), Rubio-Aparicio M(3), Juliá-Sanchis R(4), Cabañero-Martínez MJ(5).

INTRODUCTION: In recent years, the importance of training healthcare professionals in nontechnical skills using effective methodologies has been increasingly recognised as a means of preventing clinical errors in the practice of health care. The aim of this study was to evaluate the effectiveness of educational interventions on nontechnical skills in the emergency medical services and/or critical care unit settings.

METHODS: A systematic search was carried out in the PubMed, SCOPUS, CINAHL, and Web of Science databases according to predetermined inclusion and exclusion criteria. After the initial search, 7952 records were selected after duplicates removed. Finally, a selection of 38 studies was included for quantitative analysis. Separate meta-analyses of standardised mean changes were carried out for each outcome measure assuming a random-effects model. Cochran's Q-statistic and I2 index were applied to verify study heterogeneity. Weighted analyses of variance and meta-regressions were conducted to test the influence of potential moderators and funnel plots using Duval and Tweedie's trim-and-fill method, and Egger's regression test were used to examine publication bias.

RESULTS: All the variables analysed had a significant effect size, with the exception of situational awareness (d+ = -0.448; 95% confidence interval [CI] = -1.034, 0.139). The highest mean effect size was found for knowledge (d+ = -0.925; 95% CI = -1.177, -0.673), followed by the mean effect sizes for global nontechnical skills (d+ = -0.642; 95% CI = -0.849, -0.434), team nontechnical skills (d+ = -0.606; 95% CI = -0.949, -0.262), and leadership nontechnical skills (d+ = -0.571; 95% CI = -0.877, -0.264). Similar mean effect sizes were found for attitude (d+ = -0.406; 95% CI = -0.769, -0.044), self-efficacy (d+ = -0.469; 95% CI = -0.874, -0.064), and communication nontechnical skills (d+ = -0.458; 95% CI = -0.818, -0.099). Large heterogeneity among the standardised mean changes was found in the meta-analyses ($I2 > 75\%$ and $p < .001$), except for self-efficacy where I2 = 58.17%, and there was a nonstatistical result for Cochran's Q. This great variability is also reflected in the forest plots.

DISCUSSION: The use of simulation interventions to train emergency and critical care healthcare professionals in nontechnical skills significantly improves levels of knowledge, attitude, self-efficacy, and nontechnical skills performance.

DOI: 10.1016/j.aucc.2023.01.007

PMID: 36858860 [Indexed for MEDLINE]

Journal report – listopad 2023

8. Emerg Med Int. 2023 Nov 21;2023:6780941. doi: 10.1155/2023/6780941. eCollection 2023.

Prediction Models for Return of Spontaneous Circulation in Patients with Cardiac Arrest: A Systematic Review and Critical Appraisal.

Cheng P(1), Yang P(2), Zhang H(2)(3), Wang H(1).

OBJECTIVES: Prediction models for the return of spontaneous circulation (ROSC) in patients with cardiac arrest play an important role in helping physicians evaluate the survival probability and providing medical decision-making reference. Although relevant models have been developed, their methodological rigor and model applicability are still unclear. Therefore, this study aims to summarize the evidence for ROSC prediction models and provide a reference for the development, validation, and application of ROSC prediction models.

METHODS: PubMed, Cochrane Library, Embase, Elsevier, Web of Science, SpringerLink, Ovid, CNKI, Wanfang, and SinoMed were systematically searched for studies on ROSC prediction models. The search time limit was from the establishment of the database to August 30, 2022. Two reviewers independently screened the literature and extracted the data. The PROBAST was used to evaluate the quality of the included literature.

RESULTS: A total of 8 relevant prediction models were included, and 6 models reported the AUC of 0.662-0.830 in the modeling population, which showed good overall applicability but high risk of bias. The main reasons were improper handling of missing values and variable screening, lack of external validation of the model, and insufficient information of overfitting. Age, gender, etiology, initial heart rhythm, EMS arrival time/BLS intervention time, location, bystander CPR, witnessed during sudden arrest, and ACLS duration/compression duration were the most commonly included predictors. Obvious chest injury, body temperature below 33°C, and possible etiologies were predictive factors for ROSC failure in patients with TOHCA. Age, gender, initial heart rhythm, reason for the hospital visit, length of hospital stay, and the location of occurrence in hospital were the predictors of ROSC in IHCA patients.

CONCLUSION: The performance of current ROSC prediction models varies greatly and has a high risk of bias, which should be selected with caution. Future studies can further optimize and externally validate the existing models.

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PMCID: PMC10684323

PMID: 38035124

Journal report – listopad 2023

HOSPITAL CARE

– clinical trials & RCT

1. Thorax. 2023 Nov;78(11):1105-1110. doi: 10.1136/thorax-2022-219622. Epub 2023 Aug 21.

Five-year follow-up of phase II trial of stromal cells for bronchopulmonary dysplasia.

Ahn SY(#)(1)(2), Chang YS(#)(1)(2)(3), Lee MH(4), Sung S(1), Kim AR(#)(5), Park WS(#)(6).

BACKGROUND: We previously performed a phase II randomised double-blind clinical trial of mesenchymal stromal cell (MSCs) transplantation to prevent bronchopulmonary dysplasia in extremely premature infants. Subsequently, we followed the infants enrolled in this clinical trial to determine the safety and effectiveness of MSCs against bronchopulmonary dysplasia at 5-year follow-up.

METHODS: We evaluated infants at 5 years of age receiving placebo or MSCs in a prospective follow-up study.

RESULTS: In terms of the primary end point of composite respiratory morbidities, including respiratory problem-related readmission, emergency department visits or oxygen therapy, the MSC group had a rate of 60.7% for composite morbidities, while the control group showed a tendency of higher rate of 83.9% for the same outcomes without statistical significance. In terms of the secondary outcomes, the MSC group infants showed a tendency of being less likely to visit emergency department (control 67.7% vs MSC 35.7%) and to receive oxygen therapy (control 29.0% vs MSC 3.6%). No difference was observed in the incidence of respiratory problem-related hospital readmission or wheezing episodes between the groups.

CONCLUSION: Intratracheally instilled MSCs showed the possibility of potential to decrease respiratory symptom-related emergency department visits and oxygen therapy episodes in infants born extremely preterm during the 5 years after a phase II randomised controlled, double-blind trial of MSCs transplantation for bronchopulmonary dysplasia. This small size study suggests preliminary insights that can be further tested using larger sample sizes.

TRIAL REGISTRATION NUMBER: NCT01897987.

DOI: 10.1136/thorax-2022-219622

PMID: 37604693 [Indexed for MEDLINE]

2. Emerg Med J. 2023 Nov 28;40(12):826-831. doi: 10.1136/emermed-2023-213178.

Point-of-care ultrasound-guided versus standard reduction of displaced distal radius fractures in the emergency department: a randomised controlled clinical trial.

Haak SL(1)(2), Borgstede MG(3), Stolmeijer R(4), Bens BW(4), Boendermaker AE(5),

van der Kolk BBY(6), Ter Maaten JC(7), Ter Avest E(4), Lameijer H(2).

BACKGROUND: During closed reduction of displaced distal radius fractures, physical examination is used to determine the need for further manipulation before radiographic confirmation and cast application. Manipulation performed under ultrasound guidance has the potential to decrease the number of reduction attempts.

METHODS: This multicentre randomised controlled trial was undertaken between December 2018 and July 2020 in the ED of four hospitals in the Netherlands. Patients aged ≥16 years presenting to the ED with a distal radius fracture requiring closed reduction were randomised to either point-of-care ultrasound (PoCUS)-guided or standard reduction. The primary outcome was the proportion of patients requiring more than one reduction attempt. The secondary outcomes were time to complete reduction and treatment plan at ED discharge (conservative or operative repair).

RESULTS: A total of 214 patients were screened, of which 211 patients were included for primary endpoint analysis (87% female, median age 68 years, 94% dorsal angulation, 59% intra-articular and 73% multifragmentary). In total, 105 patients were randomised to standard treatment and 106 patients to PoCUS-guided fracture reduction. In the standard treatment group, 13 patients (12%) required more than one reduction attempt, compared with 6 patients (6%) in the PoCUS group (OR 2.35, 95% CI 0.86 to 6.45). The median reduction time was 5 min in the PoCUS group (IQR 3-6) vs 3 min (IQR 2-4) in the standard reduction group (p<0.001). At ED discharge, operative repair was indicated for 17 (16%) patients in the standard group and 21 (20%) patients in the PoCUS group (OR 0.78, 95% CI 0.39 to 1.58).

CONCLUSION: This study could not demonstrate that PoCUS-guided reduction of distal radius fractures was associated with a statistically significant decrease in the number of reduction attempts.

TRIAL REGISTRATION NUMBER: The Netherlands Trial Register (NTR7934).

DOI: 10.1136/emermed-2023-213178

PMID: 37748865 [Indexed for MEDLINE]

3. Ann Allergy Asthma Immunol. 2023 Nov;131(5):614-627.e2. doi: 10.1016/j.anai.2023.07.012. Epub 2023 Jul 23.

Preference for and impact of telehealth vs in-person asthma visits among Black and Latinx adults.

Ugalde IC(1), Ratigan A(2), Merriman C(3), Cui J(4), Ericson B(4), Busse P(5), Carroll JK(6), Casale T(3), Celedón JC(7), Coyne-Beasley T(8), Fagan M(4), Fuhlbrigge AL(9), Villarreal GG(2), Hernandez PA(4), Jariwala S(10), Kruse J(4), Maher NE(4), Manning B(11), Mosnaim G(12), Nazario S(13), Pace WD(14), Phipatanakul W(15), Pinto-Plata V(16), Riley I(17), Rodriguez-Louis J(4), Salciccioli J(4), Shenoy K(18), Shields JB(11), Tarabichi Y(19), Sosa BT(13), Wechsler ME(20), Wisnivesky J(21), Yawn B(22), Israel E(23), Cardet JC(24).

BACKGROUND: Black and Latinx adults experience disproportionate asthma-related morbidity and limited specialty care access. The severe acute respiratory syndrome coronavirus 2 pandemic expanded telehealth use.

OBJECTIVE: To evaluate visit type (telehealth [TH] vs in-person [IP]) preferences and the impact of visit type on asthma outcomes among Black and Latinx adults with moderate-to-severe asthma.

METHODS: For this PREPARE trial ancillary study, visit type preference was surveyed by e-mail or telephone post-trial. Emergency medical record data on visit types and asthma outcomes were available for a subset (March 2020 to April 2021). Characteristics associated with visit type preferences, and relationships between visit type and asthma outcomes (control [Asthma Control Test] and asthma-related quality of life [Asthma Symptom Utility Index]), were tested using multivariable regression.

RESULTS: A total of 866 participants consented to be surveyed, with 847 respondents. Among the participants with asthma care experience with both visit types, 42.0% preferred TH for regular checkups, which associated with employment (odds ratio [OR] = 1.61; 95% confidence interval [CI], 1.09-2.39; P = .02), lower asthma medication adherence (OR = 1.06; 95% CI, 1.01-1.11; P = .03), and having more historical emergency department and urgent care asthma visits (OR = 1.10 for each additional visit; 95% CI, 1.02-1.18; P = .02), after adjustment. Emergency medical record data were available for 98 participants (62 TH, 36 IP). Those with TH visits were more likely Latinx, from the Southwest, employed, using inhaled corticosteroid-only controller therapy, with lower body mass index, and lower self-reported asthma medication adherence vs those with IP visits only. Both groups had comparable Asthma Control Test (18.4 vs 18.9, P = .52) and Asthma Symptom Utility Index (0.79 vs 0.84, P = .16) scores after adjustment.

CONCLUSION: TH may be similarly efficacious as and often preferred over IP among Black and Latinx adults with moderate-to-severe asthma, especially for regular checkups.

TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT02995733.

DOI: 10.1016/j.anai.2023.07.012

PMID: 37490981 [Indexed for MEDLINE]

4. BMC Med Educ. 2023 Nov 16;23(1):873. doi: 10.1186/s12909-023-04836-7.

Comparison of simulation and video-based training for acute asthma.

Grissa MH(1), Dhaoui R(1)(2), Bel Haj Ali K(1)(2), Sekma A(1)(2), Toumia M(3), Sassi S(1)(2), Sakly AK(4), Zorgati A(5), Bouraoui H(6), Ben Soltane H(7), Mezgar Z(7), Boukef R(2)(5), Boubaker H(1)(2), Bouida W(1)(2), Beltaief K(1)(2), Nouira S(8)(9)(10).

BACKGROUND: Emergency medicine is particularly well suited to simulation training. However, evidence for the efficacy of simulation-based medical training remains limited especially to manage high-risk cases such as acute asthma.

OBJECTIVE: The objective of our study was to compare the performance of high-fidelity simulation (HFS) and interactive video-case challenge-based training (IVC) for final-year medical students in the management of acute asthma.

METHODS: This was a prospective randomized controlled study conducted at the emergency department (ED) of Monastir University hospital (Tunisia). 69 final-year medical students were randomized to HFS (n = 34) and IVC (n = 35) training on acute asthma topic. The study was conducted over a 1-week period. Efficacy of each teaching method was compared through the use of multiple-choice questionnaires (MCQ) before (pre-test), after (post-test) training and a simulation scenario test conducted 1 week later. The scenario was based on acute asthma management graded on predefined critical actions using two scores: the checklist clinical score (range 0 to 30), and the team skills score (range 0 to 16). Student satisfaction was also evaluated with the Likert 5 points scale. Two years after the post-test, both groups underwent a third MCQ testing to assess sustainability of knowledge.

RESULTS: There were no differences in age between groups. There was no statistically significant difference between the HFS and IVC groups pre-test scores ($p = 0.07$). Both groups demonstrated improvement in MCQ post-test from baseline after training session; the HFS MCQ post-test score increased significantly more than the IVC score ($p < 0.001$). The HFS group performed better than the IVC group on the acute asthma simulation scenario ($p < 0.001$). Mean checklist clinical score and mean team skills score were significantly higher in HFS group compared to IVC group (respectively 22.9 ± 4.8 and 11.5 ± 2.5 in HFS group vs 19.1 ± 3 and 8.4 ± 3.1 in IVC group) ($p < 0.001$). After 2 years, MCQ post-test scores decreased in both groups but the decrease was lower in HFS group compared to the IVC group.

CONCLUSION: High-fidelity simulation-based training was superior to interactive video-case challenge for teaching final year medical students,and led to more long-term knowledge retention in the management of simulated acute asthma patients.

TRIAL REGISTRATION: The study was registered at www.CLINICALTRIALS: gov NCT02776358 on 18/05/2016.

DOI: 10.1186/s12909-023-04836-7

PMCID: PMC10655321

PMID: 37974223 [Indexed for MEDLINE]

5. Adv Ther. 2023 Nov;40(11):4805-4816. doi: 10.1007/s12325-023-02618-7. Epub 2023 Aug 24.

Ramipril for the Treatment of COVID-19: RAMIC, a Randomized, Double-Blind, Placebo-Controlled Clinical Trial.

Huang DQ(#)(1)(2)(3), Ajmera V(#)(1)(4), Tomaszewski C(5), LaFree A(5), Bettencourt R(1), Thompson WK(6), Smith DM(7)(8), Malhotra A(9), Mehta RL(10), Tolia V(11), Yin J(12), Insel PA(13)(14), Leachman S(1), Jung J(1), Collier S(4), Richards L(1), Woods K(15), Amangurbanova

M(1), Bhatt A(15), Zhang X(16), Penciu OM(17), Zarich S(18), Retta T(19), Harkins MS(20), Teixeira JP(20), Chinnock B(21), Utay NS(22), Lake JE(23), Loomba R(24)(25)(26).

