Journal report – leden 2024

OBSAH

PREHOSPITAL CARE

– clinical trials & RCT

1: Taylor C, Ollis L, Lyon RM, Williams J, Skene SS, Bennett K, Glover M, Munro S, Mortimer C; SEE-IT Trial Group. **The SEE-IT Trial: emergency medical services Streaming Enabled Evaluation In Trauma: a feasibility randomised controlled trial.** Scand J Trauma Resusc Emerg Med. 2024 Jan 26;32(1):7. doi:10.1186/s13049-024-01179-0. PMID: 38383402; PMCID: PMC10883301.

2: Westbrook JI, Li L, Woods A, Badgery-Parker T, Mumford V, Raban MZ. **Stepped-Wedge Cluster RCT to Assess the Effects of an Electronic Medication System on Medication Administration Errors.** Stud Health Technol Inform. 2024 Jan 25;310:329-333. doi: 10.3233/SHTI230981. PMID: 38269819.

3: Hagen LT, Brattebø G, Dipl-Math JA, Wiggen Ø, Østerås Ø, Mydske S, Thomassen Ø. **Effect of wet clothing removal on skin temperature in subjects exposed to cold and wrapped in a vapor barrier: a human, randomized, crossover field study**. BMC Emerg Med. 2024 Jan 25;24(1):18. doi: 10.1186/s12873-024-00937-8. PMID: 38273259; PMCID: PMC10809790.

4: Patterson PD, Hilditch CJ, Weaver MD, Roach DGL, Okerman TS, Martin SE, Patterson CG, Weiss LS. **The effect of a night shift nap on post-night shift performance, sleepiness, mood, and first recovery sleep: A randomized crossover trial.** Scand J Work Environ Health. 2024 Jan 1;50(1):22-27. doi: 10.5271/sjweh.4129. Epub 2023 Nov 7. PMID: 37933729.

PREHOSPITAL CARE

– systematic review & meta-analysis

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 Jan 4:23969873231223339. doi:10.1177/23969873231223339. Epub ahead of print. PMID: 38174575.

2: Montero-Tejero DJ, Jiménez-Picón N, Gómez-Salgado J, Vidal-Tejero E, Fagundo-Rivera J. **Factors Influencing Occupational Stress Perceived by Emergency Nurses During Prehospital Care: A Systematic Review.** Psychol Res Behav Manag. 2024 Feb 13;17:501-528. doi: 10.2147/PRBM.S455224. PMID: 38374938; PMCID: PMC10874882.

3: Jones B, Dicker B, Howie G, Todd V. Review article: **Emergency medical services transfer of severe traumatic brain injured patients to a neuroscience centre: A systematic review.** Emerg Med Australas. 2024 Jan 23. doi: 10.1111/1742-6723.14375. Epub ahead of print. PMID: 38263532.

4: Shafique MA, Haseeb A, Asghar B, Kumar A, Chaudhry ER, Mustafa MS. **Assessing the impact of pre-hospital airway management on severe traumatic Brain injury: A systematic review and Meta-analysis.** Am J Emerg Med. 2024 Jan 24;78:188-195. doi: 10.1016/j.ajem.2024.01.030. Epub ahead of print. PMID: 38301369.

5: Alsubahi N, Pavlova M, Alzahrani AA, Ahmad A, Groot W. **Healthcare Quality from the Perspective of Patients in Gulf Cooperation Council Countries: A Systematic Literature Review.** Healthcare (Basel). 2024 Jan 25;12(3):315. doi: 10.3390/healthcare12030315. PMID: 38338200; PMCID: PMC10855039.

6: Li S, Raza MMS, Issa S. **Agricultural Injury Surveillance in the United States and Canada: A Systematic Literature Review.** J Agromedicine. 2024 Jan 22:1-14. doi: 10.1080/1059924X.2024.2304699. Epub ahead of print. PMID: 38251421.

7: Noel CK, Bruce ED, Ryan BJ. **Suit Up: A Systematic Review of the Personal Protective Equipment (PPE) Recommended and Utilized by Various Classes of Responders to Nuclear Radiological Disasters at Nuclear Power Plants.** Prehosp Disaster Med. 2024 Feb;39(1):85-93. doi: 10.1017/S1049023X23006672. Epub 2024 Jan 15. PMID: 38221901; PMCID: PMC10882553.

