Library and Knowledge Services

Saving you time so you can save lives

NHS Ayrshire & Arran

Unscheduled care

April 2026

This monthly current awareness bulletin aims to highlight relevant reports and peer-reviewed literature in emergency and unscheduled care. The bulletin focuses on efforts to improve patient flow, reduce waiting times and alternative care models.

If you require specific information, please contact us via email.

References

Alenezi S.Z.T., et al. (2026) 'A Systematic Review of Telemedicine Applications and Outcomes in Emergency Department Settings.' *Genetics and Molecular Research 25*(1) (pagination), Article Number: gmr24124. Date of Publication: 05 Jan 2026.

Background: Telemedicine has emerged as a strategic tool to address emergency department (ED) overcrowding and operational challenges, particularly following accelerated adoption during the COVID-19 pandemic.

Aim(s): This systematic review synthesizes recent evidence on telemedicine applications and outcomes in ED settings, following PRISMA guidelines.

Method(s): Twelve studies were included, encompassing diverse designs (e.g., simulation trials, observational studies, qualitative interviews) and geographies.

Result(s): Findings highlight three key themes: (1) telemedicine as an operational tool to improve patient flow, with evidence supporting its role in reducing low-acuity ED visits and optimizing resource use; (2) telemedicine as a means to enhance care processes, with high user satisfaction among patients and providers, though dependent on training and workflow-integrated design; and (3) telemedicine as a platform for innovation, including augmented reality and artificial intelligence for advanced diagnostics and consultation.

Conclusion(s): While telemedicine demonstrates promise in improving efficiency and access, the evidence remains heterogeneous, with a need for more randomized

controlled trials focusing on clinical outcomes. Future implementation must address sustainability, equity, and integration into health systems to realize telemedicine's potential in reshaping emergency care.

Aygun E., et al. (2026) **'Should we Leave Paediatric Emergency Triage to Artificial Intelligence? A Comparison of ChatGPT 4o and Grok 3.'** ***Frontiers in Pediatrics 14*****(pagination), Article Number: 1739217. Date of Publication: 2026.**
Background: The growing number of patients in paediatric emergency departments requires fast and precise triage assessments. The implementation of large language models faces obstacles due to their limited interpretability. We aimed to compare the performance of ChatGPT 4o and Grok 3 with that of nurses and physicians in paediatric emergency triage.
Method(s): This prospective observational study evaluated paediatric emergency patients presenting to our paediatric emergency department between March and April 2025. Demographic data, chronic disease status, presenting complaints, and vital signs were documented. Patients were triaged according to ESI criteria by nurses, paediatric specialists (gold standard), ChatGPT 4o, and Grok 3. Inter-rater agreement was analysed using Cohen's kappa**. Cochran's Q and McNemar's tests were used for paired comparisons.** Results: A total of 1,505 paediatric emergency patients were included in the analysis. No ESI-1 cases were observed; therefore, critical patients were defined as ESI-2. Nurses achieved 53.1% (95% CI: 50.6-55.6) accuracy in triage assessments, while ChatGPT 4o achieved 76.1% (95% CI: 73.9-78.2) and Grok 3 achieved 47.0% (95% CI: 44.5-49.6) accuracy (Cochran's Q = 275.68, p < 0.001). ChatGPT 4o showed good agreement with physicians (kappa = 0.69). For critical patient identification, sensitivity was 37.2% for nurses, 82.9% for ChatGPT 4o, and 97.7% for Grok 3; however, Grok 3 demonstrated substantial over-triage (36.3%) and low positive predictive value (37.2%). ChatGPT 4o achieved the lowest mean absolute ESI error (0.25 +/- 0.45). Nurses' critical patient recognition improved from 28.3% to 59.5% (p < 0.01) for children with chronic illnesses.
Conclusion(s): ChatGPT 4o achieved the most favourable balance of sensitivity and specificity. The superior performance of nurses in recognising critically ill patients with chronic diseases suggests that AI systems should augment nursing expertise rather than replace it.