INTRODUCTION: Retrospective studies report that angiotensin-converting enzyme inhibitors (ACEIs) may reduce the severity of COVID-19, but prospective data on de novo treatment with ACEIs are limited. The RAMIC trial was a randomized, multicenter, placebo-controlled, double-blind, allocation-concealed clinical trial to examine the efficacy of de novo ramipril versus placebo for the treatment of COVID-19.

METHODS: Eligible participants were aged 18 years and older with a confirmed diagnosis of SARS-CoV-2 infection, recruited from urgent care clinics, emergency departments, and hospital inpatient wards at eight sites in the USA. Participants were randomly assigned to daily ramipril 2.5 mg or placebo orally in a 2:1 ratio, using permuted block randomization. Analyses were conducted on an intention-to-treat basis. The primary outcome was a composite of mortality, intensive care unit (ICU) admission, or invasive mechanical ventilation by day 14.

RESULTS: Between 27 May 2020 and 19 April 2021, a total of 114 participants (51% female) were randomized to ramipril (n = 79) or placebo (n = 35). The overall mean (± SD) age and BMI were 45 (± 15) years and 33 (± 8) kg/m2. Two participants in the ramipril group required ICU admission and one died, compared with none in the placebo group. There were no significant differences between ramipril and placebo in the primary endpoint (ICU admission, mechanical ventilation, or death) (3% versus 0%, p = 1.00) or adverse events (27% versus 29%, p = 0.82). The study was terminated early because of a low event rate and subsequent Emergency Use Authorization of therapies for COVID-19.

CONCLUSION: De novo ramipril was not different compared with placebo in improving or worsening clinical outcomes from COVID-19 but appeared safe in non-critically ill patients with COVID-19.

TRIAL REGISTRATION: Clinicaltrials.gov NCT04366050.

DOI: 10.1007/s12325-023-02618-7

PMCID: PMC10709987

PMID: 37615850 [Indexed for MEDLINE]

6. J Emerg Nurs. 2023 Nov;49(6):890-898. doi: 10.1016/j.jen.2023.07.006. Epub 2023 Aug 31.

Randomized Controlled Study in the Use of Aromatherapy for Pain Reduction and to Reduce Opioid Use in the Emergency Department.

Brown AN, Reed CD, Prescott MC, Rhew DC.

INTRODUCTION: This study aimed to evaluate the effects of aromatherapy on emergency department patients' perception of pain and its ability to reduce the use of opioids in an emergency department.

METHODS: This randomized, controlled, single-blinded study was conducted in a suburban/rural freestanding emergency department with a therapeutic group, sham group, and control group.

RESULTS: A total of 230 patients, 171 females and 59 males, completed the study. Of those who received the therapeutic agent, an average reduction in pain of 1.04 points on the pain scale was reported, whereas the sham group averaged 0.38 and the control group 0.23. There was a statistically significant reduction of pain scores in the therapeutic group. A total of 13 received opioid pain medication during their visit. Of these, the therapeutic group averaged a total of 2.67 morphine milligram equivalents for their visit compared with 3.63 in the sham group and 4.36 in the control group; however, statistical significance was not achieved.

DISCUSSION: This study supported what other studies have found, indicating that aromatherapy is effective in reducing pain. A difference between the placebo effect and a true therapeutic effect was seen by using a control group apart from the sham and therapeutic groups. Despite the small effect size (0.3), implementation of aromatherapy into standard practice may be practical considering the anxiolytic effects that have been shown in other studies. Aromatherapy with essential oils should be considered as another tool to use in a multimodal approach in the treatment of pain in the emergency department setting.

DOI: 10.1016/j.jen.2023.07.006

PMID: 37656114 [Indexed for MEDLINE]

7. JAMA Netw Open. 2023 Nov 1;6(11):e2342786. doi: 10.1001/jamanetworkopen.2023.42786.

Adoption of Emergency Department-Initiated Buprenorphine for Patients With Opioid Use Disorder: Secondary Analysis of a Cluster Randomized Trial.

Gao E(1), Melnick ER(1)(2), Paek H(3), Nath B(1), Taylor RA(1), Loza AJ(1).

IMPORTANCE: Emergency department (ED) initiation of buprenorphine is safe and effective but underutilized in practice. Understanding the factors affecting adoption of this practice could inform more effective interventions.

OBJECTIVE: To quantify the factors, including social contagion, associated with the adoption of the practice of ED initiation of buprenorphine for patients with opioid use disorder.

DESIGN, SETTING, AND PARTICIPANTS: This is a secondary analysis of the EMBED (Emergency Department-Initiated Buprenorphine For Opioid Use Disorder) trial, a multicentered, cluster randomized trial of a clinical decision support intervention targeting ED initiation of buprenorphine. The trial occurred from November 2019 to May 2021. The study was conducted at ED clusters across health care systems from the northeast, southeast, and western regions of the US and included attending physicians, resident physicians, and advanced practice practitioners. Data analysis was performed from August 2022 to June 2023.

EXPOSURES: This analysis included both the intervention and nonintervention groups of the EMBED trial. Graph methods were used to construct the network of clinicians who shared in the care of patients for whom buprenorphine was initiated during the trial before initiating the practice themselves, termed exposure.

MAIN OUTCOMES AND MEASURES: Cox proportional hazard modeling with time-dependent covariates was performed to assess the association of the number of these exposures with self-adoption of the practice of ED initiation of buprenorphine while adjusting for clinician role, health care system, and intervention site status.

RESULTS: A total of 1026 unique clinicians in 18 ED clusters across 5 health care systems were included. Analysis showed associations of the cumulative number of exposures to others initiating buprenorphine with the self-practice of buprenorphine initiation. This increased in a dose-dependent manner (1 exposure: hazard ratio [HR], 1.31; 95% CI, 1.16-1.48; 5 exposures: HR, 2.85; 95% CI, 1.66-4.89; 10 exposures: HR, 3.55; 95% CI, 1.47-8.58). Intervention site status was associated with practice adoption (HR, 1.50; 95% CI, 1.04-2.18). Health care system and clinician role were also associated with practice adoption.

CONCLUSIONS AND RELEVANCE: In this secondary analysis of a multicenter, cluster randomized trial of a clinical decision support tool for buprenorphine initiation, the number of exposures to ED initiation of buprenorphine and the trial intervention were associated with uptake of ED initiation of buprenorphine. Although systems-level approaches are necessary to increase the rate of buprenorphine initiation, individual clinicians may change practice of those around them.

TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT03658642.

DOI: 10.1001/jamanetworkopen.2023.42786

PMCID: PMC10638655

PMID: 37948075 [Indexed for MEDLINE]

8. JAMA Netw Open. 2023 Nov 1;6(11):e2342012. doi: 10.1001/jamanetworkopen.2023.42012.

Ambulatory Intensive Care for Medically Complex Patients at a Health Care Clinic for Individuals Experiencing Homelessness: The SUMMIT Randomized Clinical Trial.

Chan B(1)(2), Edwards ST(1)(3), Srikanth P(4), Mitchell M(2), Devoe M(1)(2), Nicolaidis C(1)(5), Kansagara D(1)(3), Korthuis PT(1)(6), Solotaroff R(2), Saha S(3)(7).

IMPORTANCE: Intensive primary care interventions have been promoted to reduce hospitalization rates and improve health outcomes for medically complex patients, but evidence of their efficacy is limited.

OBJECTIVE: To assess the efficacy of a multidisciplinary ambulatory intensive care unit (A-ICU) intervention on health care utilization and patient-reported outcomes.

DESIGN, SETTING, AND PARTICIPANTS: The Streamlined Unified Meaningfully Managed Interdisciplinary Team (SUMMIT) randomized clinical trial used a wait-list control design and was conducted at a health care clinic for patients experiencing homelessness in Portland, Oregon. The first patient was enrolled in August 2016, and the last patient was enrolled in November 2019. Included patients had 1 or more hospitalizations in the prior 6 months and 2 or more chronic medical conditions, substance use disorder, or mental illness. Data analysis was performed between March and May 2021.

INTERVENTION: The A-ICU included a team manager, a pharmacist, a nurse, care coordinators, social workers, and physicians. Activities included comprehensive 90-minute intake, transitional care coordination, and flexible appointments, with reduced panel size. Enhanced usual care (EUC), consisting of team-based primary care with access to community health workers and mental health, addiction treatment, and pharmacy services, served as the comparator. Participants who received EUC joined the A-ICU intervention after 6 months.

MAIN OUTCOMES AND MEASURES: The main outcome was the difference in rates of hospitalization (primary outcome), emergency department (ED) visits, and primary care physician (PCP) visits per person over 6 months (vs the prior 6 months). Patient-reported outcomes included changes in patient activation, experience, health-related quality of life, and self-rated health at 6 months (vs baseline). We performed an intention-to-treat analysis using a linear mixed-effects model with a random intercept for each patient to examine the association between study group and outcomes.

RESULTS: This study randomized 159 participants (mean [SD] age, 54.9 [9.8] years) to the A-ICU SUMMIT intervention (n = 80) or to EUC (n = 79). The majority of participants were men (102 [65.8%]) and most were White (121 [76.1%]). A total of 64 participants (41.0%) reported having unstable housing at baseline. Six-month hospitalizations decreased in both the A-ICU and EUC groups, with no difference between them (mean [SE], -0.6 [0.5] vs -0.9 [0.5]; difference, 0.3 [95% CI, -1.0 to 1.5]). Emergency department use did not differ between groups (mean [SE], -2.0 [1.0] vs 0.9 [1.0] visits per person; difference, -1.1 [95% CI, -3.7 to 1.6]). Primary care physician visits increased in the A-ICU group (mean [SE], 4.2 [1.6] vs -2.0 [1.6] per person; difference, 6.1 [95% CI, 1.8 to 10.4]). Patients in the A-ICU group reported improved social functioning (mean [SE], 4.7 [2.0] vs -1.1 [2.0]; difference, 5.8 [95% CI, 0.3 to 11.2]) and self-rated health (mean [SE], 0.7 [0.3] vs -0.2 [0.3]; difference, 1.0 [95% CI, 0.1 to 1.8]) compared with patients in the EUC group. No differences in patient activation or experience were observed.

CONCLUSIONS AND RELEVANCE: The A-ICU intervention did not change hospital or ED utilization at 6 months but increased PCP visits and improved patient well-being. Longer-term studies are needed to evaluate whether these observed improvements lead to eventual changes in acute care utilization.

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DOI: 10.1001/jamanetworkopen.2023.42012

PMCID: PMC10638646

PMID: 37948081 [Indexed for MEDLINE]

9. Psychol Addict Behav. 2023 Nov;37(7):875-885. doi: 10.1037/adb0000898. Epub 2022 Nov 28.

Change talk subtypes as predictors of alcohol use following brief motivational intervention.

Kahler CW(1), Janssen T(1), Gruber S(2), Howe CJ(3), Laws MB(4), Walthers J(1), Magill M(1), Mastroleo NR(5), Monti PM(1).

OBJECTIVE: To examine the relative importance of client change language subtypes as predictors of alcohol use following motivational interviewing (MI).

METHOD: Participants were 164 heavy drinkers (57.3% female, Mage = 28.5 years, 13.4% Hispanic/Latinx, 82.9% White) recruited during an emergency department visit who received MI for alcohol and human immunodeficiency virus/sexual risk in a randomized-controlled trial. MI sessions were coded with the motivational interviewing skill code (MISC) and the generalized behavioral intervention analysis system (GBIAS). Variable importance analyses used targeted maximum likelihood estimation to rank order change language subtypes defined by these systems as predictors of alcohol use over 9 months of follow-up.

RESULTS: Among GBIAS change language subtypes, higher sustain talk (ST) around change planning was ranked the most important predictor of drinks per week (b = -5.57, 95% CI [-8.11, -3.02]) and heavy drinking days (b = -2.07, 95% CI [-3.17, -0.98]); this talk reflected (a) rejection of alcohol abstinence as a desired change goal, (b) rejection of specific change strategies, or (c) discussion of anticipated challenges in changing drinking. Among MISC change language subtypes, higher ST around taking steps-reflecting recent escalations in drinking described by a small minority of participants-was ranked the most important predictor of drinks per week (b = 22.71, 95% CI [20.29, 25.13]) and heavy drinking days (b = -2.45, 95% CI [1.68, 3.21]).

CONCLUSIONS: Results challenge the assumption that all ST during MI is a negative prognostic indicator and highlight the importance of the context in which change language emerges. (PsycInfo Database Record (c) 2023 APA, all rights reserved).

DOI: 10.1037/adb0000898

PMCID: PMC10225014

PMID: 36442021 [Indexed for MEDLINE]

10. J Am Pharm Assoc (2003). 2023 Nov-Dec;63(6):1722-1730.e3. doi: 10.1016/j.japh.2023.08.014. Epub 2023 Aug 21.

Clinical and economic effectiveness of a pharmacy and primary care collaborative transition of care program.

Jacobs DM, Slazak E, Daly CJ, Clark C, Will S, Meaney D, Iervasi V, Irwin C, Zhu J, Prescott W, Wilding GE, Singh R.

BACKGROUND: Primary care pharmacists are uniquely positioned to improve care quality by intervening within care transitions in the postdischarge period. However, additional evidence is required to demonstrate that pharmacist-led interventions can reduce health care utilization in a cost-effective manner. The study's objective was to evaluate the clinical and economic effectiveness of a pharmacy-led transition of care (TOC) program within a primary care setting.

METHODS: This cluster randomized trial was conducted between 2019 and 2021 and included three primary care practices. Eligible patients were ≥18 years of age and at high risk of readmission. The multifaceted pharmacy intervention included medication reconciliation, comprehensive medication review, and patient and provider follow-up. The primary composite endpoint included hospital readmissions and emergency department (ED) visits within 30 days of discharge. Differences in outcomes were modeled using a generalized estimated equations approach and outcomes were assumed to be distributed as a Poisson random variable. A cost-benefit analysis was embedded within the study and estimated economic outcomes from a provider group/health system perspective. Cost measures included: net benefit, benefit to cost ratio (BCR), and return on investment (ROI).

RESULTS: Of 300 eligible patients, 36 were in the intervention group and 264 in the control group. The intervention significantly reduced the primary composite outcome of all-cause readmissions and ED visits within 30 days (adjusted incidence rate ratio [aIRR], 0.54; 95% CI, 0.44-0.66; P < 0.001). There were significant reductions in both 30-day all-cause readmissions (aIRR, 0.64; 95% CI, 0.60-0.67; P < 0.001) and ED visits (aIRR, 0.25; 95% CI, 0.20, 0.31; P < 0.001) between groups. The net benefit of the intervention was $9,078, with a BCR of 2.11 and a ROI of 111%. Sensitivity analyses were robust to changes in economic inputs.

CONCLUSION: This care transition program had positive clinical and economic benefits, providing further support for the essential role pharmacists demonstrate in providing TOC services.

DOI: 10.1016/j.japh.2023.08.014

PMID: 37611896 [Indexed for MEDLINE]

Journal report – listopad 2023

11. Emerg Med J. 2023 Nov 28;40(12):832-839. doi: 10.1136/emermed-2023-213279.

Ultrasound Directed Reduction of Colles' type distal radial fractures in ED (UDiReCT): a feasibility randomised controlled trial.