8: Adibhatla S, Lurie T, Betz G, Palmer J, Raffman A, Andhavarapu S, Harris A, Tran QK, Gingold DB. **A Systematic Review of Methodologies and Outcome Measures of Mobile Integrated Health-Community Paramedicine Programs.** Prehosp Emerg Care. 2024;28(1):168-178. doi: 10.1080/10903127.2022.2138654. Epub 2022 Dec 1. PMID: 36260780.

9: 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 Jan 9:S0828-282X(24)00009-6. doi: 10.1016/j.cjca.2024.01.002. Epub ahead of print. PMID: 38211888.

Journal report – leden 2024

PREHOSPITAL CARE

– clinical trials & RCT –

1. Scand J Trauma Resusc Emerg Med. 2024 Jan 26;32(1):7. doi: 10.1186/s13049-024-01179-0.

The SEE-IT Trial: emergency medical services Streaming Enabled Evaluation In Trauma: a feasibility randomised controlled trial.

Taylor C(1), Ollis L(2), Lyon RM(2)(3), Williams J(4)(5), Skene SS(6), Bennett K(6), Glover M(7), Munro S(2), Mortimer C(4); SEE-IT Trial Group.

BACKGROUND: Use of bystander video livestreaming from scene to Emergency Medical Services (EMS) is becoming increasingly common to aid decision making about the resources required. Possible benefits include earlier, more appropriate dispatch and clinical and financial gains, but evidence is sparse.

METHODS: A feasibility randomised controlled trial with an embedded process evaluation and exploratory economic evaluation where working shifts during six trial weeks were randomised 1:1 to use video livestreaming during eligible trauma incidents (using GoodSAM Instant-On-Scene) or standard care only. Pre-defined progression criteria were: (1) ≥ 70% callers (bystanders) with smartphones agreeing and able to activate live stream; (2) ≥ 50% requests to activate resulting in footage being viewed; (3) Helicopter Emergency Medical Services (HEMS) stand-down rate reducing by ≥ 10% as a result of live footage; (4) no evidence of psychological harm in callers or staff/dispatchers. Observational sub-studies included (i) an inner-city EMS who routinely use video livestreaming to explore acceptability in a diverse population; and (ii) staff wellbeing in an EMS not using video livestreaming for comparison to the trial site.

RESULTS: Sixty-two shifts were randomised, including 240 incidents (132 control; 108 intervention). Livestreaming was successful in 53 incidents in the intervention arm. Patient recruitment (to determine appropriateness of dispatch), and caller recruitment (to measure potential harm) were low (58/269, 22% of patients; 4/244, 2% of callers). Two progression criteria were met: (1) 86% of callers with smartphones agreed and were able to activate livestreaming; (2) 85% of requests to activate livestreaming resulted in footage being obtained; and two were indeterminate due to insufficient data: (3) 2/6 (33%) HEMS stand down due to livestreaming; (4) no evidence of psychological harm from survey, observations or interviews, but insufficient survey data from callers or comparison EMS site to be confident. Language barriers and older age were reported in interviews as potential challenges to video livestreaming by dispatchers in the inner-city EMS.

CONCLUSIONS: Progression to a definitive RCT is supported by these findings. Bystander video livestreaming from scene is feasible to implement, acceptable to both 999 callers and dispatchers, and may aid dispatch decision-making. Further assessment of unintended consequences, benefits and harm is required.

TRIAL REGISTRATION: ISRCTN 11449333 (22 March 2022).

DOI: 10.1186/s13049-024-01179-0
PMCID: PMC10883301
PMID: 38383402 [Indexed for MEDLINE]

2. Stud Health Technol Inform. 2024 Jan 25;310:329-333. doi: 10.3233/SHTI230981.
Stepped-Wedge Cluster RCT to Assess the Effects of an Electronic Medication System on Medication Administration Errors.
Westbrook JI(1), Li L(1), Woods A(1), Badgery-Parker T(1), Mumford V(1), Raban MZ(1).

