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Unscheduled care

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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.

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References

Abdulai A.S.B., et al. (2025) **'"I don't Know": An Uncertainty-Aware Machine Learning Model for Predicting Patient Disposition at Emergency Department Triage.'** ***International Journal of Medical Informatics 201*****(pagination), Article Number: 105957. Date of Publication: 01 Se 2025.**
Background: Machine learning (ML) models are widely used for predicting patient disposition at emergency department (ED) triage. However, these models generate predictions regardless of the level of uncertainty, potentially leading to overconfident outputs that can compromise clinical decision-making.
Objective(s): To develop a conformal prediction model for ED triage that provides uncertainty-aware patient disposition predictions.
Method(s): This retrospective study analyzed 560,486 adult ED visits (March 2014 - July 2017) from one academic and two community hospitals. An extreme gradient boosting (XGBoost) model was trained, validated, and conformalized to introduce a "Don't know" prediction for high-uncertainty cases. The model was tested on a random sample of 56,000 ED cases.
Result(s): The standard XGBoost model achieved an AUC of 0.9307 (95% CI: 0.9285 - 0.9329), with sensitivity of 0.72 and specificity of 0.94. With conformal prediction at a lower confidence threshold of 60%, the model indicated "Don't know" in 4.9% of cases while returning sensitivity and specificity values of 0.74 and 0.95, respectively. As confidence thresholds increased, the model returned more "Don't

know" predictions and fewer misclassifications. At 90% confidence, the model returned "Don't know" in 34.5% of cases while returning sensitivity and specificity values of 0.88 and 0.99, respectively. This trade-off highlights a balance between model confidence and prediction accuracy.
Conclusion(s): Incorporating uncertainty-awareness in ML models improves reliability in ED triage. By acknowledging uncertainty, clinicians receive more interpretable insights, reducing the risk of overconfident predictions and enhancing patient safety.

Atkin C., et al. (2025) **'Provision of Medical Same Day Emergency Care Services within the UK: Analysis from the Society for Acute Medicine Benchmarking Audit.'** ***BMJ Open 15*****(4) (pagination), Article Number: e094580. Date of Publication: 22 Ar 2025.**
Aim To evaluate the current provision of medical same day emergency care (SDEC) services within the UK, and the current utilisation of these pathways in the assessment of unplanned medical attendances. Design Survey data was used from the Society for Acute Medicine Benchmarking Audit (SAMBA), including anonymised patient-level data collected annually using a day of care survey. Setting Hospitals accepting unplanned medical attendances within the UK, 2019-2023. Participants 34 948 unplanned and 4342 planned attendances across 188 hospital sites. Results 29.8% of unplanned medical attendances received their initial medical assessment within SDEC services (2403 patients in SAMBA23), with the proportion increasing over time. 82.4% of patients assessed in SDEC services were discharged without overnight admission. Assessment in SDEC services was less likely in male patients, patients with frailty and older adults (all p<0.005). Selected operational standards for SDEC delivery, set by the Society for Acute Medicine, were met in 64%-91% of hospitals. Most hospitals (82%) accepted referrals from emergency department triage and 63% accepted referrals directly from the paramedic team. 38% of hospitals did not use a recognised selection criteria to identify suitable patients for SDEC and only 8% used a criteria designed to identify patients suitable for discharge. Overall, 34.7% of medical attendances discharged without overnight admission received their medical assessment in locations other than SDEC. Conclusions Medical SDEC provides assessment for one-third of patients seen through acute medicine services. Although the proportion of patients assessed within SDEC is increasing, further innovation and improvements are needed to ensure appropriate patients access this service.