Malik H(1), Wood D(2), Stone O(3), Gough A(3), Taylor G(4), Knapp KM(5), Heggs D(6), Appelboam A(7).

BACKGROUND: There is a high rate of surgical fixation of displaced Colles' type distal radial wrist fractures despite fracture manipulation in the ED. Point-of-care ultrasound has been used to guide ED manipulations but its effect on the quality of fracture reduction or subsequent need for surgical fixation is unknown. This study aims to assess the feasibility of conducting a definitive randomised controlled trial to assess the use of ultrasound to guide these fracture manipulations.

METHODS: We conducted a pragmatic randomised controlled feasibility trial in two EDs in England over a 6-month period (7 October 2019 to 6 April 2020). Adult patients with wrist fractures undergoing manipulation in the ED were randomised 1:1 to ultrasound-guided distal radial fracture manipulation or manipulation with sham ultrasound. The primary outcome for this study was trial recruitment rate. Other measures were recorded to assess potential future definitive trial outcomes and feasibility.

RESULTS: Of 120 patients meeting inclusion criteria, 48 (40%) were recruited and randomised in the two centres, giving overall recruitment rates of 0.3 and 1.8 participants per week at each site, respectively, and 1 participant per week overall. The most common reason that patients were not included was research staff availability. After 6 weeks, six patients in each group (26% intervention, 24% control) had undergone surgical fixation, with 98% data completeness for this potential definitive trial primary outcome. Randomisation, blinding and data collection processes were effective but there were data limitations in the X-ray assessment of fracture positions.

CONCLUSION: A definitive study of a similar design would be feasible within UK ED practice but organisational factors and research staff availability should be considered when estimating the predicted recruitment rate and required sites. 6-week surgical fixation rate was the most reliable outcome measure.

TRIAL REGISTRATION: ClinicalTrials.gov (NCT03868696).

DOI: 10.1136/emermed-2023-213279

PMID: 37890981 [Indexed for MEDLINE]

Journal report – listopad 2023

12. JAMA Intern Med. 2023 Nov 1;183(11):1222-1228. doi: 10.1001/jamainternmed.2023.4764.

Care Ecosystem Collaborative Model and Health Care Costs in Medicare Beneficiaries With Dementia: A Secondary Analysis of a Randomized Clinical Trial.

Guterman EL(1)(2)(3), Kiekhofer RE(1), Wood AJ(1), Allen IE(4), Kahn JG(3), Dulaney S(1)(2), Merrilees JJ(1)(2), Lee K(5), Chiong W(1)(2), Bonasera SJ(6), Braley TL(7), Hunt LJ(3)(8)(9), Harrison KL(3), Miller BL(1)(2)(9), Possin KL(1)(2)(9).

IMPORTANCE: Collaborative dementia care programs are effective in addressing the needs of patients with dementia and their caregivers. However, attempts to consider effects on health care spending have been limited, leaving a critical gap in the conversation around value-based dementia care.

OBJECTIVE: To determine the effect of participation in collaborative dementia care on total Medicare reimbursement costs compared with usual care.DESIGN, SETTING, AND PARTICIPANTS: This was a prespecified secondary analysis of the Care Ecosystem trial, a 12-month, single-blind, parallel-group randomized clinical trial conducted from March 2015 to March 2018 at 2 academic medical centers in California and Nebraska. Participants were patients with dementia who were living in the community, aged 45 years or older, and had a primary caregiver and Medicare fee-for-service coverage for the duration of the trial.

INTERVENTION: Telehealth dementia care program that entailed assignment to an unlicensed dementia care guide who provided caregiver support, standardized education, and connection to licensed dementia care specialists.

MAIN OUTCOMES AND MEASURES: Primary outcome was the sum of all Medicare claim payments during study enrollment, excluding Part D (drugs).

RESULTS: Of the 780 patients in the Care Ecosystem trial, 460 (59.0%) were eligible for and included in this analysis. Patients had a median (IQR) age of 78 (72-84) years, and 256 (55.7%) identified as female. Participation in collaborative dementia care reduced the total cost of care by $3290 from 1 to 6 months postenrollment (95% CI, -$6149 to -$431; P = .02) and by $3027 from 7 to 12 months postenrollment (95% CI, -$5899 to -$154; P = .04), corresponding overall to a mean monthly cost reduction of $526 across 12 months. An evaluation of baseline predictors of greater cost reduction identified trends for recent emergency department visit (-$5944; 95% CI, -$10 336 to -$1553; interaction P = .07) and caregiver depression (-$6556; 95% CI, -$11 059 to -$2052; interaction P = .05).

CONCLUSIONS AND RELEVANCE: In this secondary analysis of a randomized clinical trial among Medicare beneficiaries with dementia, the Care Ecosystem model was associated with lower total cost of care compared with usual care. Collaborative dementia care programs are a cost-effective, high-value model for dementia care.

TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT02213458.

DOI: 10.1001/jamainternmed.2023.4764

PMCID: PMC10507595

PMID: 37721734 [Indexed for MEDLINE]

13. J Pediatr Nurs. 2023 Nov-Dec;73:e27-e35. doi: 10.1016/j.pedn.2023.07.005. Epub 2023 Jul 15.

The effect of visual and/or auditory distraction techniques on children's pain, anxiety and medical fear in invasive procedures: A randomized controlled trial.

Goktas N(1), Avci D(2).

PURPOSE: This study was conducted to determine the effects of visual and/or auditory distraction techniques applied to children aged 7-12 during invasive procedures on pain, anxiety, and medical fear.

METHODS: This single-blinded, randomized controlled trial was carried out in the pediatric emergency department of a public hospital between November 2021 and March 2022. In the study, 144 children were assigned to three different intervention groups, in which a kaleidoscope, music, and virtual reality were applied during invasive procedures, and the control group in which the standard invasive procedure was applied, by using the stratified block randomization method. The data were collected using a Personal Information Form, Wong-Baker Faces Pain Rating Scale, Children's Anxiety Meter-State, and Child Medical Fear Scale.

RESULTS: In the study, the levels of pain, anxiety, and medical fear after the invasive procedure were lower in the intervention groups than in the control group. In addition, there was no difference between the three different distraction techniques in terms of reducing pain and medical fear, but the virtual reality application was more effective in reducing the level of anxiety.

CONCLUSION: Visual and/or auditory distraction techniques are effective methods that can be used by nurses in pediatric healthcare to reduce invasive procedure-related pain, anxiety, and medical fear.

IMPLICATIONS FOR PRACTICE: This study provides evidence that can guide the use of non-pharmacological methods such as distraction to prevent the traumatic effects of invasive procedures in children.

DOI: 10.1016/j.pedn.2023.07.005

PMID: 37455147 [Indexed for MEDLINE]

Journal report – listopad 2023

14. J Surg Educ. 2024 Jan;81(1):134-144. doi: 10.1016/j.jsurg.2023.09.009. Epub 2023 Nov 4.

Use of Low-Cost Task Trainer for Emergency Department Thoracotomy Training in General Surgery Residency Program.

Misra A(1), Chapman A(2), Watson WD(3), Bach JA(2), Bonta MJ(2), Elliott JO(4), Dominguez EP(2).

OBJECTIVE: Emergency department thoracotomy (EDT) is an uncommon but potentially lifesaving procedure that warrants familiarity with anatomy, instruments, and indications necessary for completion. To address this need, we developed a low-cost EDT trainer. The primary objective of this study was to compare the effectiveness of a low-cost EDT trainer to teach emergency department thoracotomy with a discussion-based teaching session. Secondary objective was to study the face validity of the low-cost EDT trainer.

DESIGN: A prospective 2-phase randomized control study was conducted. Participants were randomly divided into two groups. In phase one, baseline medical knowledge for both groups was assessed using a multiple-choice question pretest. In Group 1, each participant was taught EDT using a one-on-one discussion with a trauma surgeon, whereas Group 2 used the EDT trainer and debriefing for training. In phase 2 (1 month later), all participants completed a knowledge retention test and performed a videoed EDT using our EDT trainer, the video recordings were later reviewed by content experts blinded to the study participants using a checklist with a maximum score of 22. The participants also completed a reaction survey at the end of phase 2 of the study.

SETTING: OhioHealth Riverside Methodist Hospital, an urban tertiary care academic hospital in Columbus, Ohio.

PARTICIPANTS: Nine senior surgery residents from training years 3 to 5.

RESULTS: The mean score for the performance of the procedure for the simulation-based (Group 2) was significantly higher than that of the discussion-based (Group 1) (Rater 1: 21.2 ± 0.8 vs. 19.0 ± 2.0, p = 0.05, Rater 2: 20.4 ± 1.5 vs. 18.3±1.0, p = 0.04). Group 2 also was quicker than Group 1 in deciding to start the procedure by approximately 56 seconds. When comparing the mean pretest knowledge score to the mean knowledge retention score 30 days after training, the discussion-based group improved from 58.33% to 81.25% (p = 0.01); the simulation-trained group's scores remained at 68.33%. All the participants agreed or strongly agreed that the simulator provided a realistic opportunity to perform EDT and improved their confidence.

CONCLUSIONS: The results of this pilot study support our hypothesis that using a low-cost EDT trainer effectively improves general surgery residents' confidence and procedural skills scores in a simulated environment. Further training with low-cost simulators may provide surgical residents with deliberate practice opportunities and improve performance when learning low-frequency procedures.

DOI: 10.1016/j.jsurg.2023.09.009

Journal report – listopad 2023

15. J Emerg Med. 2023 Nov;65(5):e371-e382. doi: 10.1016/j.jemermed.2023.06.009. Epub 2023 Jun 20.

The Effect of Ketamine Versus Etomidate for Rapid Sequence Intubation on Maximum Sequential Organ Failure Assessment Score: A Randomized Clinical Trial.

Knack SKS(1), Prekker ME(2), Moore JC(1), Klein LR(1), Atkins AH(1), Miner JR(1), Driver BE(1).

BACKGROUND: The use of induction agents for rapid sequence intubation (RSI) has been associated with hypotension in critically ill patients. Choice of induction agent may be important and the most commonly used agents are etomidate and ketamine.

OBJECTIVE: This study aimed to compare the effects of a single dose of ketamine vs. etomidate for RSI on maximum Sequential Organ Failure Assessment (SOFA) score and incidence of hypotension.

METHODS: This single-center, randomized, parallel-group trial compared the use of ketamine and etomidate for RSI in critically ill adult patients in the emergency department. The study was performed under Exception from Informed Consent. The primary outcome was the maximum SOFA score within 3 days of hospitalization.

RESULTS: A total of 143 patients were enrolled in the trial, 70 in the ketamine group and 73 in the etomidate group. Maximum median SOFA score for the ketamine group was 6.5 (interquartile range [IQR] 5-9) vs. 7 (IQR 5-9) for etomidate with no significant difference (-0.2; 95% CI -1.4 to 1.1; p = 0.79). The incidence of post-intubation hypotension was 28% in the ketamine group vs. 26% in the etomidate group (difference 2%; 95% CI -13% to 17%). There were no significant differences in intensive care unit outcomes. Thirty-day mortality rate for the ketamine group was 11% (8 deaths) and for the etomidate group was 21% (15 deaths), which was not statistically different.

CONCLUSIONS: There were no significant differences in maximum SOFA score or post-intubation hypotension between critically ill adults receiving ketamine vs. etomidate for RSI.

DOI: 10.1016/j.jemermed.2023.06.009

PMID: 37741737 [Indexed for MEDLINE]

16. CJEM. 2023 Nov;25(11):902-908. doi: 10.1007/s43678-023-00584-1. Epub 2023 Sep 27.

SHoC-IVC: Does assessment of the inferior vena cava by point-of-care ultrasound independently predict fluid status in spontaneously breathing patients with undifferentiated hypotension?

Dunfield R(1), Ross P(1), Dutton D(1), Chandra K(1), Lewis D(1), Scheuermeyer F(2), Fraser J(3), Boreskie P(4), Pham C(4), Ali S(1), Lamprecht H(5), Stander M(5), Keyes C(6), Henneberry R(7), Atkinson P(8).

BACKGROUND: Accurately determining the fluid status of a patient during resuscitation in the emergency department (ED) helps guide appropriate fluid administration in the setting of undifferentiated hypotension. Our goal was to determine the diagnostic utility of point-of-care ultrasound (PoCUS) for inferior vena cava (IVC) size and collapsibility in predicting a volume overload fluid status in spontaneously breathing hypotensive ED patients.

METHODS: This was a post hoc secondary analysis of the SHOC-ED data, a prospective randomized controlled trial investigating PoCUS in patients with undifferentiated hypotension. We prospectively collected data on IVC size and collapsibility for 138 patients in the PoCUS group using a standard data collection form, and independently assigned a fluid status (volume overloaded, normal, volume deplete) from a composite clinical chart review blinded to PoCUS findings. The primary outcome was the diagnostic performance of IVC characteristics on PoCUS in the detection of a volume overloaded fluid status.

RESULTS: One hundred twenty-nine patients had completed determinant IVC assessment by PoCUS, with one hundred twenty-five receiving successful final fluid status determination, of which one hundred and seven were classified as volume deplete, thirteen normal, and seven volume overloaded. A receiver operating characteristic (ROC) curve was plotted using several IVC size and collapsibility categories. The best overall performance utilized the combined parameters of a dilated IVC (> 2.5 cm) with minimal collapsibility (less than 50%) which had a sensitivity of 85.7% and specificity of 86.4% with an area under the curve (AOC) of 0.92 for predicting an volume overloaded fluid status.

CONCLUSION: IVC PoCUS is feasible in spontaneously breathing hypotensive adult ED patients, and demonstrates potential value as a predictor of a volume overloaded fluid status in patients with undifferentiated hypotension. IVC size may be the preferred measure.

DOI: 10.1007/s43678-023-00584-1

PMID: 37755657 [Indexed for MEDLINE]

17. Scand J Trauma Resusc Emerg Med. 2023 Nov 17;31(1):81. doi: 10.1186/s13049-023-01144-3.

A simulation-based randomized trial of ABCDE style cognitive aid for emergency medical services CHecklist In Prehospital Settings: the CHIPS-study.

Droege H(1)(2), Trentzsch H(3), Zech A(3), Prückner S(3), Imach S(4).

BACKGROUND: Checklists are a powerful tool for reduction of mortality and morbidity. Checklists structure complex processes in a reproducible manner, optimize team interaction, and prevent errors related to human factors. Despite wide dissemination of the checklist, effects of checklist use in the prehospital emergency medicine are currently unclear. The aim of the study was to demonstrate that participants achieve higher adherence to guideline-recommended actions, manage the scenario more time-efficient, and thirdly demonstrate better adherence to the ABCDE-compliant workflow in a simulated ROSC situation.

METHODS: CHIPS was a prospective randomized case-control study. Professional emergency medical service teams were asked to perform cardiopulmonary resuscitation on an adult high-fidelity patient simulator achieving ROSC. The intervention group used a checklist which transferred the ERC guideline statements of ROSC into the structure of the 'ABCDE' mnemonic. Guideline adherence (performance score, PS), utilization of process time (items/minute) and workflow were measured by analyzing continuous A/V recordings of the simulation. Pre- and post-questionnaires addressing demographics and relevance of the checklist were recorded. Effect sizes were determined by calculating Cohen's d. The level of significance was defined at $p < 0.05$.