Medication errors are a leading cause of preventable harm in hospitals. Electronic medication systems (EMS) have shown success in reducing the risk of prescribing errors, but considerable less evidence is available about whether these systems support a reduction in medication administration errors in paediatrics. Using a stepped wedge cluster randomized controlled trial we investigated changes in medication administration error rates following the introduction of an EMS in a paediatric referral hospital in Sydney, Australia. Direct observations of 284 nurses as they prepared and administered 4555 medication doses was undertaken and observational data compared against patient records to identify administration errors. We found no significant change in administration errors post EMS (adjusted Odds Ratio [aOR] 1.09; 95% CI 0.89-1.32) and no change in rates of potentially serious administration errors (aOR 1.18; 95%CI 0.9-1.56), or those resulting in actual harm (aOR 0.92; 95%CI 0.34-2.46). Errors in administration of medications by some routes increased post EMS. In the first 70 days of EMS use medication administration error rates were largely unchanged.

DOI: 10.3233/SHTI230981
PMID: 38269819 [Indexed for MEDLINE]

3. BMC Emerg Med. 2024 Jan 25;24(1):18. doi: 10.1186/s12873-024-00937-8.
Effect of wet clothing removal on skin temperature in subjects exposed to cold and wrapped in a vapor barrier: a human, randomized, crossover field study.
Hagen LT(1)(2)(3), Brattebø G(4)(5)(6), Dipl-Math JA(5)(7), Wiggen Ø(8), Østerås Ø(4)(6), Mydske S(4)(5)(6), Thomassen Ø(4)(5)(6).

BACKGROUND: Prehospital care for cold-stressed and hypothermic patients focuses on effective insulation and rewarming. When encountering patients wearing wet clothing, rescuers can either remove the wet clothing before isolating the patient or isolate the patient using a vapor barrier. Wet clothing removal increases skin exposure but avoids the need to heat the wet clothing during rewarming. Leaving wet clothing on will avoid skin exposure but is likely to increase heat loss during rewarming. This study aimed to evaluate the effect of wet clothing removal compared to containing the moisture using a vapor barrier on skin temperature in a prehospital setting.
METHODS: This randomized crossover experimental field study was conducted in a snow cave in Hemsedal, Norway. After an initial cooling phase of 30 min while wearing wet clothes, the

participants were subjected to one of two rewarming scenarios: (1) wet clothing removal and wrapping in a vapor barrier, insulating blankets, and windproof outer shell (dry group) or (2) wrapping in a vapor barrier, insulating blankets, and windproof outer shell (wet group). The mean skin temperature was the primary outcome whereas subjective scores for both thermal comfort and degree of shivering were secondary outcomes. Primary outcome data were analyzed using the analysis of covariance (ANCOVA).
RESULTS: After an initial decrease in temperature during the exposure phase, the dry group had a higher mean skin temperature compared to the wet group after only 2 min. The skin-rewarming rate was highest in the initial rewarming stages for both groups, but increased in the dry group as compared to the wet group in the first 10 min. Return to baseline temperature occurred significantly faster in the dry group (mean 12.5 min [dry] vs. 28.1 min [wet]). No intergroup differences in the subjective thermal comfort or shivering were observed.
CONCLUSION: Removal of wet clothing in combination with a vapor barrier increases skin rewarming rate compared to encasing the wet clothing in a vapor barrier, in mild cold and environments without wind.
TRIAL REGISTRATION: ClinicalTrials.gov ID NCT05996757, retrospectively registered 18/08/2023.

DOI: 10.1186/s12873-024-00937-8
PMCID: PMC10809790
PMID: 38273259 [Indexed for MEDLINE]

4. Scand J Work Environ Health. 2024 Jan 1;50(1):22-27. doi: 10.5271/sjweh.4129. Epub 2023 Nov 7.
The effect of a night shift nap on post-night shift performance, sleepiness, mood, and first recovery sleep: A randomized crossover trial.
Patterson PD(1), Hilditch CJ, Weaver MD, Roach DGL, Okerman TS, Martin SE, Patterson CG, Weiss LS.

