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OBSAH

1: Wenstrup J, Hestoy BH, Sagar MV, Blomberg SNF, Christensen H, Christensen HC, Kruuse C. **Emergency Medical Services dispatcher recognition of stroke: A systematic review**. Eur Stroke J. 2024 Jun;9(2):283-294. doi: 10.1177/23969873231223339. Epub 2024 Jan 4. PMID: 38174575.

2: Zaphir JS, Murphy KA, MacQuarrie AJ, Stainer MJ. **Understanding The Role of Cognitive Load In Paramedical Contexts: A Systematic Review.** Prehosp Emerg Care.2024 Jun 26:1-23. doi: 10.1080/10903127.2024.2370491. Epub ahead of print. PMID: 38922409.

3: Grubic N, Hill B, Allan KS, Maximova K, Banack HR, Del Rios M, Johri AM. **Mediators of the Association Between Socioeconomic Status and Survival After Out-of-Hospital Cardiac Arrest: A Systematic Review.** Can J Cardiol. 2024 Jun;40(6):1088-1101. doi: 10.1016/j.cjca.2024.01.002. Epub 2024 Jan 10. PMID: 38211888.

4: Fotland SS, Midtbø V, Vik J, Zakariassen E, Johansen IH. **Factors affecting communication during telephone triage in medical call centres: a mixed methods systematic review.** Syst Rev. 2024 Jun 22;13(1):162. doi: 10.1186/s13643-024-02580-7. PMID: 38909273; PMCID: PMC11193260.

5: Schoenfeld DW, Rosen CL, Harris T, Thomas SH. **Assessing the one-month mortality impact of civilian-setting prehospital transfusion: A systematic review and meta-analysis**. Acad Emerg Med. 2024 Jun;31(6):590-598. doi: 10.1111/acem.14882. Epub 2024 Mar 22. PMID: 38517320.

6: Born C, Schwarz R, Böttcher TP, Hein A, Krcmar H. **The role of information systems in emergency department decision-making-a literature review.** J Am Med Inform Assoc. 2024 Jun 20;31(7):1608-1621. doi: 10.1093/jamia/ocae096. PMID:38781289; PMCID: PMC11187435.

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PREHOSPITAL CARE

– systematic review & meta-analysis –

1. Eur Stroke J. 2024 Jun;9(2):283-294. doi: 10.1177/23969873231223339. Epub 2024 Jan 4.
Emergency Medical Services dispatcher recognition of stroke: A systematic review.
Wenstrup J(1)(2)(3), Hestoy BH(1), Sagar MV(1), Blomberg SNF(3), Christensen H(4)(5), Christensen HC(3)(4), Kruuse C(1)(4)(6).

PURPOSE: Stroke treatments are time-sensitive, and thus early and correct recognition of stroke by Emergency Medical Services is essential for outcomes. This is particularly important with the adaption of mobile stroke units. In this systematic review, we therefore aimed to provide a comprehensive overview of Emergency Medical Services dispatcher recognition of stroke.
METHODS: The review was registered on PROSPERO and the PRISMA guidelines were applied. We searched PubMed, Embase, and Cochrane Review Library. Screening and data extraction were performed by two observers. Risk of bias was assessed using the QUADAS-2 instrument.
FINDINGS: Of 1200 papers screened, 24 fulfilled the inclusion criteria. Data on sensitivity was reported in 22 papers and varied from 17.9% to 83.0%. Positive predictive values were reported in 12 papers and ranged from 24.0% to 87.7%. Seven papers reported specificity, which ranged from 20.0% to 99.1%. Six papers reported negative predictive value, ranging from 28.0% to 99.4%. In general, the risk of bias was low.
DISCUSSION: Stroke recognition by dispatchers varied greatly, but overall many patients with stroke are not recognised, despite the initiatives taken to improve stroke literacy. The available data are of high quality, however Asian, African, and South American populations are underrepresented.
CONCLUSION: While the data are heterogenous, this review can serve as a reference for future research in emergency medical dispatcher stroke recognition and initiatives to improve prehospital stroke recognition.

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PMID: 38174575 [Indexed for MEDLINE]

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2. Prehosp Emerg Care. 2024 Jun 26:1-23. doi: 10.1080/10903127.2024.2370491.
Understanding The Role of Cognitive Load In Paramedical Contexts: A Systematic Review.
Zaphir JS(1), Murphy KA(1), MacQuarrie AJ(2), Stainer MJ(1).