RESULTS: Twenty scenarios in the intervention group (INT) and twenty-one in the control group (CON) were evaluated. The average time of use of the checklist (CU) in the INT was 6.32 min (2.39-9.18 min; SD = 2.08 min). Mean PS of INT was significantly higher than CON, with a strong effect size ($p = 0.001$, $d = 0.935$). In the INT, significantly more items were completed per minute of scenario duration (INT, 1.48 items/min; CON, 1.15 items/min, difference: 0.33/min (25%), $p = 0.001$), showing a large effect size ($d = 1.11$). The workflow did not significantly differ between the groups ($p = 0.079$), although a medium effect size was shown ($d = 0.563$) with the tendency of the CON group deviating stronger from the ABCDE than the INT.

CONCLUSION: Checklists can have positive effects on outcome in the prehospital setting by significantly facilitates adherence to guidelines. Checklist use may be time-effective in the prehospital setting. Checklists based on the 'ABCDE' mnemonic can be used according to the 'do verify' approach. Team Time Outs are recommended to start and finish checklists.

DOI: 10.1186/s13049-023-01144-3

PMCID: PMC10655407

PMID: 37978554 [Indexed for MEDLINE]

18. BMC Emerg Med. 2023 Nov 29;23(1):140. doi: 10.1186/s12873-023-00910-x.

Cost-effectiveness of modified diagnostic strategy to safely rule-out pulmonary embolism in the emergency department: a non-inferiority cluster crossover randomized trial (MODIGLIANI).

Nze Ossima A(1), Ngaleu Siaha BF(1), Mimouni M(1), Mezaour N(1), Darlington M(1), Berard L(2), Cachanado M(2), Simon T(2), Freund Y(3), Durand-Zaleski I(4)(5).

BACKGROUND: The aim of this trial-based economic evaluation was to assess the incremental costs and cost-effectiveness of the modified diagnostic strategy combining the YEARS rule and age-adjusted D-dimer threshold compared with the control (which used the age-adjusted D-dimer threshold only) for the diagnosis of pulmonary embolism (PE) in the Emergency Department (ED).

METHODS: Economic evaluation from a healthcare system perspective alongside a non-inferiority, crossover, and cluster-randomized trial conducted in 16 EDs in France and two in Spain with three months of follow-up. The primary endpoint was the additional cost of a patient without failure of the diagnostic strategy, defined as venous thromboembolism (VTE) diagnosis at 3months after exclusion of PE during the initial ED visit. Mean differences in 3-month failure and costs were estimated using separate generalized linear-regression mixed models, adjusted for strategy type, period, and the interaction between strategy and period as fixed effects and the hospital as a random effect. The incremental cost-effectiveness ratio (ICER) was obtained by dividing the incremental costs by the incremental frequency of VTE.

RESULTS: Of the 1,414 included patients, 1,217 (86%) were analyzed in the per-protocol analysis (648 in the intervention group and 623 in the control group). At three months, there were no statistically significant differences in total costs (€-46; 95% CI: €-93 to €0.2), and the failure rate was non inferior in the intervention group (-0.64%, one-sided 97.5% CI: -∞ to 0.21%, non-inferiority margin 1.5%) between groups. The point estimate of the incremental cost-effectiveness ratio (ICER) indicating that each undetected VTE averted in the intervention group is associated with cost savings of €7,142 in comparison with the control group. There was a 93% probability that the intervention was dominant. Similar results were found in the as randomized population.

CONCLUSIONS: Given the observed cost decrease of borderline significance, and according to the 95% confidence ellipses, the intervention strategy has a potential to lead to cost savings as a result of a reduction in the use of chest imaging and of the number of undetected VTE averted. Policy-makers should investigate how these monetary benefits can be distributed across stakeholders.

CLINICALTRIALS: Trial registration number ClinicalTrials.gov Identifier: NCT04032769; July 25, 2019.

DOI: 10.1186/s12873-023-00910-x

PMCID: PMC10687836

PMID: 38030975 [Indexed for MEDLINE]

19. JAMA Neurol. 2023 Nov 1;80(11):1166-1173. doi: 10.1001/jamaneurol.2023.3490.

Amyloid Positron Emission Tomography and Subsequent Health Care Use Among Medicare Beneficiaries With Mild Cognitive Impairment or Dementia.

Rabinovici GD(1)(2)(3), Carrillo MC(4), Apgar C(5), Gareen IF(6)(7), Gutman R(6)(8), Hanna L(6), Hillner BE(9), March A(5), Romanoff J(6), Siegel BA(10), Smith K(1), Song Y(6)(7)(8), Weber C(4), Whitmer RA(11), Gatsonis C(6)(8).

IMPORTANCE: Results of amyloid positron emission tomography (PET) have been shown to change the management of patients with mild cognitive impairment (MCI) or dementia who meet Appropriate Use Criteria (AUC).

OBJECTIVE: To determine if amyloid PET is associated with reduced hospitalizations and emergency department (ED) visits over 12 months in patients with MCI or dementia.

DESIGN, SETTING, AND PARTICIPANTS: This nonrandomized controlled trial analyzed participants in the Imaging Dementia-Evidence for Amyloid Scanning (IDEAS) study, an open-label, multisite, longitudinal study that enrolled participants between February 2016 and December 2017 and followed up through December 2018. These participants were recruited at 595 clinical sites that provide specialty memory care across the US. Eligible participants were Medicare beneficiaries 65 years or older with a diagnosis of MCI or dementia within the past 24 months who met published AUC for amyloid PET. Each IDEAS study participant was matched to a control Medicare beneficiary who had not undergone amyloid PET. Data analysis was conducted on December 13, 2022.

EXPOSURE: Participants underwent amyloid PET at imaging centers.

MAIN OUTCOMES AND MEASURES: The primary end points were the proportions of patients with 12-month inpatient hospital admissions and ED visits. One of 4 secondary end points was the rate of hospitalizations and rate of ED visits in participants with positive vs negative amyloid PET results. Health care use was ascertained from Medicare claims data.

RESULTS: The 2 cohorts (IDEAS study participants and controls) each comprised 12 684 adults, including 6467 females (51.0%) with a median (IQR) age of 77 (73-81) years. Over 12 months, 24.0% of the IDEAS study participants were hospitalized, compared with 25.1% of the matched control cohort, for a relative reduction of -4.49% (97.5% CI, -9.09% to 0.34%). The 12-month ED visit rates were nearly identical between the 2 cohorts (44.8% in both IDEAS study and control cohorts) for a relative reduction of -0.12% (97.5% CI, -3.19% to 3.05%). Both outcomes fell short of the prespecified effect size of 10% or greater relative reduction. Overall, 1467 of 6848 participants (21.4%) with positive amyloid PET scans were hospitalized within 12 months compared with 1081 of 4209 participants (25.7%) with negative amyloid PET scans (adjusted odds ratio, 0.83; 95% CI, 0.78-0.89).

CONCLUSIONS AND RELEVANCE: Results of this nonrandomized controlled trial showed that use of amyloid PET was not associated with a significant reduction in 12-month hospitalizations or ED visits. Rates of hospitalization were lower in patients with positive vs negative amyloid PET results.

DOI: 10.1001/jamaneurol.2023.3490

PMCID: PMC10562987

PMID: 37812437 [Indexed for MEDLINE]

20. BMC Anesthesiol. 2023 Nov 23;23(1):384. doi: 10.1186/s12871-023-02349-w.

Evaluation the quality of bag-mask ventilation by E/C, T/E and hook technique (a new proposed technique).

Balafar M(1), Pouraghaei M(1), Paknezhad SP(1), Abad SNA(2), Soleimanpour H(3).

BACKGROUND: Bag-Mask Ventilation (BMV) is a crucial skill in managing emergency airway situations and induction of general anesthesia. Ensuring proficient BMV execution is imperative for healthcare providers. Various techniques exist for performing BMV. This study aims to compare the quality of ventilation achieved using the E/C technique, Thenar Eminence (T/E) technique and a novel approach referred to as the hook technique. The goal is to identify the most effective single-person BMV method.

METHOD: We conduct a pilot study on manikins involving 63 medical staff members who used the hook technique for ventilation. Subsequently, we obtained ethical approval and patient guardian consent to perform the study on 492 emergency department (ED) patients. These patients were randomly divided into three groups, with each group subjected to one three ventilation techniques. The study focused on patients requiring reliable airway management for rapid sequence intubation (RSI). Ventilation was administrated using bag-mask device connected to the capnograph. End-tidal CO2 (ETCO2) levels were recorded. Demographic data were collected and analyzed by SPSS software version 22. Success rates were reported as frequency (percentage) as well as mean ± standard deviation.

RESULT: Comparing partial pressure of CO2 (PCO2) results obtained via capnography between T/E, E/C and hook techniques, we found that the successful ventilation rate was 87.2% for T/E, 89.6% for E/C, and 93.3% for the hook methods. The hook method demonstrated significantly higher success rate compared to the other two techniques (P-value = 0.038). Furthermore, we observed statistically significant trends in PCO2 changes between measurements both within and between groups (P-value < 0/001).

CONCLUSION: Our study indicates that the hook method achieved notably higher success rate in ventilation compared to the T/E and E/C methods. This suggests that the hook method, which involves a chin lift maneuver while securely fitting the mask, could serve as a novel BMV technique, particularly for resuscitation with small hands for a prolonged use without fatigue and finger discomfort. Our finding contributes to the development of a new BMV method referred to as the hook technique.

TRIAL REGISTRATION: IRCT registration number: IRCT20121010011067N5. URL of trial registry record: https://www.irct.ir/trial/57420 .

DOI: 10.1186/s12871-023-02349-w

PMCID: PMC10666307

PMID: 37996828 [Indexed for MEDLINE]

21. J Affect Disord. 2024 Feb 15;347:262-268. doi: 10.1016/j.jad.2023.11.036. Epub 2023 Nov 15.

Changes in health-related quality of life in patients admitted to emergency departments for attempted suicide: Findings from a large longitudinal study.

Narita K(1), Yonemoto N(2), Kawashima Y(3), Takai M(4), Matsuo M(5), Hirayasu Y(6), Kawanishi C(7).

BACKGROUND: Studies of quality of life among suicide attempters are limited while it is considered important for preventing reattempt of suicide. We investigated health related quality of life (HRQoL) in suicide attempters immediately after the suicide attempt and in the long term.

METHODS: This was longitudinal data from a randomized controlled multicenter trial. The Japanese version of the Short Form Health Survey-36 as HRQOL measured at 0, 6, and 12 months after randomization.

RESULTS: 799 patients (356 men and 443 women) were analyzed. At baseline, the mean physical component summary (PCS) and the mental component summary (MCS) scores were 34.56 and 35.15, respectively, and they were significantly low compared with those of the general population. PCS scores significantly improved from baseline to 6 months ($p = 0.003$), from baseline to 12 months ($p < 0.0001$), and from baseline to 12 months ($p = 0.002$). MCS scores significantly improved from baseline to 6 months ($p < 0.0001$) and from baseline to 12 months ($p < 0.0001$). However, neither PCS nor MCS scores reached those of the general population norm at 12 months post-suicide attempt.

LIMITATIONS: Patients younger than 20 years and patients who self-harmed but were not admitted to an emergency department were excluded.

CONCLUSION: This study presents a trajectory of HRQoL scores in suicide attempters from immediately after the suicide attempt to 1 year later. Further studies on HRQoL in suicide attempters are needed to elucidate the effective care for the attempters.

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PMID: 37977302 [Indexed for MEDLINE]

22. JAMA Neurol. 2023 Nov 1;80(11):1182-1190. doi: 10.1001/jamaneurol.2023.3206.

Automated Large Vessel Occlusion Detection Software and Thrombectomy Treatment Times: A Cluster Randomized Clinical Trial.

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Journal report – listopad 2023

IMPORTANCE: The benefit of endovascular stroke therapy (EVT) in large vessel occlusion (LVO) ischemic stroke is highly time dependent. Process improvements to accelerate in-hospital workflows are critical.

OBJECTIVE: To determine whether automated computed tomography (CT) angiogram interpretation coupled with secure group messaging can improve in-hospital EVT workflows.

DESIGN, SETTING, AND PARTICIPANTS: This cluster randomized stepped-wedge clinical trial took place from January 1, 2021, through February 27, 2022, at 4 comprehensive stroke centers (CSCs) in the greater Houston, Texas, area. All 443 participants with LVO stroke who presented through the emergency department were treated with EVT at the 4 CSCs. Exclusion criteria included patients presenting as transfers from an outside hospital (n = 158), in-hospital stroke (n = 39), and patients treated with EVT through randomization in a large core clinical trial (n = 3).

INTERVENTION: Artificial intelligence (AI)-enabled automated LVO detection from CT angiogram coupled with secure messaging was activated at the 4 CSCs in a random-stepped fashion. Once activated, clinicians and radiologists received real-time alerts to their mobile phones notifying them of possible LVO within minutes of CT imaging completion.

MAIN OUTCOMES AND MEASURES: Primary outcome was the effect of AI-enabled LVO detection on door-to-groin (DTG) time and was measured using a mixed-effects linear regression model, which included a random effect for cluster (CSC) and a fixed effect for exposure status (pre-AI vs post-AI). Secondary outcomes included time from hospital arrival to intravenous tissue plasminogen activator (IV tPA) bolus in eligible patients, time from initiation of CT scan to start of EVT, and hospital length of stay. In exploratory analysis, the study team evaluated the impact of AI implementation on 90-day modified Rankin Scale disability outcomes.

RESULTS: Among 243 patients who met inclusion criteria, 140 were treated during the unexposed period and 103 during the exposed period. Median age for the complete cohort was 70 (IQR, 58-79) years and 122 were female (50%). Median National Institutes of Health Stroke Scale score at presentation was 17 (IQR, 11-22) and the median DTG preexposure was 100 (IQR, 81-116) minutes. In mixed-effects linear regression, implementation of the AI algorithm was associated with a reduction in DTG time by 11.2 minutes (95% CI, -18.22 to -4.2). Time from CT scan initiation to EVT start fell by 9.8 minutes (95% CI, -16.9 to -2.6). There were no differences in IV tPA treatment times nor hospital length of stay. In multivariable logistic regression adjusted for age, National Institutes of Health Stroke scale score, and the Alberta Stroke Program Early CT Score, there was no difference in likelihood of functional independence (modified Rankin Scale score, 0-2; odds ratio, 1.3; 95% CI, 0.42-4.0).

CONCLUSIONS AND RELEVANCE: Automated LVO detection coupled with secure mobile phone application-based communication improved in-hospital acute ischemic stroke workflows. Software implementation was associated with clinically meaningful reductions in EVT treatment times.

TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT05838456.

DOI: 10.1001/jamaneurol.2023.3206

PMCID: PMC10507590

PMID: 37721738 [Indexed for MEDLINE]

23. Circ Arrhythm Electrophysiol. 2023 Dec;16(12):639-650. doi: 10.1161/CIRCEP.123.012567. Epub 2023 Nov 11.

Multicenter, Phase 2, Randomized Controlled Study of the Efficacy and Safety of Etripamil Nasal Spray for the Acute Reduction of Rapid Ventricular Rate in Patients With Symptomatic Atrial Fibrillation (ReVeRA-201).

Camm AJ(1), Piccini JP(2), Alings M(3), Dorian P(4), Gosselin G(5), Guertin MC(5), Ip JE(6), Kowey PR(7), Mondésert B(5), Prins FJ(8), Roux JF(9), Stambler BS(10), van Eck J(11), Al Windy N(12), Thermil N(13), Shardonofsky S(13), Bharucha DB(14), Roy D(5).