OBJECTIVES: This study aimed to test the effect of a 30-minute nap versus a 2-hour nap opportunity taken during a simulated night shift on performance, fatigue, sleepiness, mood, and sleep at the end of shift and during post-night shift recovery.
METHODS: We conducted a randomized crossover trial of three nap conditions (30-minute, 2-hour, and no-nap) during 12-hour simulated night shifts. We tested for differences in performance, fatigue, sleepiness, mood, and sleep during in-lab and at-home recovery. Performance was measured with the Brief Psychomotor Vigilance Test (PVT-B). Subjective ratings were assessed with single-item surveys.
RESULTS: Twenty-eight individuals consented to participate [mean age 24.4 (standard deviation 7.2) years; 53.6% female; 85.7% Emergency Medical Services clinicians]. PVT-B false starts at the end of the 12-hour night shift (at 07:00 hours) and at the start of in-lab recovery (08:00 hours) were lower following the 2-hour nap versus other conditions ($P<0.05$). PVT-B response time at +0 minutes post-recovery nap was poorer compared to pre-recovery nap for

the no-nap condition (P=0.003), yet not detected for other nap conditions (P>0.05). Sleepiness, fatigue, and some mood states were lower at most hourly assessments during the in-lab recovery period following the 2-hour nap condition compared to the other conditions. Sleep during recovery did not differ by duration of night shift nap.
CONCLUSIONS: A 2-hour nap opportunity versus a 30-minute or no-nap opportunity is beneficial for performance, alertness, and mood post-night shift. No differences were detected in sleep during recovery.

DOI: 10.5271/sjweh.4129
PMID: 37933729 [Indexed for MEDLINE]

PREHOSPITAL CARE

– systematic review & meta-analysis –

1. Eur Stroke J. 2024 Jan 4:23969873231223339. doi: 10.1177/23969873231223339.
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.

DOI: 10.1177/23969873231223339

PMID: 38174575

2. Psychol Res Behav Manag. 2024 Feb 13;17:501-528. doi: 10.2147/PRBM.S455224. eCollection 2024.
Factors Influencing Occupational Stress Perceived by Emergency Nurses During Prehospital Care: A Systematic Review.
Montero-Tejero DJ(1), Jiménez-Picón N(2), Gómez-Salgado J(#)(3)(4), Vidal-Tejero E(5), Fagundo-Rivera J(#)(6).

OBJECTIVE: To assess personal and work-related factors influencing the stress levels of nurses during prehospital care. Specifically, to identify associations between the level of perceived stress, the degree of professional experience, and the level of knowledge. Secondly, to examine the relationship between stress levels and violence in the work environment. And third, to investigate the main protective factors against work-related stress during prehospital care.
METHODS: Systematic review in PubMed, WOS, Enfispo, Cochrane, and LILACS databases following the PRISMA methodology (last search 08/Aug/2023). Following the PECO framework, studies on occupational stress factors in ambulance emergency nurses were investigated. Studies in English or Spanish, from 2013 to 2023, and only research articles were admitted, thus excluding reviews, dissertations, and grey literature. Possible bias and level evidence were assessed using critical appraisal tools and GRADE. This protocol was registered in PROSPERO with code CRD42023446080.
RESULTS: Fourteen articles were selected, and n=855 prehospital nurses were identified. One study was a clinical trial, and the others were observational and qualitative. The level of evidence was very low (n=7), low (n=6), and moderate (n=1); any study was excluded due to methodological bias. Five categories of stressors were extracted: the management of the health service (ie, workload organisation, and resources), patient care (mainly paediatric care), interpersonal stressors (relationship with peers), environmental factors (exposure to injuries), and personal factors (training, experience, and coping strategies). Violence at work is frequent for prehospital nurses, implying both verbal and physical aggressions. Support from peers was associated with positive results against stress.
CONCLUSION: Managing workload and improving resources in the work environment are essential to reduce fatigue and allow emotional processes to be addressed. Providing workers with coping skills also imposes on them the responsibility to cope with stress. Collective awareness is the main element in reducing the incidence of stress.

DOI: 10.2147/PRBM.S455224
PMCID: PMC10874882
PMID: 38374938

3. Emerg Med Australas. 2024 Jan 23. doi: 10.1111/1742-6723.14375.
Review article: Emergency medical services transfer of severe traumatic brain

injured patients to a neuroscience centre: A systematic review.
Jones B(1), Dicker B(1)(2), Howie G(1), Todd V(1)(2).