Baker, E. J. (2026) **'Maximising Learning from Patient Safety Incidents in Emergency Care.'** ***Emergency Nurse : The Journal of the RCN Accident and Emergency Nursing Association 34*****(2), 34–41.**
In a modern healthcare system, a systems approach to patient safety is essential to learn from incidents and mitigate the risk of avoidable harm to patients. Emergency nurses have an important role in the prevention, identification, reporting,

investigation and management of patient safety incidents in the emergency department (ED). This article describes the role of emergency nurses and the ED governance team in patient safety, discusses the interacting work-system factors that contribute to incidents, and introduces the key aspects of the patient safety incident response framework (PSIRF). The author discusses how the PSIRF represents a shift in the way patient safety incidents are managed, with a move away from apportioning blame towards a culture of learning and quality improvement.

Cunningham J., et al. (2026) **'Defining Emergency Physicians' Consultative Roles in Emergency Care: A Scoping Review.'** ***Canadian Journal of Emergency Medicine 28*(2), 129–137.**
Objectives: Emergency physicians have a core professional responsibility to provide expert consultative advice regarding emergency medical care, but it is unclear how their consultative role manifests in health systems and whether there is potential to expand those capacities. The purpose of this study is to identify, clarify, and map key concepts related to emergency physicians acting as consultants within health systems.
Method(s): This scoping review searched MEDLINE, Embase, Cochrane, CINAHL, and grey literature. No date restrictions were used and only articles in English were included. Two authors conducted screening of titles and abstracts followed by full texts independently and in duplicate. Data were narratively synthesized.
Result(s): We screened 8744 articles and included 67 articles which included data from 15 countries and were published between 1974 and 2023. Emergency physicians were reported to assume three main consulting roles: (1) real-time support to other clinicians providing emergency care, (2) rapid critical medical response, and (3) response to direct referrals. The most common consultation modes were via telemedicine (56 studies), activation of hospital protocols (6 studies), and referrals to the emergency department (six studies). Few studies contextualized these roles in relation to health systems or access to emergency care.
Conclusion(s): Emergency physicians assume multiple consultative roles within health systems. We define "consultative emergency medicine" as a core competency of emergency physicians focused on the provision of advice to other care providers on individual patient care or health services for conditions that require rapid intervention to avert death or disability, or for which delays of minutes to hours render care less effective (i.e. emergency care). As emergency care develops globally, advancing "consultative emergency medicine" may be a tool to expand emergency care expertise to other providers requesting assistance with emergency care.

Emergency Physicians (CAEP)/ Association Canadienne de Medecine d'Urgence (ACMU) 2025.

Danner M., et al. (2026) **'How do Interventions in Primary Care Or in Emergency Departments Impact Less Urgent Patients' Emergency Care Utilization? A Systematic Review.'** ***BMC Health Services Research 26*****(1) (pagination), Date of Publication: 05 Feb 2026.**

De Magistris, L. (2026) **'Bariatric Surgery in the Age of Hospital at Home: Home Sweet Home Or Hidden Risks?: Results from a Monocentric Retrospective Study on Early Dicharged After Sleeve and Gastric Bypass.'** ***Obesity Surgery 36*****(2), 666–673.**
Introduction This study aimed to evaluate the feasibility, safety, and early postoperative outcomes of Hospital at Home (HaH) management in patients undergoing bariatric surgery, compared with conventional hospitalization (CH). Methods In this monocentric, retrospective observational study, 117 patients underwent Sleeve gastrectomy (SG) or Roux-en-Y gastric bypass (RYGB) bypass between April 2023 and May 2025. Among them, 37 patients were discharged to HaH after one postoperative night, while 80 remained under CH. HaH was systematically proposed to all eligible patients without pre-selection, though those who opted for post-discharge rehabilitation were by definition excluded from HaH. Clinical, operative, and early postoperative outcomes were compared between groups. Results Preoperative characteristics, including sex, BMI, and associated medical problems, were comparable; age was significantly lower in the HaH group. No statistically significant differences were observed in early complication rates (HaH: 13,5%; CH: 11,2%, p = 0,76), reoperation rates (HaH: 5,4%; CH: 2.5%, p = 0,59), or readmission rates (HaH: 10.8%; CH: 3.8%, p = 0.28) suggesting similar safety profiles. Patient satisfaction with HaH was high. Close coordination between the surgical team and HaH providers enabled effective home-based postoperative monitoring. Conclusion These findings support HaH as a viable alternative to inpatient care in routine bariatric patients, aligning with enhanced recovery principles and offering a patient-centered approach that may help optimize surgical pathways and resource use.