Objectives: Cognitive load refers to the working memory resources required during a task. When the load is too high or too low this has implications for an individual's task performance. In the context of paramedicine and emergency medical services (EMS) broadly, high cognitive load could potentially put patient and personnel safety at risk. This systematic review aimed to determine the current understanding of the role of cognitive load in paramedical contexts.
Methods: To do this, five databases were searched (Elsevier Embase, ProQuest Psychology, CINAHL, Ovid Medline, and Ovid PsychINFO) using synonyms of cognitive load and paramedical contexts. Included articles were full text, peer reviewed empirical research, with a focus on cognitive load and EMS work. Two reviewers screened titles, abstracts, and full text using a traffic light system against the inclusion and exclusion criteria. The quality of evidence was assessed using the GRADE framework. This study was registered on PROSPERO (CRD42022384246). No funding was received for this research.
Results: The searches identified 73 unique articles and after title/abstract and full text screening, 25 articles were included in the final review. Synthesis of the research revealed 10 categories of findings in the area. These are clinical performance, cognitive processes, emotional responses, physical expenditure, physiological responses, equipment and ergonomics, expertise and experience, multiple loads, cognitive load measures, and task complexity.
Conclusions: From these findings it was determined that there is agreement in terms of what factors influence cognitive load in paramedical contexts, such as cognitive processes, task complexity, physical expenditure, level of experience, multiple types of loads, and the use of equipment. Cognitive load influences clinical task performance and has a bi-directional relationship with emotion. However, the literature is mixed regarding physiological responses to cognitive load, and how they are best measured. These findings highlight potential intervention points where cognitive load can be managed or reduced to improve working conditions for EMS clinicians and safety for their patients.

DOI: 10.1080/10903127.2024.2370491
PMID: 38922409

3. Can J Cardiol. 2024 Jun;40(6):1088-1101. doi: 10.1016/j.cjca.2024.01.002. Epub 2024 Jan 10.

Mediators of the Association Between Socioeconomic Status and Survival After Out-of-Hospital Cardiac Arrest: A Systematic Review.

Grubic N(1), Hill B(2), Allan KS(3), Maximova K(4), Banack HR(5), Del Rios M(6), Johri AM(2).

Low socioeconomic status (SES) is associated with poor outcomes after out-of-hospital cardiac arrest (OHCA). Patient characteristics, care processes, and other contextual factors may mediate the association between SES and survival after OHCA. Interventions that target these mediating factors may reduce disparities in OHCA outcomes across the socioeconomic spectrum. This systematic review identified and quantified mediators of the SES-survival after OHCA association. Electronic databases (MEDLINE, Embase, PubMed, Web of Science) and grey literature sources were searched from inception to July or August 2023. Observational studies of OHCA patients that conducted mediation analyses to evaluate potential mediators of the association between SES (defined by income, education, occupation, or a composite index) and survival outcomes were included. A total of 10 studies were included in this review. Income (n = 9), education (n = 4), occupation (n = 1), and composite indices (n = 1) were used to define SES. The proportion of OHCA cases that had bystander involvement, presented with an initial shockable rhythm, and survived to hospital discharge or 30 days increased with higher SES. Common mediators of the SES-survival association that were evaluated included initial rhythm (n = 6), emergency medical services response time (n = 5), and bystander cardiopulmonary resuscitation (n = 4). Initial rhythm was the most important mediator of this association, with a median percent excess risk explained of 37.4% (range 28.6%-40.0%; n = 5; 1 study reported no mediation) and mediation proportion of 41.8% (n = 1). To mitigate socioeconomic disparities in outcomes after OHCA, interventions should target potentially modifiable mediators, such as initial rhythm, which may involve improving bystander awareness of OHCA and the need for prompt resuscitation.

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4. Syst Rev. 2024 Jun 22;13(1):162. doi: 10.1186/s13643-024-02580-7.
Factors affecting communication during telephone triage in medical call centres: a mixed methods systematic review.
Fotland SS(1)(2), Midtbø V(3)(4), Vik J(5), Zakariassen E(3)(4), Johansen IH(3).

BACKGROUND: Telephone triage is used to optimise patient flow in emergency primary healthcare. Poor communication can lead to misunderstandings and compromise patient safety. To improve quality, a comprehensive understanding of factors affecting communication in medical call centres in primary care is needed. The aim of this review was to identify such factors and to describe how they affect communication during telephone triage.
METHOD: A mixed-method systematic review was performed. In April 2021 and June 2023, MEDLINE, Embase, CINAHL, and Web of Science were searched for original studies describing communication during telephone triage in primary care medical call centres handling all types of medical problems from an unselected population. All studies were screened by two authors, blinded to each other's decisions. Disagreements were resolved by a third author. A framework was created by the thematic synthesis of the qualitative data and later used to synthesise the quantitative data. By using convergent integrated synthesis, the qualitative and quantitative findings were integrated. The Mixed Methods Appraisal Tool was used to assess methodological limitations.
RESULTS: Out of 5087 studies identified in the search, 62 studies were included, comprising 40 qualitative, 16 quantitative and six mixed-method studies. Thirteen factors were identified and organised into four main themes: organisational factors, factors related to the operator, factors related to the caller and factors in the interaction. Organisational factors included availability, working conditions and decision support systems. Factors related to the operator were knowledge and experience, personal qualities and communication strategies. Factors related to the caller were individual differences and the presented medical problem. Factors in the interaction were faceless communication, connection between operator and caller, third-person caller and communication barriers. The factors seem interrelated, with organisational factors affecting all parts of the conversation, and the operator's communication in particular.
CONCLUSION: Many factors affect the structure, content, and flow of the conversation. The operators influence the communication directly but rely on the organisation to create a working environment that facilitates good communication. The results are mainly supported by qualitative studies and further studies are needed to explore and substantiate the relevance and effect of individual factors.
SYSTEMATIC REVIEW REGISTRATION: PROSPERO CRD42022298022.