BACKGROUND: Despite chronic therapies, atrial fibrillation (AF) leads to rapid ventricular rates (RVR) often requiring intravenous treatments. Etripamil is a fast-acting, calcium-channel blocker administered intranasally affecting the atrioventricular node within minutes.

METHODS: Reduction of Ventricular Rate in Patients with Atrial Fibrillation evaluated the efficacy and safety of etripamil for the reduction of ventricular rate (VR) in patients presenting urgently with AF-RVR (VR ≥110 beats per minute [bpm]), was randomized, double-blind, placebo-controlled, and conducted in Canada and the Netherlands. Patients presenting urgently with AF-RVR were randomized (1:1, etripamil nasal spray 70 mg: placebo nasal spray). The primary objective was to demonstrate the effectiveness of etripamil in reducing VR in AF-RVR within 60 minutes of treatment. Secondary objectives assessed achievement of VR <100 bpm, reduction by ≥10% and ≥20%, relief of symptoms and treatment effectiveness; adverse events; and additional measures to 360 minutes.

RESULTS: Sixty-nine patients were randomized, 56 dosed with etripamil (n=27) or placebo (n=29). The median age was 65 years; 39% were female patients; proportions of AF types were similar between groups. The difference of mean maximum reductions in VR over 60 minutes, etripamil versus placebo, adjusting for baseline VR, was -29.91 bpm (95% CI, -40.31 to -19.52; P<0.0001). VR reductions persisted up to 150 minutes. Significantly greater proportions of patients receiving etripamil achieved VR reductions <100 bpm (with longer median duration <100 bpm), or VR reduction by ≥10% or ≥20%, versus placebo. VR reduction ≥20% occurred in 66.7% of patients in the etripamil arm and no patients in placebo. Using the Treatment Satisfaction Questionnaire for Medication-9, there was significant improvement in satisfaction on symptom relief and treatment effectiveness with etripamil versus placebo. Serious adverse events were rare; 1 patient in the etripamil arm experienced transient severe bradycardia and syncope, assessed as due to hypervagotonia.

CONCLUSIONS: Intranasal etripamil 70 mg reduced VR and improved symptom relief and treatment satisfaction. These data support further development of self-administered etripamil for the treatment of AF-RVR.

REGISTRATION: URL: https://www.clinicaltrials.gov; Unique Identifier: NCT04467905.

DOI: 10.1161/CIRCEP.123.012567

PMCID: PMC10734780

PMID: 37950726 [Indexed for MEDLINE]

HOSPITAL CARE

– systematic review & meta-analysis

1. Cochrane Database Syst Rev. 2023 Nov 2;11(11):CD015089. doi: 10.1002/14651858.CD015089.pub2.

Head impulse, nystagmus, and test of skew examination for diagnosing central causes of acute vestibular syndrome.

Gottlieb M(1), Peksa GD(1), Carlson JN(2).

BACKGROUND: Dizziness is a common reason for people to seek medical care. Acute vestibular syndrome (AVS) is a specific type of dizziness, which can include severe vertigo, nausea and vomiting, nystagmus, or unsteadiness. Acute vestibular syndrome can be due to peripheral or central causes. It is important to determine the cause, as the intervention and outcomes differ if it is from a peripheral or central cause. Clinicians can assess for the cause using risk factors, patient history, examination findings, or advanced imaging, such as a magnetic resonance imaging (MRI). The head impulse, nystagmus, test of skew (HINTS) examination is a three-part examination performed by clinicians to determine if AVS is due to a peripheral or central cause. This includes assessing how the eyes move in response to rapidly turning a person's head (head impulse), assessing the direction of involuntary eye movements (nystagmus), and assessing whether the eyes are aligned or misaligned (test of skew). The HINTS Plus examination includes an additional assessment of auditory function.

OBJECTIVES: To assess the diagnostic accuracy of the HINTS and HINTS Plus examinations, with or without video assistance, for identifying a central etiology for AVS.

SEARCH METHODS: We searched CENTRAL, MEDLINE, Embase, Google Scholar, the International HTA database, and two trials registers to September 2022.

SELECTION CRITERIA: We included all retrospective and prospective diagnostic test accuracy studies that evaluated the HINTS or HINTS Plus test used in a primary care clinic, an urgent care clinic, the emergency department, or during inpatient hospitalization against a final diagnosis of a central etiology of AVS, as defined by the reference standard of advanced imaging or final diagnosis by a neurologist.

DATA COLLECTION AND ANALYSIS: Two review authors independently determined eligibility of each study according to eligibility criteria, extracted data, assessed the risk of bias, and determined the certainty of evidence. Disagreements were adjudicated by consensus or a third review author if needed. The primary outcome was the diagnostic accuracy of the HINTS and HINTS Plus examinations for identifying a central etiology for AVS, conducted clinically (clinician visual assessment) or with video assistance (e.g. video recording with goggles); we independently assessed the clinical and video-assisted examinations. Subgroup analyses were performed by provider type (e.g. physicians, non-physicians), time from symptom onset to presentation (e.g. less than 24 hours, longer than 24 hours), reference standard (e.g. advanced imaging, discharge diagnosis), underlying etiology (e.g. ischemic stroke, alternative etiologies [hemorrhagic stroke, intracranial mass]), study setting (e.g. outpatient [outpatient clinic, urgent care clinic, emergency department], inpatient), physician level of training (e.g. resident, fellow/attending), physician specialty (e.g. otolaryngology, emergency medicine, neurology, and neurologic subspecialist [e.g. neuro-ophthalmology, neuro-otology]), and individual diagnostic accuracy of each component of the examination (e.g. head impulse, direction-changing nystagmus, test of skew). We created 2 x 2 tables of the true positives, true negatives, false positives, and false negatives and used these data to calculate the sensitivity, specificity, positive likelihood ratio, and negative likelihood ratio with 95% confidence intervals (95% CI) for each outcome.

MAIN RESULTS: We included 16 studies with a total of 2024 participants (981 women and 1043 men) with a mean age of 60 years. Twelve studies assessed the HINTS examination; five assessed the HINTS Plus examination. Thirteen studies were performed in the emergency department; half were performed by neurologists. The clinical HINTS examination (12 studies, 1890 participants) was 94.0% (95% confidence interval [CI] 82.0% to 98.2%) sensitive, and 86.9% (95% CI 75.3% to 93.6%) specific (low-certainty evidence). The video-assisted HINTS examination (3 studies, 199 participants) was 85.0% to 100% sensitive (low-certainty evidence), and 38.9% to 100% specific (very low-certainty evidence). The clinical HINTS Plus examination (5 studies, 451 participants) was 95.3% (95% CI 78.4% to 99.1%) sensitive, and 72.9% (95% CI 44.4% to 90.1%) specific (low-certainty evidence). The video-assisted HINTS Plus examination (2 studies, 163 participants) was 85.0% to 93.8% sensitive, and 28.6% to 38.9% specific (moderate-certainty evidence). Subgroup analyses were limited, as most studies were conducted in the emergency department, by physicians, and with MRI as a reference standard. Time from symptom onset to presentation varied across studies. Three studies were at high risk of bias and three studies were at unclear risk of bias for participant selection. Three studies were at unclear risk of bias for the index test. Four studies were at unclear risk of bias for the reference standard. Two studies were at unclear risk of bias for flow and timing. One study had unclear applicability concerns for participant selection. Two studies had high applicability concerns for the index test and two studies had unclear applicability concerns for the index test. No studies had applicability concerns for the reference standard.

AUTHORS' CONCLUSIONS: The HINTS and HINTS Plus examinations had good sensitivity and reasonable specificity for diagnosing a central cause for AVS in the emergency department

when performed by trained clinicians. Overall, the evidence was of low certainty. There were limited data for the role of video-assistance or specific subgroups. Future research should include more high-quality studies of the HINTS and HINTS Plus examination; assessment of inter-rater reliability across users; accuracy across different providers, specialties, and experience; and direct comparison with no HINTS or MRI to assess the effect on clinical care.

DOI: 10.1002/14651858.CD015089.pub2

PMCID: PMC10620998

PMID: 37916744 [Indexed for MEDLINE]

2. Acad Emerg Med. 2023 Nov 3. doi: 10.1111/acem.14825. Online ahead of print.

Phenobarbital treatment of alcohol withdrawal in the emergency department: A systematic review and meta-analysis.

Lee CM(1), Dillon DG(2), Tahir PM(3), Murphy CE 4th(4).

OBJECTIVE: Despite frequent treatment of alcohol withdrawal syndrome (AWS) in the emergency department (ED), evidence for phenobarbital (PB) as an ED alternative therapy is mixed. We conducted a systematic review and meta-analysis comparing safety and efficacy of PB to benzodiazepines (BZDs) for treatment of AWS in the ED.

METHODS: We searched articles and references published in English in PubMed, Web of Science, and Embase from inception through May 2022. We included randomized trials and cohort studies comparing treatment with PB to BZD controls and excluded studies focused on non-AWS conditions. Review was conducted by two blinded investigators and a third author; eight of 59 (13.6%) abstracts met inclusion criteria for review and meta-analysis using a random-effects model. Treatment superiority was evaluated through utilization, pharmacologic, and clinical outcomes. Primary outcomes for meta-analysis were the proportion of patients (1) admitted to the intensive care unit (ICU), (2) admitted to the hospital, (3) readmitted to the ED after discharge, and (4) who experienced adverse events.

RESULTS: Eight studies (two randomized controlled trials, six retrospective cohorts) comprised data from 1507 patients in 2012 treatment encounters for AWS. All studies were included in meta-analysis for adverse events, seven for hospital admission, five for ICU admission, and three for readmission to the ED after discharge. Overall methodological quality was low-moderate, risk of bias moderate-high, and statistical heterogeneity moderate. Pooled relative risk of ICU admission for those treated with PB versus BZD was 0.92 (95% confidence interval [CI] 0.54-1.55). Risk for admission to the hospital was 0.98 (95% CI 0.89-1.07) and for any adverse event was 1.1 (95% CI 0.78-1.57); heterogeneity prevented meta-analysis for ED readmission.

CONCLUSIONS: The current literature base does not show that treatment with PB significantly reduces ICU admissions, hospital admissions, ED readmissions, or adverse events in ED patients with AWS compared with BZDs alone.

Journal report – listopad 2023

DOI: 10.1111/acem.14825

PMID: 37923363

3. Ann Otol Rhinol Laryngol. 2023 Nov;132(11):1467-1476. doi: 10.1177/00034894231165575. Epub 2023 Apr 4.

Otolaryngologic Presentations to Emergency Departments During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis.

Munhall CC(1), Shah S(1), Nguyen SA(1), Meyer TA(1), Schlosser RJ(1), White DR(1).

OBJECTIVES: To perform a systematic review of otolaryngologic presentation rates to emergency department settings before and after lockdown due to the COVID-19 pandemic.

SOURCES: PubMed, Scopus, and CINAHL.

METHODS: A systematic search was conducted following PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-analyses) for studies describing otolaryngologic presentations to emergency department and rapid access clinic settings both in the before-lockdown and after-lockdown periods. The start of after-lockdown period varied based on initiation of lockdown, ranging from March 1st to June 1st of 2020 across general emergency department studies.

RESULTS: A total of 14 studies were included in this review. About 10 were general emergency departments, 3 were specifically pediatric emergency departments, and 1 study focused on the geriatric population (>65 years). A total of 13 790 patients were included, with 9446 in the before-lockdown period (68.5%) and 4344 in the after-lockdown period (31.5%). Meta-analysis of proportions for otolaryngologic presentations across general emergency departments was performed. Comparison of weighted proportions found significant differences between before-lockdown and after-lockdown presentation rates for infectious etiologies, tonsillitis specifically, foreign bodies, non-infectious airway issues, and epistaxis among these studies.

CONCLUSIONS: The increased proportions of various non-infectious presentations (eg, epistaxis, foreign bodies, and airway issues) following lockdown might be associated with proportional decreases in infectious pathologies, given decreased social contact to prevent SARS-CoV-2 transmission. Overall, it is important for otolaryngologists to recognize what presentations might more commonly be seen and require evaluation and potential intervention in light of a global pandemic.

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PMCID: PMC10076161

PMID: 37016555 [Indexed for MEDLINE]

4. Int Emerg Nurs. 2023 Nov;71:101355. doi: 10.1016/j.ienj.2023.101355. Epub 2023 Oct 16.

Evaluation of HIV screening in hospital emergency services. Systematic review.

Valero-Verdejo L(1), Hueso-Montoro C(2), Pérez-Morente MÁ(3).

AIM: To evaluate HIV screening of people attending emergency services.

DESIGN: Systematic review.

DATA SOURCES: CINAHL Complete, Cochrane Library, Cuiden Plus, PubMed, PsycINFO, SCOPUS and Web of Science.

REVIEW METHODS: The search was carried out between December 2020 and March 2021 following the recommendations set forth in the PRISMA declaration. The Mixed Methods Appraisal Tool (MMAT) was used to evaluate the methodological quality of studies. For data extraction, a protocol was prepared. A qualitative synthesis of the main findings was carried out.

RESULTS: The final sample consisted of 29 articles. There are several aspects that influence the performance of HIV screening in the emergency department, such as: adequacy of place, attitude towards screening, sociodemographic characteristics, risky sexual behaviour, incidence of area, and detection tools or method employed, in addition to other factors such as the stigma associated with the disease.

CONCLUSIONS: Emergency services are relevant in screening the human immunodeficiency virus. Further research aimed at creating new interventions allowing early detection and adherence to treatment in this population is still a need, particularly in a first-line service like emergency services.

DOI: 10.1016/j.ienj.2023.101355

PMID: 37852058 [Indexed for MEDLINE]

5. J Am Med Dir Assoc. 2023 Nov;24(11):1718-1725. doi: 10.1016/j.jamda.2023.07.016. Epub 2023 Aug 12.

Deprescribing Interventions for Older Patients: A Systematic Review and Meta-Analysis.

Zhou D(1), Chen Z(1), Tian F(2).

OBJECTIVES: Deprescribing reduces polypharmacy in older adults. A thorough study of the effect of deprescribing interventions on clinical outcomes in older adults is presently lacking. As a result, we evaluated the impact of deprescribing on clinical outcomes in older patients.

DESIGN: Meta-analysis and systematic review of randomized controlled trials (RCTs). PubMed, EMBASE, and Cochrane Library were searched from the time of creation to March 2023.

SETTING AND PARTICIPANTS: Randomized controlled trial with participants at least 60 years old.

MEASURES: Mortality, falls (number of fallers), hospitalization rates, emergency department visits, medication adherence, HRQoL (health-regulated quality of life), incidence of ADR (adverse drug reactions), PIM (potentially inappropriate medication), and PPO (potentially prescription omission) were evaluated in the meta-analysis.

RESULTS: A total of 32 RCTs (18,670 patients) were included. Deprescribing interventions significantly reduced proportions of older adults with PIM, PPO, and the incidence of ADRs. The interventions group also improved medication compliance.

CONCLUSIONS AND IMPLICATIONS: Compared to routine care, deprescribing interventions significantly improve clinical outcome indicators for older adults.

DOI: 10.1016/j.jamda.2023.07.016

PMID: 37582482 [Indexed for MEDLINE]

6. Biomed Pharmacother. 2023 Nov;167:115523. doi: 10.1016/j.biopha.2023.115523. Epub 2023 Sep 22.

Relevance of early management by proton-pump inhibitor in acute upper gastro-intestinal tract disorder: A scoping review.