Patients with severe traumatic brain injuries require urgent medical attention at a hospital. We evaluated whether transporting adult patients with a severe traumatic brain injury (TBI) to a Neuroscience Centre is associated with reduced mortality. We reviewed studies published between 2010 and 2023 on severe TBI in adults (>18 years) using Medline, CINAHL, Google Scholar and Cochrane databases. We focused on mortality rates and the impact of transferring patients to a Neuroscience Centre, delays to neurosurgery and EMS triage accuracy. This review analysed seven studies consisting of 53 365 patients. When patients were directly transported to a Neuroscience Centre, no improvement in survivability was demonstrated. Subsequently, transferring patients from a local hospital to a Neuroscience Centre was significantly associated with reduced mortality in one study (adjusted odds ratio: 0.79, 95% confidence interval: 0.64-0.96), and 24-h (relative risk [RR]: 0.31, 0.11-0.83) and 30-day (RR: 0.66, 0.46-0.96) mortality in another. Patients directly transported to a Neuroscience Centre were more unwell than those taken to a local hospital. Subsequent transfers increased time to CT scanning and neurosurgery in several studies, although these were not statistically significant. Additionally, EMS could accurately triage. None of the included studies demonstrated statistically significant findings indicating that direct transportation to a Neuroscience Centre increased survivability for patients with severe traumatic brain injuries. Subsequent transfers from a non-Neuroscience Centre to a Neuroscience Centre reduced mortality rates at 24 h and 30 days. Further research is required to understand the differences between direct transport and subsequent transfers to Neuroscience Centres.

DOI: 10.1111/1742-6723.14375
PMID: 38263532

4. Am J Emerg Med. 2024 Jan 24;78:188-195. doi: 10.1016/j.ajem.2024.01.030.
Assessing the impact of pre-hospital airway management on severe traumatic Brain injury: A systematic review and Meta-analysis.
Shafique MA(1), Haseeb A(1), Asghar B(1), Kumar A(2), Chaudhry ER(1), Mustafa MS(3).

OBJECTIVE: This study aimed to assess the impact of establishing a pre-hospital definitive airway on mortality and morbidity compared with no prehospital airway in cases of severe traumatic brain injury (TBI).
BACKGROUND: Traumatic brain injury (TBI) is a global health concern that is associated with substantial morbidity and mortality. Prehospital intubation (PHI) has been proposed as a potential life-saving intervention for patients with severe TBI to mitigate secondary insults, such as hypoxemia and hypercapnia. However, their impact on patient outcomes remains controversial.

METHODS: A systematic review and meta-analysis were conducted to assess the effects of prehospital intubation versus no prehospital intubation on morbidity and mortality in patients with severe TBI, adhering to the PRISMA guidelines.
RESULTS: 24 studies, comprising 56,543 patients, indicated no significant difference in mortality between pre-hospital and In-hospital Intubation (OR 0.89, 95% CI 0.65-1.23, p = 0.48), although substantial heterogeneity was noted. Morbidity analysis also showed no significant difference (OR 0.83, 95% CI 0.43-1.63, p = 0.59). These findings underscore the need for cautious interpretation due to heterogeneity and the influence of specific studies on the results.
CONCLUSION: In summary, an initial assessment did not reveal any apparent disparity in mortality rates between individuals who received prehospital intubation and those who did not. However, subsequent analyses and randomized controlled trials (RCTs) demonstrated that patients who underwent prehospital intubation had a reduced risk of death and morbidity. The dependence on biased observational studies and the need for further replicated RCTs to validate these findings are evident. Despite the intricacy of the matter, it is crucial to intervene during severe airway impairment.

DOI: 10.1016/j.ajem.2024.01.030
PMID: 38301369

5. Healthcare (Basel). 2024 Jan 25;12(3):315. doi: 10.3390/healthcare12030315.
Healthcare Quality from the Perspective of Patients in Gulf Cooperation Council Countries: A Systematic Literature Review.
Alsubahi N(1)(2), Pavlova M(1), Alzahrani AA(1)(2), Ahmad A(3), Groot W(1).