Fatai A., and Sattayarom, C. (2026) **'Artificial Intelligence Applications in Emergency Triage for Suspected Acute Coronary Syndrome: A Systematic Review.'** ***International Journal of Medical Informatics 213*****(pagination), Article Number: 106368. Date of Publication: 15 Jun 2026.**
Background: Acute coronary syndromes (ACS) are time-critical conditions requiring rapid and accurate triage in the emergency department. Traditional triage may lead to delays, whereas artificial intelligence (AI) has the potential to enhance triage

accuracy and efficiency.
Objective(s): This study aimed to synthesize and evaluate the effectiveness of AI applications in emergency triage or early clinical decision-making for suspected ACS, focusing on their impact on diagnostic accuracy, time to treatment, and operational outcomes.
Method(s): This systematic review followed PRISMA guidelines. PubMed, Scopus, CINAHL, and IEEE Xplore were searched for studies published between 2020 and 2025. Eligible articles examined AI applications for triage of suspected ACS in the emergency department. Data on study design, AI models, comparators, inputs, and outcomes were extracted, and study quality was assessed using the Mixed Methods Appraisal Tool (MMAT).
Result(s): Fifteen studies from multiple countries and study designs were included. Convolutional neural networks and ensemble learning methods were the most used models. AI models generally demonstrated high diagnostic performance (AUROC 0.82-0.99), were associated with reductions in treatment times such as door-to-balloon and catheterization intervals, and showed potential to improve operational outcomes, including resource utilization and patient flow. However, findings varied across studies depending on model type, data inputs, and study design.
Conclusion(s): AI-assisted triage for suspected ACS shows promise in supporting clinical decision-making and improving workflow efficiency. However, substantial heterogeneity and limited prospective validation suggest that findings should be interpreted cautiously. Further research is needed to confirm clinical effectiveness, generalizability, and safe implementation.

Franchini R., et al. (2026) **'Exploring the Implementation of Nurses' Advanced Competencies in Emergency Departments: A Scoping Review.'** ***Internal and Emergency Medicine 21*****(1), 187–203.**
Emergency department (ED) overcrowding is a critical issue that compromises patient safety, prolongs waiting times, and increases staff workload. Contributing factors include insufficient primary-community care integration, staffing shortages, operational inefficiencies, and an ageing population with complex chronic conditions. These pressures are further exacerbated during disasters and are expected to worsen with the rising frequency of climate-related crises. Task shifting and the expansion of advanced nursing roles have been proposed as strategies to mitigate overcrowding; however, their adoption remains limited. This scoping review aims to map the existing evidence on advanced nursing practice in EDs, describing roles, outcomes, facilitators, and barriers. Following Joanna Briggs Institute methodology and PRISMA-ScR guidelines, we searched PubMed, Embase, and Scopus, without date restrictions, for original studies from high-income countries in which nurses autonomously performed functions beyond standard care. Of 3,029 records, 105 met the inclusion criteria, with most studies originating from Canada, Australia, and the

USA. Three role categories were identified: (1) autonomous management of specific presentations ("See and treat"); (2) nurse-led patient flow management; and (3) triage nurse ordering, which allows nurses to order investigations or initiate treatment for predefined conditions at triage. Across settings, these models demonstrated comparable quality of care, clinical effectiveness, and patient and staff satisfaction to physician-led management, while often reducing waiting times and healthcare costs. Despite evidence being heterogeneous and largely single center, the findings support the safety and effectiveness of advanced nursing roles in EDs. This review highlights current research gaps and provides a foundation for designing multicenter trials and pilot programs to optimize the integration of advanced nursing competencies into ED systems.