DOI: 10.1186/s13643-024-02580-7
PMCID: PMC11193260
PMID: 38909273 [Indexed for MEDLINE]

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5. Acad Emerg Med. 2024 Jun;31(6):590-598. doi: 10.1111/acem.14882. Epub 2024 Mar 22.
Assessing the one-month mortality impact of civilian-setting prehospital transfusion: A systematic review and meta-analysis.
Schoenfeld DW(1), Rosen CL(1), Harris T(2), Thomas SH(1)(2).

BACKGROUND: Based on convincing evidence for outcomes improvement in the military setting, the past decade has seen evaluation of prehospital transfusion (PHT) in the civilian emergency medical services (EMS) setting. Evidence synthesis has been challenging, due to study design variation with respect to both exposure (type of blood product administered) and outcome (endpoint definitions and timing). The goal of the current meta-analysis was to execute an overarching assessment of all civilian-arena randomized controlled trial (RCT) evidence focusing on administration of blood products compared to control of no blood products.
METHOD: The review structure followed the Cochrane group's Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA). Using the Transfusion Evidence Library (transfusionevidencelibrary.com), the multidatabase (e.g. PubMed, EMBASE) Harvard On-Line Library Information System (HOLLIS), and GoogleScholar, we accessed many databases and gray literature sources. RCTs of PHT in the civilian setting with a comparison group receiving no blood products with 1-month mortality outcomes were identified.
RESULTS: In assessing a single patient-centered endpoint-1-month mortality-we calculated an overall risk ratio (RR) estimate. Analysis of three RCTs yielded a model with acceptable heterogeneity ($I^2 = 48\%$, Q-test $p = 0.13$). Pooled estimate revealed civilian PHT results in a statistically nonsignificant ($p = 0.38$) relative mortality reduction of 13% (RR 0.87, 95% CI 0.63-1.19).
CONCLUSIONS: Current evidence does not demonstrate 1-month mortality benefit of civilian-setting PHT. This should give pause to EMS systems considering adoption of civilian-setting PHT programs. Further studies should not only focus on which formulations of blood products might improve outcomes but also focus on which patients are most likely to benefit from any form of civilian-setting PHT.

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6. J Am Med Inform Assoc. 2024 Jun 20;31(7):1608-1621. doi: 10.1093/jamia/ocae096.
The role of information systems in emergency department decision-making-a literature review.
Born C(1), Schwarz R(1), Böttcher TP(1), Hein A(2), Krcmar H(1).

OBJECTIVES: Healthcare providers employ heuristic and analytical decision-making to navigate the high-stakes environment of the emergency department (ED). Despite the increasing integration of information systems (ISs), research on their efficacy is conflicting. Drawing on related fields, we investigate how timing and mode of delivery influence IS effectiveness. Our objective is to reconcile previous contradictory findings, shedding light on optimal IS design in the ED.
MATERIALS AND METHODS: We conducted a systematic review following PRISMA across PubMed, Scopus, and Web of Science. We coded the ISs' timing as heuristic or analytical, their mode of delivery as active for automatic alerts and passive when requiring user-initiated information retrieval, and their effect on process, economic, and clinical outcomes.
RESULTS: Our analysis included 83 studies. During early heuristic decision-making, most active interventions were ineffective, while passive interventions generally improved outcomes. In the analytical phase, the effects were reversed. Passive interventions that facilitate information extraction consistently improved outcomes.
DISCUSSION: Our findings suggest that the effectiveness of active interventions negatively correlates with the amount of information received during delivery. During early heuristic decision-making, when information overload is high, physicians are unresponsive to alerts and proactively consult passive resources. In the later analytical phases, physicians show increased receptivity to alerts due to decreased diagnostic uncertainty and information quantity. Interventions that limit information lead to positive outcomes, supporting our interpretation.
CONCLUSION: We synthesize our findings into an integrated model that reveals the underlying reasons for conflicting findings from previous reviews and can guide practitioners in designing ISs in the ED.

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