With the increased focus on patient-centered care, consensus on healthcare outcomes of importance to patients becomes crucial. Based on a systematic review of the literature, this study confirms the perspectives of patients on healthcare quality in GCC countries. Online databases were searched for relevant peer-reviewed articles published from 2012 to 2023. Twenty-two articles retrieved from the search were qualitatively analyzed based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. Most articles (90%) reported studies conducted in Saudi Arabia. Patients in GCC countries face common problems in the care delivery process, which contribute to negative perceptions of quality. These problems include diagnostic and medication errors, provider-patient communication problems, missed appointments with physicians, problems in emergency care access due to geographical distance and transportation barriers, long waiting times, and physical environments. Notably, healthcare quality is perceived to be an outcome of multiple factors dependent on the location and category of healthcare service providers; for instance, disparities in perceptions of quality were observed between patients attending Primary Health Care (PHC) centers in rural and urban areas. Issues such as lack of equitable healthcare delivery and deficiencies in Emergency Medical Services (EMS) effectiveness were disparately recognized as quality concerns by different patient populations. The findings provide insights

into healthcare quality and area of weakness needing strategies and policies to ensure patient-centered, safe, equitable, timely, and effective healthcare. Healthcare providers and policymakers in GCC countries can use the results to plan, assess, and improve care delivery. Trial registration: PROSPERO ID: CRD42022326842.

DOI: 10.3390/healthcare12030315
PMCID: PMC10855039
PMID: 38338200

6. J Agromedicine. 2024 Jan 22:1-14. doi: 10.1080/1059924X.2024.2304699.
Agricultural Injury Surveillance in the United States and Canada: A Systematic Literature Review.
Li S(1), Raza MMS(1), Issa S(1).

INTRODUCTION: Agricultural injuries remain a major concern in North America, with a fatal injury rate of 19.5 deaths per 100,000 workers in the United States. Numerous research efforts have sought to compile and analyze records of agricultural-related injuries and fatalities at a national level, utilizing resources, ranging from newspaper clippings and hospital records to Emergency Medical System (EMS) data, death certifications, surveys, and other multiple sources. Despite these extensive efforts, a comprehensive understanding of injury trends over extended time periods and across diverse types of data sources remains elusive, primarily due to the duration of data collection and the focus on specific subsets.
METHODS: This systematic review, following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, consolidates and analyzes agricultural injury surveillance data from 48 eligible papers published between 1985 and 2022 to offer a holistic understanding of trends and challenges.
RESULTS: These papers, reporting an average of 25,000 injuries each, were analyzed by database source type, injury severity, nature of injury, body part, source of injury, event/exposure, and age. One key finding is that the top source of injury or event/exposure depends on the chosen surveillance system and injury severity, underscoring the need of diverse data sources for a nuanced understanding of agricultural injuries.
CONCLUSION: This study provides policymakers, researchers, and practitioners with crucial insights to bolster the development and analysis of surveillance systems in agricultural safety. The overarching aim is to address the pressing issue of agricultural injuries, contributing to a safer work environment and ultimately enhancing the overall well-being of individuals engaged in agriculture.

DOI: 10.1080/1059924X.2024.2304699
PMID: 38251421

Journal report – leden 2024

7. Prehosp Disaster Med. 2024 Feb;39(1):85-93. doi: 10.1017/S1049023X23006672. Epub 2024 Jan 15.

Suit Up: A Systematic Review of the Personal Protective Equipment (PPE) Recommended and Utilized by Various Classes of Responders to Nuclear Radiological Disasters at Nuclear Power Plants.

Noel CK(1), Bruce ED(1), Ryan BJ(1)(2).

INTRODUCTION: Interest in nuclear power as a cleaner and alternative energy source is increasing in many countries. Despite the relative safety of nuclear power, large-scale disasters such as the Fukushima Daiichi (Japan) and Chernobyl (Ukraine) meltdowns are a reminder that emergency preparedness and safety should be a priority. In an emergency situation, there is a need to balance the tension between a rapid response, preventing harm, protecting communities, and safeguarding workers and responders. The first line of defense for workers and responders is personal protective equipment (PPE), but the needs vary by situation and location. Better understanding this is vital to inform PPE needs for workers and responders during nuclear and radiological power plant accidents and emergencies.