Hassanzadeh H., et al. (2026) **'Strategies for Reducing Access Block and Waiting Time for Patients Seeking Emergency Hospital Care: Results of a Ward-Level Discrete Event Simulation at Queensland's Largest Public Hospitals.'** ***Medical Journal of Australia 224*****(2) (pagination), Article Number: e70142. Date of Publication: 01 Feb 2026.**

Objective: To assess the impact of strategies to improve public hospital emergency access using a detailed ward-level simulation modelling approach. Design and Setting: Discrete event simulation was used to simulate patient flow at three principal referral Australian hospitals from 1 September 2021 to 31 August 2022. Models were developed and validated using every emergency department (ED) presentation, inpatient episode of care and patient ward movement at the study hospitals.
Main Outcome Measure(s): Mean and total ED length of stay, mean waiting time, access block rate, 4-h rule compliance and bed utilisation for patients admitted from the ED.
Result(s): Reducing ED demand via arrangements that accommodate the same proportion and types of admissions from the ED as the existing ED presenting population reduces access block, with larger impacts in winter than in summer. However, reducing 'general practitioner-type patients' in EDs has negligible impact on access block. Tangible impacts on improving patient flow can be achieved by removing maintenance care patients from hospitals (reducing the percentage of access block by up to a third) and reducing elective admissions. Strategies that emphasised morning, midday and early afternoon discharges led to large flow improvements. The strategy already practised by most hospitals of sharing patients among wards greatly improves emergency access, and gains are the same order of magnitude as reducing overall ED demand.
Conclusion(s): The study provides support to policymakers looking for evidence regarding strategies to improve emergency access to public hospital care.

Author(s). Medical Journal of Australia published by John Wiley & Sons Australia, Ltd on behalf of AMPCo Pty Ltd.

Juang W.C., et al. (2026) **'Deep Learning for Emergency Department Sustainability: Interpretable Prediction of Revisit.'** ***Healthcare (Switzerland) 14*****(4) (pagination), Article Number: 464. Date of Publication: 01 Feb 2026.**

Background: Emergency department (ED) overcrowding strains clinicians and potentially compromises urgent care quality. Unscheduled return visits (URVs), also known as readmissions, contribute to this cycle, motivating tools that identify high-risk patients at discharge.
Method(s): This study performed a retrospective study using ED electronic health records (EHRs) from Kaohsiung Veterans General Hospital from January 2018 to December 2022 (n = 184,653). The model integrates structured variables, such as vital signs, medication and laboratory counts, and ICD-10-based comorbidity measures, with unstructured physician notes. Key physiologic measurements were transformed into binary form using clinical reference intervals, and random under-sampling addressed class imbalance. A multimodal, CNN was proposed and evaluated with an 8:2 train-test split and 10-fold Monte Carlo cross-validation.
Result(s): The proposed model achieved a sensitivity of 0.717 (CI: [0.695, 0.738]), accuracy of 0.846 (CI: [0.842, 0.850]), and AUROC of 0.853. Binary transformation improved recall and AUROC relative to the original numeric representations. SHAP analysis showed that unstructured features dominated prediction, while structured variables added complementary value. In a small-scale pilot evaluation using the SHAP-enabled interface, participating physicians reported the system helped surface high-risk cohorts and reduced cognitive workload by consolidating relevant patient information for rapid cross-checking.
Conclusion(s): An interpretable CNN-based clinical decision support system can predict ED revisit risk from multimodal EHR data and demonstrates practical usability in a real-world clinical setting, supporting targeted discharge planning and follow-up as a near-term approach to mitigate overcrowding.

Keslar R., et al. (2026) **'Emergency Departmental Barriers to Caring for Mental Health Boarders.'** ***Journal of Emergency Nursing 52*****(Special Issue: Health Equity in Emergency Settings.), 429–436.**