Carrouel F(1), Dziadzko M(2), Grégoire C(3), Galinski M(4), Dussart C(5), Lvovschi VE(6).

BACKGROUND: Proton-pump inhibitors (PPI) are frequently used in the emergency and general practice settings in several clinical presentations linked to acute upper gastro-intestinal tract disorders as abdominal or chest pain without recommendations.

OBJECTIVE: The aim of this scoping review was to assess pain reduction, diagnostic performance, and safety in the first 24 h-management in primary care or emergency medicine.

METHODS: Search was realized by 2 independent reviewers in PubMed, Embase, and Web of Science following PRISMA-ScR guidelines. Only original articles or systematic reviews in English were included. Studies about chronic and/or bleeding conditions, therapeutic cocktails and studies without pain evaluation were excluded. Two methodologies were used for bias estimation.

RESULTS: From 4442 titles, 79 full-text articles were assessed, and 9 were included. There is no strong evidence supporting the use of PPI as a first line analgesic or diagnostic test in acute syndromes linked to acute upper gastro-intestinal tract disorder. A small effect in pain reduction was retrieved in patients with low pain scores. A poor additional value in patients with gastric reflux, and a low specificity compared to other diagnostic tests were observed. A short-term PPI administration appears to be safe with low risk of serious allergic reactions, and poor adverse effects (moderate evidence).

CONCLUSION: Although PPIs may contribute to the multimodal analgesia in acute settings, with few and/or minor side effects, no recommendation can be drawn for their use as a

primary analgesic. Data regarding the relevance of the PPI test are much less clear, no data regarding care pathways are available.

DOI: 10.1016/j.biopha.2023.115523

PMID: 37742610 [Indexed for MEDLINE]

7. Aust Crit Care. 2023 Nov;36(6):1159-1171. doi: 10.1016/j.aucc.2023.01.007. Epub 2023 Feb 28.

Effectiveness of nontechnical skills educational interventions in the context of emergencies: A systematic review and meta-analysis.

Sánchez-Marco M(1), Escribano S(2), Rubio-Aparicio M(3), Juliá-Sanchis R(4), Cabañero-Martínez MJ(5).

INTRODUCTION: In recent years, the importance of training healthcare professionals in nontechnical skills using effective methodologies has been increasingly recognised as a means of preventing clinical errors in the practice of health care. The aim of this study was to evaluate the effectiveness of educational interventions on nontechnical skills in the emergency medical services and/or critical care unit settings.

METHODS: A systematic search was carried out in the PubMed, SCOPUS, CINAHL, and Web of Science databases according to predetermined inclusion and exclusion criteria. After the initial search, 7952 records were selected after duplicates removed. Finally, a selection of 38 studies was included for quantitative analysis. Separate meta-analyses of standardised mean changes were carried out for each outcome measure assuming a random-effects model. Cochran's Q-statistic and I2 index were applied to verify study heterogeneity. Weighted analyses of variance and meta-regressions were conducted to test the influence of potential moderators and funnel plots using Duval and Tweedie's trim-and-fill method, and Egger's regression test were used to examine publication bias.

RESULTS: All the variables analysed had a significant effect size, with the exception of situational awareness (d+ = -0.448; 95% confidence interval [CI] = -1.034, 0.139). The highest mean effect size was found for knowledge (d+ = -0.925; 95% CI = -1.177, -0.673), followed by the mean effect sizes for global nontechnical skills (d+ = -0.642; 95% CI = -0.849, -0.434), team nontechnical skills (d+ = -0.606; 95% CI = -0.949, -0.262), and leadership nontechnical skills (d+ = -0.571; 95% CI = -0.877, -0.264). Similar mean effect sizes were found for attitude (d+ = -0.406; 95% CI = -0.769, -0.044), self-efficacy (d+ = -0.469; 95% CI = -0.874, -0.064), and communication nontechnical skills (d+ = -0.458; 95% CI = -0.818, -0.099). Large heterogeneity among the standardised mean changes was found in the meta-analyses (I2 > 75% and p < .001), except for self-efficacy where I2 = 58.17%, and there was a nonstatistical result for Cochran's Q. This great variability is also reflected in the forest plots.

DISCUSSION: The use of simulation interventions to train emergency and critical care healthcare professionals in nontechnical skills significantly improves levels of knowledge, attitude, self-efficacy, and nontechnical skills performance.

DOI: 10.1016/j.aucc.2023.01.007

PMID: 36858860 [Indexed for MEDLINE]

8. BMJ Qual Saf. 2023 Nov;32(11):676-688. doi: 10.1136/bmjqs-2022-015038. Epub 2023 Mar 27.

Diagnostic error among vulnerable populations presenting to the emergency department with cardiovascular and cerebrovascular or neurological symptoms: a systematic review.

Herasevich S(1), Soleimani J(2), Huang C(3), Pinevich Y(2), Dong Y(2), Pickering BW(2), Murad MH(4), Barwise AK(5)(6).

BACKGROUND: Diagnostic error (DE) is a common problem in clinical practice, particularly in the emergency department (ED) setting. Among ED patients presenting with cardiovascular or cerebrovascular/neurological symptoms, a delay in diagnosis or failure to hospitalise may be most impactful in terms of adverse outcomes. Minorities and other vulnerable populations may be at higher risk of DE. We aimed to systematically review studies reporting the frequency and causes of DE in under-resourced patients presenting to the ED with cardiovascular or cerebrovascular/neurological symptoms.

METHODS: We searched EBM Reviews, Embase, Medline, Scopus and Web of Science from 2000 through 14 August 2022. Data were abstracted by two independent reviewers using a standardised form. The risk of bias (ROB) was assessed using the Newcastle-Ottawa Scale, and the certainty of evidence was evaluated using the Grading of Recommendations Assessment, Development, and Evaluation approach.

RESULTS: Of the 7342 studies screened, we included 20 studies evaluating 7436,737 patients. Most studies were conducted in the USA, and one study was multicountry. 11 studies evaluated DE in patients with cerebrovascular/neurological symptoms, 8 studies with cardiovascular symptoms and 1 study examined both types of symptoms. 13 studies investigated missed diagnoses and 7 studies explored delayed diagnoses. There was significant clinical and methodological variability, including heterogeneity of DE definitions and predictor variable definitions as well as methods of DE assessment, study design and reporting.Among the studies evaluating cardiovascular symptoms, black race was significantly associated with higher odds of DE in 4/6 studies evaluating missed acute myocardial infarction (AMI)/acute coronary syndrome (ACS) diagnosis compared with white race (OR from 1.18 (1.12-1.24) to 4.5 (1.8-11.8)). The association between other analysed factors (ethnicity, insurance and limited English proficiency) and DE in this domain varied from study to study and was inconclusive.Among the studies evaluating DE in patients with cerebrovascular/neurological symptoms, no consistent association was found indicating higher or lower odds of DE.

Although some studies showed significant differences, these were not consistently in the same direction. The overall ROB was low for most included studies; however, the certainty of evidence was very low, mostly due to serious inconsistency in definitions and measurement approaches across studies.

CONCLUSIONS: This systematic review demonstrated consistent increased odds of missed AMI/ACS diagnosis among black patients presenting to the ED compared with white patients in most studies. No consistent associations between demographic groups and DE related to cerebrovascular/neurological diagnoses were identified. More standardised approaches to study design, measurement of DE and outcomes assessment are needed to understand this problem among vulnerable populations.

TRIAL REGISTRATION NUMBER: The study protocol was registered in the International Prospective Register of Systematic Reviews PROSPERO 2020 CRD42020178885 and is available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42020178885.

DOI: 10.1136/bmjqs-2022-015038

PMID: 36972982 [Indexed for MEDLINE]

9. Am J Emerg Med. 2023 Nov;73:166-170. doi: 10.1016/j.ajem.2023.08.043. Epub 2023 Sep 4.

Machine learning model identification and prediction of patients' need for ICU admission: A systematic review.

Chen Y(1), Chen H(2), Sun Q(1), Zhai R(1), Liu X(1), Zhou J(1), Li S(3).

BACKGROUND: The emergency department (ED) triage process serves as a crucial first step for patients seeking acute care, This initial assessment holds crucial implications for patient survival and prognosis. In this study, a systematic review of the existing literature was performed to investigate the performance of machine learning (ML) models in recognizing and predicting the need for intensive care among ED patients.

METHODS: Four prominent databases (PubMed, Embase, Cochrane Library and Web of Science) were searched for relevant literature published up to April 28, 2023. The Prediction model study Risk of Bias Assessment Tool (PROBAST) was employed to evaluate the risk of bias and feasibility of prediction models.

RESULTS: In ten studies, the main algorithms used were Gradient Boostin, Logistic Regressio, Neural Network, Support Vector Machines, Random Forest. The performance of each model was as follows: Gradient Boosting had a sensitivity range of 0.3 to 0.96, specificity range of 0.6 to 0.99, accuracy range of 0.37 to 0.99, precision range of 0.3 to 0.96, and AUC value range of 0.68 to 0.93; Logistic Regression had a sensitivity range of 0.46 to 0.97, specificity range of 0.28 to 0.99, accuracy range of 0.66 to 0.97, precision range of 0.27 to 0.63, and AUC value range of 0.72 to 0.97; Neural Networks had a sensitivity range of 0.45 to 0.96, specificity range of 0.58 to 0.99, accuracy range of 0.36 to 0.97, precision range of 0.27 to 0.96, and AUC value

range of 0.67 to 0.91; Support Vector Machines had a sensitivity range of 0.49 to 0.83, specificity range of 0.94 to 0.98, accuracy range of 0.33 to 0.97, precision range of 0.53 to 0.94, and AUC values were not reported; Random Forests had a sensitivity range of 0.75 to 0.91, specificity range of 0.77 to 0.94, accuracy range of 0.35 to 0.77, precision range of 0.36 to 0.94, and AUC value of 0.83.

CONCLUSION: ML models have demonstrated good performance in identifying and predicting critically ill patients in ED triage. However, because of the limited number of studies on each model, further high-quality prospective research is needed to validate these findings.

DOI: 10.1016/j.ajem.2023.08.043

PMID: 37696074

10. CJEM. 2023 Nov;25(11):884-892. doi: 10.1007/s43678-023-00578-z. Epub 2023 Sep 2.

Rates of 30-day revisit to the emergency department among older adults living with dementia: a systematic review and meta-analysis.

Jelinski D(1), Arimoro OI(2), Shukalek C(2)(3), Furlong KR(4)(5), Lang E(6), Reich K(2)(3), Holroyd-Leduc J(2)(3), Goodarzi Z(2)(3).

OBJECTIVE: Older adults visit emergency departments (EDs) at higher rates than their younger counterparts. However, less is known about the rate at which older adults living with dementia visit and revisit EDs. We conducted a systematic review and meta-analysis to quantify the revisit rate to the ED among older adults living with a dementia diagnosis.

METHODS: We searched MEDLINE, Embase, and CINAHL, as well as gray literature, to identify observational studies reporting on older adults living with dementia that revisited an ED within 30 days of a prior ED visit. We calculated pooled rates of 30-day revisit as percentages using random effects models, and conducted stratified analyses by study data source, study population, and study period. We assessed between-studies heterogeneity using the I2 statistic and considered [Formula: see text] > 50% to indicate substantial heterogeneity. All analyses were performed in R software.

RESULTS: We identified six articles for inclusion. Percentages of 30-day ED revisit among older adults living with dementia ranged widely from 16.1% to 58.0%. The overall revisit rate of 28.6% showed significant heterogeneity. Between-studies heterogeneity across all stratified analyses was also high. By data source, 30-day revisit percentages were 52.3% (public hospitals) and 20.0% (administrative databases); by study population, revisit percentages were 33.5% (dementia as main population) and 19.8% (dementia as a subgroup). By study period, revisit percentages were 41.2% (5 years or greater) and 18.9% (5 years or less).

CONCLUSION: Existing literature on ED revisits among older adults living with dementia highlights the medical complexities and challenges surrounding discharge and follow-up care that may cause these patients to seek ED care at an increased rate. ED personnel may play an

important role in connecting patients and caregivers to more appropriate medical and social resources in order to deliver an efficient and more rounded approach to care.

DOI: 10.1007/s43678-023-00578-z

PMID: 37659987 [Indexed for MEDLINE]

11. Am J Emerg Med. 2023 Nov;73:40-46. doi: 10.1016/j.ajem.2023.08.020. Epub 2023 Aug 13.

The effect of sodium bicarbonate on OHCA patients: A systematic review and meta-analysis of RCT and propensity score studies.

Xu T(1), Wu C(1), Shen Q(1), Xu H(2), Huang H(3).

BACKGROUND: Evidence on the efficacy of sodium bicarbonate (SB) in out-of-hospital cardiac arrest (OHCA) is controversial and generally of low quality. A systematic review and meta-analysis was performed to evaluate the effect of SB in OHCA patients based on randomized controlled trial (RCT) and propensity score matching (PSM) cohort studies.

METHODS: We searched the PubMed, Cochrane, and Embase databases for RCTs and PSM cohort studies from inception to July 15, 2023. We included studies involving adult (>16 years) no-trauma OHCA patients with clear comparisons between the Bicarbonate group and Control group. All studies reported our primary outcome of short-term survival rate included ROSC and survival to emergency department or hospital admission or secondary outcome of long-term survival rate included survival at hospital discharge and good neurologic survival at 1 month. Results were expressed as odds ratio (OR) with accompanying 95% confidence interval (CI). To reduce bias, we performed a subgroup analysis of RCTs and PSM cohort studies. Also, we performed sensitivity analysis to resolve the heterogeneity.

RESULTS: Six studies (3 RCTs and 3 PSMs) comprising 21,402 patients were included. The primary outcome of this meta-analysis showed that short-term survival rate between the two groups was no difference (OR = 1.04; 95% CI, 0.98 to 1.12; P = 0.21; $\chi 2 = 6.68$; I2 = 25%). Secondary outcome demonstrated that long -term survival rate between the two groups was no difference (OR = 0.82; 95% CI, 0.50 to 1.34; P = 0.43; $\chi 2 = 14.96$; I2 = 80%). A sensitive analysis was performed by removing one study showed long-term survival rate of the Bicarbonate group was lower than that of the Control group.

CONCLUSIONS: In patients with OHCA, sodium bicarbonate administration was associated neither with short-term survival rate nor with long-term survival rate, it may even worsen the long-term survival.

DOI: 10.1016/j.ajem.2023.08.020

PMID: 37611525

12. JAMA Netw Open. 2023 Nov 1;6(11):e2344825. doi: 10.1001/jamanetworkopen.2023.44825.

Transitional Care Interventions From Hospital to Community to Reduce Health Care Use and Improve Patient Outcomes: A Systematic Review and Network Meta-Analysis.

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IMPORTANCE: Discharge from the hospital to the community has been associated with serious patient risks and excess service costs.

OBJECTIVE: To evaluate the comparative effectiveness associated with transitional care interventions with different complexity levels at improving health care utilization and patient outcomes in the transition from the hospital to the community.

DATA SOURCES: CENTRAL, Embase, MEDLINE, and PsycINFO were searched from inception until August 2022.

STUDY SELECTION: Randomized clinical trials evaluating transitional care interventions from hospitals to the community were identified.