STUDY OBJECTIVE: The aim of this study was to identify and describe the PPE used by different categories of workers and responders during nuclear and radiological power plant accidents and emergencies.

METHODS: A systematic literature review format following the PRISMA 2020 guidelines was utilized. Databases SCOPUS, PubMed, EMBASE, INSPEC, and Web of Science were used to retrieve articles that examined the PPE recommended or utilized by responders to nuclear radiological disasters at nuclear power plants (NPPs).

RESULTS: The search terms yielded 6,682 publications. After removal of duplicates, 5,587 sources continued through the systematic review process. This yielded 23 total articles for review, and five articles were added manually for a total of 28 articles reviewed in this study. Plant workers, decontamination or decommissioning workers, paramedics, Emergency Medical Services (EMS), emergency medical technicians, military, and support staff were the categories of responders identified for this type of disaster. Literature revealed that protective suits were the most common item of PPE required or recommended, followed by respirators and gloves (among others). However, adherence issues, human errors, and physiological factors frequently emerged as hinderances to the efficacy of these equipment in preventing contamination or efficiency of these responders.

CONCLUSION: If worn correctly and consistently, PPE will reduce exposure to ionizing radiation during a nuclear and radiological accident or disaster. For the best results, standardization of equipment recommendations, clear guidelines, and adequate training in its use is paramount. As fields related to nuclear power and nuclear medicine expand, responder safety should be at the forefront of emergency preparedness and response planning.

DOI: 10.1017/S1049023X23006672
PMCID: PMC10882553
PMID: 38221901 [Indexed for MEDLINE]

8. Prehosp Emerg Care. 2024;28(1):168-178. doi: 10.1080/10903127.2022.2138654. Epub 2022 Dec 1.

A Systematic Review of Methodologies and Outcome Measures of Mobile Integrated Health-Community Paramedicine Programs.

Adibhatla S(1), Lurie T(2), Betz G(1), Palmer J(1), Raffman A(3), Andhavarapu S(4)(5), Harris A(1), Tran QK(1)(4)(5)(6), Gingold DB(1)(7).

INTRODUCTION: Mobile integrated health-community paramedicine (MIH-CP) uses patient-centered, mobile resources in the out-of-hospital environment to increase access to care and reduce unnecessary emergency department (ED) usage. The objective of this systematic review is to characterize the outcomes and methodologies used by MIH-CP programs around the world and assess the validity of the ways programs evaluate their effectiveness.

METHODS: The PubMed, Embase, CINAHL, and Scopus databases were searched for peer-reviewed literature related to MIH-CP programs. We included all full-length studies whose programs met the National Association of Emergency Medical Technicians definition, had MIH-CP-related interventions, and measured outcomes. We excluded all non-English papers, abstract-only, and incomplete studies.

RESULTS: Our initial literature review identified 6434 titles. We screened 178 full-text studies to assess for eligibility and identified 33 studies to include in this review. These 33 include four randomized controlled trials, 17 cohort studies, eight 8 case series, and four 4 cross-sectional studies. Of the 29 non-randomized trials, five used matched controls, 13 used pre-post, and 11 used no controls. Outcomes measured were hospital usage (24 studies), ED visits (15), EMS usage (23), patient satisfaction (8), health-related outcomes (8), and cost (9). Studies that evaluated hospital usage reported one of several outcome measures: hospital admissions (11), ED length of stay (3), and hospital readmission rate (2). EMS usage was measured by ambulance transports (12) and EMS calls (10). Cost outcomes observed were ambulance transport savings (7), ED visit savings (4), hospital admission savings (3), and cost per quality-adjusted life year (2).

CONCLUSION: Most studies assessing MIH-CP programs reported success of their interventions. However, significant heterogeneity of outcome measures and varying quality of study methodologies exist among studies. Future studies designed with adequately matched controls and applying uniform core metrics for cost savings and health care usage are needed to better evaluate the effectiveness of MIH-CP programs.

DOI: 10.1080/10903127.2022.2138654
PMID: 36260780 [Indexed for MEDLINE]

9. Can J Cardiol. 2024 Jan 9:S0828-282X(24)00009-6. doi: 10.1016/j.cjca.2024.01.002.
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/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/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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