Introduction: Patients often seek care for mental health conditions through the emergency department, however, there are many concerns with the provision of mental health care in the emergency department. This includes workflow issues at odds with mental health care needs, a challenging environment, staffing issues, and long waits for definitive mental health care in a practice known as boarding. While there are several articles on emergency nurses' perceptions of caring for mental health patients in general, there is little research on non-mental health aspects of

emergency department care for mental health boarders.
Method(s): This qualitative descriptive study aimed to explore bedside emergency nurses' perceptions on non-mental health aspects of emergency department care that impact the care of mental health boarders. A purposive sample of current bedside emergency registered nurses in the United States was used. Data collection occurred via 1-on-1 semi-structured interviews with an interview guide informed by the Theory of Planned Behavior.
Result(s): Eighteen emergency nurses participated in this study. Four themes were discovered: emergency department workflow and overcrowding, emergency department physical environment, activities of daily living, and lack of distractions.
Discussion(s): Adequate resources including staffing and supportive workflows are needed to provide quality care to mental health boarders. Safe, calming environments are needed to prevent deterioration, which may require structural changes to emergency departments or the use of spaces outside the emergency department.

Moyer J.D., et al. (2026) **'Organization and Communication in Critical Situations: A National Survey of French Healthcare Professionals Involved in Emergency Care.'** ***International Journal for Quality in Health Care 38*****(1) (pagination), Article Number: mzag007. Date of Publication: 01 Jan 2026.**
Background Effective communication and team organization are critical to patient safety during emergencies. Although national guidelines in France highlight the importance of human factors, their implementation in clinical practice remains unclear. This study aimed to assess how organizational and communication tools are currently used by healthcare professionals involved in emergency care. Methods A nationwide survey was conducted in France using a 32-question online questionnaire designed to explore organization and communication practices during critical situations management. The questionnaire was distributed through social media platforms by the French Society of Anesthesiology and Intensive Care and the French Society of Emergency Medicine and was available from 1 October 2023 to 1 December 2023. The survey targeted physicians and paramedical staff regularly involved in critical situations. Results A total of 1493 respondents participated, of which 856 (58%) were female. Physicians represented 42% (n = 620) of the cohort. Most respondents (61%) reported being unfamiliar with the national guidelines on human factors in critical care. Utilization of structured communication tools during critical situations - such as closed-loop communication (31%), time-outs (16%), and debriefings (35%) - was limited, particularly among paramedical staff. Although respondents widely acknowledged the importance of communication, 90% reported receiving no or less than one theoretical training session per year, and 81% had minimal exposure to simulation-based communication training. Conclusion In the context of critical situations management, the use of structured communication tools

remains limited in France. Targeted interventions, particularly simulation-based training, are needed to strengthen the integration of these tools into routine care.

Nedos I., et al. (2026) **'Is Artificial Intelligence Ready for Emergency Department Triage? A Retrospective Evaluation of Multiple Large Language Models in 39,375 Patients at a University Emergency Department.'** ***Journal of Clinical Medicine 15*****(4) (pagination), Article Number: 1512. Date of Publication: 01 Feb 2026.**

Background: Large language models (LLMs) are increasingly proposed as clinical decision support tools. However, their reliability in the emergency department (ED) triage remains insufficiently validated. This study aimed to evaluate the performance and limitations of multiple LLMs in triage using a large retrospective dataset.
Method(s): We conducted a retrospective analysis of 39,375 anonymized patient cases from the ED of AHEPA University General Hospital, Thessaloniki, Greece (June 2024-July 2025), extracted from the hospital's electronic medical record system. All cases were triaged in real time according to the Emergency Severity Index (ESI) by 25 emergency physicians. In cases of uncertainty, a senior emergency physician was consulted. Seven LLMs (ChatGPT-5 Thinking, ChatGPT-5 Instant, Gemini 2.5, Qwen 3, Grok 4.0, Deep Seek v3.1, and Claude Sonnet 4) were evaluated against the physician-assigned ESI level (reference standard). Outcomes included triage score agreement (quadratic weighted kappa, kappaw), clinic referral accuracy and admission prediction. Subgroup analyses were performed by referral clinic and admission outcome. The study was conducted in accordance with TRIPOD-AI reporting guidelines.
Result(s): Model performance varied substantially. DeepSeek and Claude Sonnet 4 achieved the highest agreement with physician-assigned ESI (kappaw = 0.467; raw accuracy: 61.7%). In contrast, GPT-5 Instant performed poorly across all evaluation metrics (kappaw = 0.176; 95% CI: 0.167-0.186). Claude Sonnet 4 demonstrated the best performance in clinic referral (67.1%; kappa = 0.619) and admission prediction (kappaw = 0.46). Subgroup analyses indicated higher performance in pediatric cases and organ-specific complaints, such as ophthalmology (up to 81% accuracy). LLMs also showed tendencies toward over- or under-triage.
Conclusion(s): Current LLMs demonstrate promising but inconsistent capability in triage. While selected models achieved moderate alignment with physician ESI decisions, none achieved strong agreement (kappa > 0.80). LLMs are most suitable as supervised decision support tools, particularly in anatomically well-defined clinical scenarios, rather than as autonomous systems.