DATA EXTRACTION AND SYNTHESIS: At least 2 reviewers were involved in all data screening and extraction. Random-effects network meta-analyses and meta-regressions were applied. The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines were followed.

MAIN OUTCOMES AND MEASURES: The primary outcomes were readmission at 30, 90, and 180 days after discharge. Secondary outcomes included emergency department visits, mortality, quality of life, patient satisfaction, medication adherence, length of stay, primary care and outpatient visits, and intervention uptake.

RESULTS: Overall, 126 trials with 97 408 participants were included, 86 (68%) of which were of low risk of bias. Low-complexity interventions were associated with the most efficacy for reducing hospital readmissions at 30 days (odds ratio [OR], 0.78; 95% CI, 0.66 to 0.92) and 180 days (OR, 0.45; 95% CI, 0.30 to 0.66) and emergency department visits (OR, 0.68; 95% CI, 0.48 to 0.96). Medium-complexity interventions were associated with the most efficacy at reducing hospital readmissions at 90 days (OR, 0.64; 95% CI, 0.45 to 0.92), reducing adverse events (OR, 0.42; 95% CI, 0.24 to 0.75), and improving medication adherence (standardized mean difference [SMD], 0.49; 95% CI, 0.30 to 0.67) but were associated with less efficacy than low-complexity interventions for reducing readmissions at 30 and 180 days. High-complexity interventions were most effective for reducing length of hospital stay (SMD, -0.20; 95% CI, -0.38 to -0.03) and increasing patient satisfaction (SMD, 0.52; 95% CI, 0.22 to 0.82) but were least effective for reducing readmissions at all time periods. None of the interventions were associated with improved uptake, quality of life (general, mental, or physical), or primary care and outpatient visits.

CONCLUSIONS AND RELEVANCE: These findings suggest that low- and medium-complexity transitional care interventions were associated with reducing health care utilization for patients transitioning from hospitals to the community. Comprehensive and consistent outcome measures are needed to capture the patient benefits of transitional care interventions.

DOI: 10.1001/jamanetworkopen.2023.44825

PMCID: PMC10690480

PMID: 38032642 [Indexed for MEDLINE]

13. JAMA Intern Med. 2023 Nov 1;183(11):1229-1237. doi: 10.1001/jamainternmed.2023.4832.

Racial Disparities in Emergency Department Physical Restraint Use: A Systematic Review and Meta-Analysis.

Eswaran V(1)(2)(3), Molina MF(3)(4)(5), Hwong AR(4)(6)(7), Dillon DG(8), Alvarez L(9), Allen IE(10), Wang RC(3).

IMPORTANCE: Recent studies have demonstrated that people of color are more likely to be restrained in emergency department (ED) settings compared with other patients, but many of these studies are based at a single site or health care system, limiting their generalizability.

OBJECTIVE: To synthesize existing literature on risk of physical restraint use in adult EDs, specifically in reference to patients of different racial and ethnic backgrounds.

DATA SOURCES: A systematic search of PubMed, Embase, Web of Science, and CINAHL was performed from database inception to February 8, 2022.

STUDY SELECTION: Included peer-reviewed studies met 3 criteria: (1) published in English, (2) original human participants research performed in an adult ED, and (3) reported an outcome of physical restraint use by patient race or ethnicity. Studies were excluded if they were conducted outside of the US, or if full text was unavailable.

DATA EXTRACTION AND SYNTHESIS: Four independent reviewers (V.E., M.M., D.D., and A.H.) abstracted data from selected articles following Meta-Analysis of Observational Studies in Epidemiology guidelines. A modified Newcastle-Ottawa scale was used to assess quality. A meta-analysis of restraint outcomes among minoritized racial and ethnic groups was performed using a random-effects model in 2022.

MAIN OUTCOME(S) AND MEASURE(S): Risk of physical restraint use in adult ED patients by racial and ethnic background.

RESULTS: The search yielded 1597 articles, of which 10 met inclusion criteria (0.63%). These studies represented 2 557 983 patient encounters and 24 030 events of physical restraint (0.94%). In the meta-analysis, Black patients were more likely to be restrained compared with

White patients (RR, 1.31; 95% CI, 1.19-1.43) and to all non-Black patients (RR, 1.27; 95% CI, 1.23-1.31). With respect to ethnicity, Hispanic patients were less likely to be restrained compared with non-Hispanic patients (RR, 0.85; 95% CI, 0.81-0.89).

CONCLUSIONS AND RELEVANCE: Physical restraint was uncommon, occurring in less than 1% of encounters, but adult Black patients experienced a significantly higher risk of physical restraint in ED settings compared with other racial groups. Hispanic patients were less likely to be restrained compared with non-Hispanic patients, though this observation may have occurred if Black patients, with a higher risk of restraint, were included in the non-Hispanic group. Further work, including qualitative studies, to explore and address mechanisms of racism at the interpersonal, institutional, and structural levels are needed.

DOI: 10.1001/jamainternmed.2023.4832

PMCID: PMC10520842

PMID: 37747721 [Indexed for MEDLINE]

14. Injury. 2023 Nov;54(11):111020. doi: 10.1016/j.injury.2023.111020. Epub 2023 Sep 9.

Risk of wound infection with use of sterile versus clean gloves in wound repair at the Emergency Department: A systematic review and meta-analysis.

Tan YY(1), Chua ZX(1), Loo GH(1), Ong JSP(2), Lim JH(3), Siddiqui FJ(4), Graves N(5), Ho AFW(6).

STUDY OBJECTIVE: Sterile gloves are widely used during wound repair procedures in Emergency Departments (ED) worldwide. It is unclear whether sterile gloves protect against postoperative wound infections. We conducted a systematic review and meta-analysis to determine if sterile gloves offer significant protection against wound infections compared to clean gloves for wound repair in the ED.

METHODS: Ovid MEDLINE, Ovid Embase, Cochrane Library and Web Of Science were searched for randomised controlled trials (RCTs) or non-randomized studies of intervention (NRSIs) from their dates of inception to January 2023. RCTs or NRSIs comparing sterile (control) vs. clean/no (intervention) glove use for wound repair procedures in the ED and reporting postoperative wound infections were included. Two investigators independently extracted data and assessed risk-of-bias of each report on a standardised form. Wound infection incidence was pooled using a random effects model. Subgroup analysis was performed to explore heterogeneity.

RESULTS: 7 studies were included in the review, with 6 included in the meta-analysis. Of 3227 patients, 115/1608 (7.2%) patients in the intervention group and 135/1619 (8.3%) patients in the control group had postoperative wound infections. Overall RR was 0.86 (95% CI,0.67-1.10, I2=3.6%), and of high evidence certainty (GRADE). Absence of a protective effect was invariant in sensitivity analyses, leave-one-out analysis and subgroup analyses.

CONCLUSION: No evidence of additional protection against wound infections with the use of sterile gloves for wound repair in the ED compared to clean gloves was found. However, the

review was limited by nonreporting of antibiotic history and time between wound repair and follow-up amongst included studies. Considering the ergonomics, potential cost-savings and environmental impact, clean gloves are a viable alternative to sterile gloves, without compromising wound infection risk in this setting.

DOI: 10.1016/j.injury.2023.111020

PMID: 37713965 [Indexed for MEDLINE]

15. Am J Hosp Palliat Care. 2023 Nov 17:10499091231215797. doi: 10.1177/10499091231215797. Online ahead of print.

Referrals to Palliative Care Services for Hospitalised COVID-19 Patients: A Systematic Literature Review.

Snijders RAH(1), Brom L(1), Simons SO(2), Langenberg SMCH(3), van der Linden YM(1)(4), Raijmakers NJH(1).

BACKGROUND: The increase in the incidence of the coronavirus disease 2019 (COVID-19) led to more hospital admissions and deaths, and coincided with an increased need for palliative care. The new circumstances required palliative care services to be flexible and to develop response strategies.

AIM: To synthesise studies including COVID-19 patients to gain insight into how many patients were referred to hospital-based palliative care services, the characteristics and palliative care needs of these patients and the reasons for referral.

DESIGN: A systematic literature search was conducted in January 2022 using the PubMed, Embase, CINAHL, and PsycInfo databases.

RESULTS: Twenty-seven studies were identified. The results show that in 16% of all COVID-19 inpatients and 55% of all deceased COVID-19 inpatients were referred to a palliative care service. The median time from hospital admission to referral was 4 days and from referral to death was 2 days. COVID-19 inpatients were frequently referred for end-of-life care management (52%), had ≥1 comorbidities (84%), and suffered from shortness of breath/dyspnea (45%).

CONCLUSIONS: The care provided was generally acute, with a high proportion of end-of-life care referrals and a short time period from hospital admission to referral and from referral to death. This highlights the importance of early integration of palliative care into emergency department (ED) care of critically ill patients.

DOI: 10.1177/10499091231215797

PMID: 37975523

16. In Vivo. 2023 Nov-Dec;37(6):2597-2608. doi: 10.21873/invivo.13367.

Accuracy of Prediction Models in Diagnosis of Acute Diverticulitis.

Eskelinen M(1)(2), Pulkkinen J(1), Selander T(3), Syrjänen K(4)(5), Eskelinen M(6)(2).

BACKGROUND/AIM: The diagnostic score models (DMs) for patients with acute diverticulitis (AcDi) have been rarely evaluated. Therefore, we tried to develop diagnostic models (DMs) to enhance the diagnostic accuracy (DA) of AcDi.

PATIENTS AND METHODS: In this AAP (acute abdominal pain) cohort, 30 AcDi patients were compared to 1,303 non-AcDi patients, with regard to their i) clinical symptoms (n=22), ii) signs and tests (n=14) as well as iii) laboratory analyses (n=3). The triage was performed at patient arrival to the emergency department (ED) (triage I) and at follow-up (triage II) before final decision. The triage included a suggested diagnosis of the AAP patient. Bivariate random effects meta-analysis was performed separately for 1) the pooled symptoms (n=22), 2) signs & tests (n=17) as well as 3) pooled DMs (I-V) with different cut-offs (with or without triage) to assess the diagnostic accuracy (DA) in detection of AcDi by HSROC (hierarchical summary receiver operating characteristic) curves.

RESULTS: In the conventional receiver operating characteristic (ROC) analysis (for test optimization and finding optimal cut-off points), the area under curve (AUC) reached the following values for AcDi: i) DM without triage, AUC=0.843, ii) DM with triage I, AUC=0.866 and iii) DM with triage I and II, AUC=0.926. In the HSROC analysis, the AUC values for detection of AcDi were as follows; i) pooled clinical symptoms, AUC=0.540, ii) pooled clinical signs & tests, AUC=0.556 and iii) pooled DMs globally, AUC=0.853. In roccomp analysis for differences in AUC values: i) and iii) $p<0.0001$; between ii) and iii) $p<0.0001$.

CONCLUSION: As confirmed by ROC and HSROC analysis, the new DMs with triage mode proved to be far superior in their DA for AcDi as compared to both symptoms and signs & tests. In the lack of earlier studies, these data report the first evidence that the DM including triage at an ED could improve the detection of AcDi.

DOI: 10.21873/invivo.13367

PMCID: PMC10621439

PMID: 37905624 [Indexed for MEDLINE]

17. Drugs. 2023 Nov;83(16):1523-1535. doi: 10.1007/s40265-023-01941-1. Epub 2023 Sep 28.

Continued Opioid Use and Adverse Events Following Provision of Opioids for Musculoskeletal Pain in the Emergency Department: A Systematic Review and Meta-Analysis.

Chen Q(1), Maher CG(2), Han CS(2), Abdel Shaheed C(2), Lin CC(2), Rogan EM(2)(3), Machado GC(2).

BACKGROUND: The prevalence of continued opioid use or serious adverse events (SAEs) following opioid therapy in the emergency department (ED) for musculoskeletal pain is unclear. The aim of this review was to examine the prevalence of continued opioid use and serious adverse events (SAEs) following the provision of opioids for musculoskeletal pain in the emergency department (ED) or at discharge.

METHODS: Records were searched from MEDLINE, EMBASE and CINAHL from inception to 7 October 2022. We included randomised controlled trials and observational studies enrolling adult patients with musculoskeletal pain who were administered and/or prescribed opioids in the ED. Continued opioid use and opioid misuse data after day 4 since ED discharge were extracted. Adverse events were coded using the Common Terminology Criteria for Adverse Events (CTCAE), and those rated as grades 3-4 (severe or life-threatening) and grade 5 (death) were considered SAEs. Risk of bias was assessed using the Quality in Prognosis Studies (QUIPS) tool.

RESULTS: Seventy-two studies were included. Among opioid-naïve patients who received an opioid prescription, 6.8-7.0% reported recent opioid use at 3-12 months after discharge, 4.4% filled ≥ 5 opioid prescriptions and 3.1% filled > 90-day supply of opioids within 6 months. The prevalence of SAEs was 0.02% [95% confidence interval (CI) 0, 0.2%] in the ED and 0.1% (95% CI 0, 1.5%) within 2 days. One study observed 42.9% of patients misused opioids within 30 days after discharge.

CONCLUSIONS: Around 7% of opioid-naïve patients with musculoskeletal pain receiving opioid therapy continue opioid use at 3-12 months after ED discharge. SAEs following ED administration of an opioid were uncommon; however, studies only monitored patients for 2 days.

PROTOCOL REGISTRATION: 10.31219/osf.io/w4z3u.

DOI: 10.1007/s40265-023-01941-1

PMCID: PMC10624756

PMID: 37768540 [Indexed for MEDLINE]

18. PLoS One. 2023 Nov 7;18(11):e0289054. doi: 10.1371/journal.pone.0289054. eCollection 2023.

How effective is extracorporeal life support for patients with out-of-hospital cardiac arrest initiated at the emergency department? A systematic review and meta-analysis.

Wongtanasarasin W(1)(2), Krintratun S(1), Techasatian W(3), Nishijima DK(2).

BACKGROUND: Extracorporeal cardiopulmonary resuscitation (ECPR) is commonly initiated for adults experiencing cardiac arrest within the cardiac catheterization lab or the intensive care unit. However, the potential benefit of ECPR for these patients in the emergency department

(ED) remains undocumented. This study aims to assess the benefit of ECPR initiated in the ED for patients with out-of-hospital cardiac arrest (OHCA).

METHODS: We conducted a systematic review and meta-analysis of studies comparing ECPR initiated in the ED versus conventional CPR. Relevant articles were identified by searching several databases including PubMed, EMBASE, Web of Science, and Cochrane collaborations up to July 31, 2022. Pooled estimates were calculated using the inverse variance heterogeneity method, while heterogeneity was evaluated using Q and I2 statistics. The risk of bias in included studies was evaluated using validated bias assessment tools. The primary outcome was a favorable neurological outcome at hospital discharge, and the secondary outcome was survival to hospital discharge or 30-day survival. Sensitivity analyses were performed to explore the benefits of ED-initiated ECPR in studies utilizing propensity score (PPS) analysis. Publication bias was assessed using Doi plots and the Luis Furuya-Kanamori (LFK) index.

RESULTS: The meta-analysis included a total of eight studies comprising 51,173 patients. ED-initiated ECPR may not be associated with a significant increase in favorable neurological outcomes (odds ratio [OR] 1.43, 95% confidence interval [CI] 0.30-6.70, I2 = 96%). However, this intervention may be linked to improved survival to hospital discharge (OR 3.34, 95% CI 2.23-5.01, I2 = 17%). Notably, when analyzing only PPS data, ED-initiated ECPR demonstrated efficacy for both favorable neurological outcomes (OR 1.89, 95% CI 1.26-2.83, I2 = 21%) and survival to hospital discharge (OR 3.37, 95% CI 1.52-7.49, I2 = 57%). Publication bias was detected for primary (LFK index 2.50) and secondary (LFK index 2.14) outcomes.