NHS Providers. (2026) ***Neighbourhood Health Framework: what you need to know.***

Suamchaiyaphum K., et al. (2026) **'Factors Associated with Triage Clinical Decision-Making among Emergency Nurses: A Scoping Review.'** ***Journal of Nursing Care Quality 41*****(2), 134–141.**

BACKGROUND: Clinical decision-making is crucial in emergency nurse triage. However, the concept of clinical decision-making among emergency nurses who perform triage has not been clearly defined. PURPOSE: This study aims to define clinical decision-making in emergency nurse triage using Rodgers's evolutionary concept analysis.

METHOD(S): A scoping review of CINAHL, PubMed, and Embase databases was conducted, including studies published between 2012 and 2025. Eligible studies involved emergency or triage nurses and focused on triage decision-making.

RESULT(S): Twenty-two studies met the inclusion criteria. Antecedents of clinical decision-making included nurse characteristics, patient characteristics, and environment and organizational cultures. Attributes encompassed critical thinking, intuition, clinical reasoning, and decision support systems. Consequences focused on triage accuracy, timely interventions, improved patient outcomes, fewer complications, and resource optimization.

CONCLUSION(S): Triage decision-making is complex and influenced by multiple factors. The findings highlight the need for standardized protocols and support systems to enhance emergency triage consistency, accuracy, and efficiency.

Trotzky D., et al. (2026) **'Development of a Triage-Level Predictive Model for Hospitalization in the Emergency Department.'** ***Journal of Clinical Medicine 15*****(5) (pagination), Article Number: 1901. Date of Publication: 01 Mar 2026.**

Background/Objectives: Overcrowding in the emergency department (ED) is a global health issue. Early prediction of expected hospitalizations, based on parameters available from triage, is essential to enhance patient transfer from the ED to departments, thereby reducing ED congestion.

Method(s): A historical cohort study included patients who visited two tertiary referral medical centers located in the center of Israel. Data derived from one medical center (MC-A) was used to build the prediction model and to test it, and data from the second medical center (MC-B) was used to validate it. Variables collected included age, sex, triage level, vital signs, initial admitting diagnosis, medical referrals, mode of arrival, time of arrival according to hospital shifts (morning, evening, and night), weekday (workdays/weekend), season, fall risk assessment, and significant comorbidities. Logistic regression was used to build the model, and the area under the ROC curve (AUC) and the discrimination slope (DS) were used to evaluate it.

Result(s): The final cohort included 1436 patients: 1256 patients from MC-A and 180 from MC-B. The patients were divided randomly into a learning group (n = 879), a test group (n = 377), and a validation group (n = 180). We found that higher triage level (urgent+: OR 1.45, p = 0.039), lower O2 saturation (<95%: OR 3.32, p < 0.001), malignancy (OR 1.81, p = 0.044), cardiovascular disease (OR 2.93, p < 0.001), neurologic illness (OR 2.07, p = 0.014), arrival during the weekend (OR 1.57, p = 0.014), and fall season (OR 1.81, p = 0.003) were associated with higher probability of hospital admission. Our model showed a similar acceptable discrimination ability in all groups (learning: AUC = 0.77, 95%CI 0.73-0.80, and DS = 19%; testing: AUC = 0.76, 95%CI 0.70-0.82, and DS = 17%; validation: AUC = 0.71, 95%CI 0.61-0.80, and DS = 18%).
Conclusion(s): The proposed prediction model can be easily implemented in hospital systems to provide management with an expected number of ED patient hospitalizations in the coming hours. The model can enhance patient flow, thereby reducing crowding in the ED.

End of Document