CONCLUSION: The results of this study indicate that ED-initiated ECPR may not offer significant benefits in terms of favorable neurological outcomes for OHCA patients. However, it may be associated with increased survival to hospital discharge. Future studies should prioritize randomized trials with larger sample sizes and strive for homogeneity in patient populations to obtain more robust evidence in this area.

DOI: 10.1371/journal.pone.0289054

PMCID: PMC10629644

PMID: 37934739 [Indexed for MEDLINE]

19. Crisis. 2023 Nov;44(6):497-505. doi: 10.1027/0227-5910/a000906. Epub 2023 May 17.

A Rapid Systematic Review of the Prevalence of Suicide and Self-Harm Behaviors in Adolescents During the COVID-19 Pandemic.

Sahoo S(1), Patra S(2).

Background: COVID-19 has caused psychological, social, and physical isolation in adolescents resulting in varying rates of suicidal behavior and self-harm.

Aims: We investigated the pandemic's impact on adolescent suicidal behavior and self-harm by reviewing the existing literature.

Methods: We searched PubMed using keywords: adolescent, suicide, suicidal behavior, self-harm, prevalence, and COVID-19 and included studies reporting primary data only.

Results: Of the 551 studies identified, we included 39 studies in the final analysis. Two of the six high-quality population-based suicide registry studies reported increased suicide rates during the pandemic. Seven of fifteen emergency department-based studies out of which four were of high quality and three high-quality population-based health registry studies reported increased self-harm. A few school and community-based surveys and national helpline data also reported an increase in suicidal behavior or self-harm.

Limitations: Methodological heterogeneity of the included studies.

Conclusions: There is wide variation in study methodology, population, settings, and age groups in the included studies. Suicidal behavior and self-harm were increased in specific study settings and adolescent populations during the pandemic. More methodologically rigorous research is needed to evaluate the impact of COVID-19 on adolescent suicidal behavior and self-harm.

DOI: 10.1027/0227-5910/a000906

PMID: 37194641 [Indexed for MEDLINE]

20. J Pers Med. 2023 Nov 26;13(12):1649. doi: 10.3390/jpm13121649.

Which Is the Best Way to Treat Massive Hemoptysis? A Systematic Review and Meta-Analysis of Observational Studies.

Karlafti E(1)(2), Tsavdaris D(3), Kotzakioulafi E(2), Kougias L(4), Tagarakis G(5), Kaiafa G(2), Netta S(3), Savopoulos C(2), Michalopoulos A(3), Paramythiotis D(3).

INTRODUCTION: Hemoptysis is one of the most common symptoms of respiratory system diseases. Common causes include bronchiectasis, tumors, tuberculosis, aspergilloma, and cystic fibrosis. The severity of hemoptysis varies from mild to moderate to massive hemoptysis and can easily lead to hemodynamic instability and death from suffocation or shock. Nevertheless, the most threatening hemoptysis that is presented to the emergency department and requires hospitalization is the massive one. In these cases, today, the most common way to manage hemoptysis is bronchial artery embolization (BAE).

METHODS: A systematic literature search was conducted in PubMed and Scopus from January 2017 (with the aim of selecting the newest possible reports in the literature) until May 2023 for studies reporting massive hemoptysis. All studies that included technical and clinical success rates of hemoptysis management, as well as rebleeding and mortality rates, were included. A proportional meta-analysis was conducted using a random-effects model.

RESULTS: Of the 30 studies included in this systematic review, 26 used bronchial artery embolization as a means of treating hemoptysis, with very high levels of both technical and clinical success (greater than 73.7% and 84.2%, respectively). However, in cases where it was

not possible to use bronchial artery embolization, alternative methods were used, such as dual-vessel intervention (80% technical success rate and 66.7% clinical success rate), customized endobronchial silicone blockers (92.3% technical success rate and 92.3% clinical success rate), antifibrinolytic agents (50% clinical success rate), and percutaneous transthoracic embolization (93.1% technical success rate and 88.9% clinical success rate), which all had high success rates apart from antifibrinolytic agents. Of the 2467 patients included in these studies, 341 experienced rebleeding during the follow-up period, while 354 other complications occurred, including chest discomfort, fever, dysphagia, and paresis. A total of 89 patients died after an episode of massive hemoptysis or during the follow-up period. The results of the meta-analysis showed a pooled technical success of bronchial artery embolization equal to 97.22% and a pooled clinical success equal to 92.46%. The pooled recurrence was calculated to be 21.46%, while the mortality was 3.5%. These results confirm the ability of bronchial artery embolization in the treatment of massive hemoptysis but also emphasize the high rate of recurrence following the intervention, as well as the risk of death.

CONCLUSION: In conclusion, massive hemoptysis can be treated with great clinical and technical success using bronchial artery embolization, reducing mortality. Mortality has now been reduced to a small percentage of cases.

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PMCID: PMC10744930

PMID: 38138876

21. BMC Emerg Med. 2023 Nov 29;23(1):141. doi: 10.1186/s12873-023-00895-7.

Evaluation of video review tools for assessing non-technical skills in emergency department resuscitation teams: a systematic review.

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BACKGROUND AND IMPORTANCE: Use of video review in medicine is established in contexts such as surgery. Although not widely used in the emergency department (ED), some centres use it to evaluate non-technical skills (NTS) to support teaching and quality improvement.

OBJECTIVE: There is no consensus on assessment of NTS using video review in the ED and the purpose of this review was to identify tools used in this context.

DESIGN, SETTING AND PARTICIPANTS: Studies were identified using Embase, Medline, CINAHL and Google Scholar. Inclusion criterion for the review was NTS of resuscitation teams working within the ED were assessed using video review. A systematic search method was used, and results were synthesised after search criteria was checked by two independent reviewers. Authors settled on the same 9 studies eligible for inclusion.

OUTCOME MEASURES AND ANALYSIS: Reliability and validity of tools identified for use in this context. Due to the heterogeneity of studies, no meta-analysis occurred.

MAIN RESULTS: There are 9 studies included in the review. The review was registered with PROSPERO (Ref No: CRD42022306129). Four unique tools were identified - 6 studies used T-NOTECHS, 1 used TTCA-24, 1 used CALM and 1 used the Communication tool. T-NOTECHS is validated in the literature for use in this context.

CONCLUSION: T-NOTECHS is the tool of choice for assessing ED teams in this context.

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PMCID: PMC10687788

PMID: 38030981 [Indexed for MEDLINE]

22. Inj Prev. 2023 Nov 27;29(6):537-544. doi: 10.1136/ip-2022-044822.

Role of sex and gender in concussion outcome differences among patients presenting to the emergency department: a systematic review.

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OBJECTIVE: This systematic review aimed to identify research involving adults presenting to the emergency department (ED) with a concussion to document the reporting of sex and/or gender according to the Canadian Institutes of Health Research (CIHR) guidelines, the prevalence of sex and gender-based analysis (SGBA) and to summarise sex and/or gender-based differences in ED presentation, management and outcomes.

DESIGN: Systematic review.

METHODS: Electronic databases and grey literature were searched to identify studies that recruited adult patients with concussion from the ED. Two independent reviewers identified eligible studies, assessed quality and extracted data. A descriptive summary of the evidence was generated, and sex and/or gender reporting was examined for accuracy according to standardised criteria.

RESULTS: Overall, 126 studies were included in the analyses. A total of 80 (64%) studies reported sex and/or gender as demographic information, of which 51 (64%) included sex and/or gender in their analysis; however, 2 (3%) studies focused on an SGBA. Sex was more accurately reported in alignment with CIHR definitions than gender (94% vs 12%; $p<0.0001$). In total, 25 studies used an SGBA for outcomes of interest. Males and females experience different causes of concussion, 60% of studies documented that females had less frequent CT scanning while in the ED, and 57% of studies reported that postconcussion syndrome was more prevalent in females and women.

CONCLUSION: This systematic review highlighted that sex is reported more accurately than gender, approximately half of studies did not report either sex and/or gender as demographic information, and one-third of studies did not include SGBA. There were important sex and gender differences in the cause, ED presentation, management and outcomes of concussions.

PROSPERO REGISTRATION NUMBER: CRD42021258613.

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PMID: 37507213 [Indexed for MEDLINE]

23. Prim Care Companion CNS Disord. 2023 Nov 7;25(6):22r03468. doi: 10.4088/PCC.22r03468.

Systematic Review of Psychiatric Observation Units and Their Impact on Emergency Department Boarding.

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Objective: To investigate the effectiveness of acute short-stay hospital admissions in psychiatric observation units for improving the flow of patients with mental health presentations through the emergency department (ED).

Data Sources: CINAHL, MEDLINE, OVID, PsycINFO, PubMed, Web of Science, and Google Scholar were systematically searched for English-language studies from 1990 onward. Descriptors used to describe psychiatric observation units were identified, and in databases with MESH term availability, the terms "mental disorder" and "emergency services, psychiatric" were also utilized to further enhance the search.

Study Selection: A total of 6,571 studies were screened. The PICOS framework was used to determine the inclusion and exclusion criteria, and the process of study selection followed PRISMA guidelines. Articles were included if the unit studied had a length of stay (LOS) < 72 hours and if patients suffered from a mental health condition and were treated as hospital inpatients.

Data Extraction: Reviewers performed data extraction and quality assessment of the included studies following the review protocol.

Results: A total of 14 psychiatric observation unit studies were included in the review: 5 in North America and 9 in Australia. Most of these units were in large urban general hospitals. There appears to be some improvement in ED LOS for patients with mainly crisis mental health presentations. Seven of the 14 studies specifically discussed ED LOS, and 6 of these studies showed mild to moderate improvement in ED LOS, ranging from 17 minutes to > 11 hours.

Conclusions: Psychiatric observation units were mainly located in North American and Australian settings. These units may reduce ED LOS based on limited, poor-quality evidence. Further research is required to determine whether psychiatric observation units have ongoing effects on ED LOS and alleviate access block. Prim Care Companion CNS Disord 2023;25(6):22r03468.

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PMID: 37976230 [Indexed for MEDLINE]

24. Int Emerg Nurs. 2023 Nov;71:101334. doi: 10.1016/j.ienj.2023.101334. Epub 2023 Sep 14.

Understanding triage assessment of acuity by emergency nurses at initial adult patient presentation: A qualitative systematic review.

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BACKGROUND: Nurses make complex triage decisions within emergency departments, which significantly affect patient outcomes. Understanding how nurses make these decisions and why they deviate from triage algorithms facilitates interventions that work with their decision-making processes, increasing acceptability and effectiveness.

AIMS: This qualitative systematic review aimed to understand decision-making processes emergency nurses use to make acuity decisions during triage assessment at initial patient presentation.

METHODOLOGY: Medline, CINAHL and Academic Search Complete were systematically searched to 15th December 2022. Data were analysed using thematic synthesis. Established themes were reviewed with GRADE-CERQual to evaluate certainty of evidence.

RESULTS: 28 studies were included in the review. Data analysis uncovered three superordinate themes of holistic reasoning, situational awareness, and informed decision-making. The findings show nurses value holistic assessments over algorithms and rely on knowledge and experience. They also assess the wider situation in the emergency department.

CONCLUSIONS: This review presents new perspectives on nurses' decision-making processes about patient's acuity. Nurses holistically gather information about patients before translating that information into acuity scores. These actions are informed by their knowledge and experience; however, the wider situation also impacts their decisions. In turn, the nurses use interpretations of patients' acuity to control the wider situation.

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25. J Clin Endocrinol Metab. 2023 Nov 21:dgad652. doi: 10.1210/clinem/dgad652.

Effectiveness of Continuous Glucose Monitoring on Metrics of Glycemic Control in Type 2 Diabetes Mellitus: A Systematic Review and Meta-analysis of Randomized Controlled Trials.

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PURPOSE: To provide a systematic review and meta-analysis synthesizing the findings of randomized controlled trials (RCTs) of continuous glucose monitors (CGMs) in the management of adults with type 2 diabetes mellitus (T2DM) on glucose control and clinical outcomes.

METHODS: MEDLINE, Embase, and Cochrane were searched for RCTs that assessed the effectiveness of real-time CGM (rt-CGM) or flash CGM (FGM) in adults (≥18 years) with T2DM that reported on at least 1 of the following outcomes: hemoglobin A1c (HbA1c), time in range, time in hyperglycemia, or time in hypoglycemia. The GRADE approach was used to assess certainty of evidence for primary outcomes.

RESULTS: Fourteen RCTs assessing CGM were included, with 825 patients in 9 RCTs using rt-CGM and 822 in 5 RCTs using FGM. Moderate certainty of evidence indicated that use of CGM had a modest but statistically significant reduction in HbA1c levels of about 0.32%. Our analyses of each device type separately showed similar reductions in HbA1c (0.34% and 0.33%, respectively, for rt-CGM and FGM), with trends for improvement in other glucose metrics favoring rt-CGM over self-monitored blood glucose.

CONCLUSION: Both rt-CGM and flash CGM led to modest but statistically significant declines in HbA1c among individuals with T2DM, with little heterogeneity in the results. However, the duration of the included RCTs was relatively short and few studies reported on important clinical outcomes, such as adverse events, emergency department use, or hospitalization. Longer term studies are needed to determine if the short-term improvements in glucose control leads to improvements in clinically important outcomes.

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PMID: 37987208

26. Pediatr Pulmonol. 2023 Nov;58(11):3213-3226. doi: 10.1002/ppul.26646. Epub 2023 Aug 22.

The impact of COVID-19 lockdown measures on symptoms control in children with asthma: A systematic review and meta-analysis of observational cohort studies.

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OBJECTIVES: Reported reductions in emergency department visits and hospitalizations for asthma in previous studies have suggested a beneficial effect of the coronavirus disease of 2019 (COVID-19) lockdown measures on asthma morbidity. Nevertheless, studies relying on administrative data may overestimate the true impact of lockdowns due to changes in health-seeking behavior and reduced availability of pediatric asthma services during the pandemic. In this study, we systematically reviewed the literature and identified observational cohort studies that focused on nonadministrative data to assess the true impact of COVID-19 lockdowns on symptom control in children with asthma.

METHODS: A systematic literature search was conducted between January 2020 and August 2022 (International Prospective Register of Systematic Reviews ID: CRD42022354369). The impact of COVID-19 lockdowns across studies was expressed as a standardized mean difference (SMD) for continuous outcomes and as a summary relative risk (RR) for binary outcomes.

RESULTS: During the lockdown periods, the pooled asthma symptoms control test score (SMD: 1.99, 95% confidence interval [CI]: 0.75, 3.24, I2 : 98.4%) and the proportion of children with well-controlled asthma (RR: 1.35, 95% CI: 1.06, 1.71, I2 : 77.6%) were significantly increased. On the other hand, the pooled proportion of children with poorly controlled asthma (RR: 0.47, 95% CI: 0.38, 0.57, I2 : 0.0%) was significantly decreased.

CONCLUSIONS: During COVID-19 lockdowns, asthma symptoms and breakthrough disease exacerbations were significantly reduced in children with asthma. Further research is warranted on potential interventions aiming to enhance asthma control after the pandemic while taking into consideration their acceptability and potential tradeoffs.

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