Cheng S.A., et al. (2025) **'The Value of Remote Vital Signs Monitoring in Detecting Clinical Deterioration in Patients in Hospital at Home Programs Or Postacute Medical Patients in the Community: Systematic Review.'** ***Journal of Medical Internet Research 27*****(pagination), Article Number: e64753. Date of Publication: 2025.**

Background: Vital signs monitoring (VSM) is used in clinical acuity scoring systems (APACHE [Acute Physiology and Chronic Health Evaluation], NEWS2 [National Early Warning Score 2], and SOFA [Sequential Organ Failure Assessment]) to predict patient outcomes for early intervention. Current technological advances enable convenient remote VSM. While the role of VSM for ill, hospital ward-treated patients is clear, its role in the community for acutely ill patients in the hospital at home (HAH) or postacute setting (patients who have just been discharged from an acute hospital stay and at increased risk of deterioration) is less well defined.
Objective(s): We assessed the efficacy of remote VSM for patients in the HAH or postacute setting.
Method(s): This systematic review adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology. We searched studies in PubMed (MEDLINE), Embase, and Scopus. Studies focused on the postacute phase were included, as only 2 case series addressed the HAH setting. Risk of bias (ROB) was evaluated using the Cochrane Risk of Bias Tool for randomized controlled trials (RCTs), the Newcastle-Ottawa scale for observational studies, and the case methods outlined by Murad et al for case reports. The GRADE (Grading Recommendations Assessment, Development, and Evaluation) framework was used to assess the certainty of evidence. Outcomes of interest included hospital readmissions, mortality, patient satisfaction, and compliance. Risk ratios (RR) were used to measure effect sizes for readmission and mortality, with patient satisfaction and compliance reported descriptively.
Result(s): The search yielded 5851 records, with 28 studies meeting eligibility criteria (8 RCTs, 7 cohort studies, and 13 case series). Two focused on HAH, while 26 studies addressed the postacute phase. Nineteen studies looked at heart failure, 3 studied respiratory conditions, and 6 studies studied other conditions. Meta-analysis was conducted with 6 studies looking at hospital readmission within 60 days and 4 studies at mortality within 30 days. Readmissions did not significantly decrease (RR 0.81, 95% CI 0.61-1.09; P=.16). Significant heterogeneity was observed for readmissions (I^2=58%). Conversely, mortality reduced significantly (RR 0.65, 95% CI 0.42-0.99; P=.04). There was no significant heterogeneity in mortality (I^2=0%). There was high heterogeneity in the study populations, interventions, and outcomes measured. Many studies were of poor quality, with 50% (4/8) of RCTs exhibiting a high ROB. The certainty of evidence for both readmission and mortality was very low.
Conclusion(s): Published data on the effects of remote VSM in acutely ill patients at home remains scarce. Future studies evaluating all common vital signs (heart rate, blood pressure, oxygen saturation, and temperature) with consistent monitoring frequencies and clear intervention protocols to better understand how to integrate remote VSM into HAH programs are needed.

Cheung C.R., et al. (2025) **'Are Virtual Wards for Children Safe and Effective? A 3-Year Retrospective Service Evaluation of an Urban Hospital at Home Service for Children and Young People.'** ***Archives of Disease in Childhood 110*****(5), 369–376.**

Objective Service evaluation of an urban'Hospital at Home' service which provides care in patients' homes that would traditionally be delivered in the hospital setting. Design Retrospective longitudinal review of routinely collected data recorded contemporaneously for clinical use, analysed to elicit utilisation patterns and service impact. Setting A paediatric'Hospital at Home' service delivered across two large acute hospitals, treating a total of 4427 patients across both primary and secondary care in South London from January 2018 to June 2022. Patients Children managed by the Hospital at Home service, aged 0-16 years Main outcome measures We describe patient outcomes and service performance including data on demographics, diagnoses, referral sources, hospital reattendances and bed day savings. Results Over the evaluation period, 11 092 bed days were saved as a direct result of this service at a cost of 1.09-1.25 nursing contacts required per bed day. Reattendance to hospital was 11.1% over the study period, however, parent/carer-initiated reattendance resulting in hospital admission was only 2.7%. Conclusion Hospital at Home services are a policy priority for the English National Health Service because of their potential to reduce admissions to and enable early discharge from hospital. This evaluation provides insight into an urban population of children managed under Hospital at Home care and demonstrates its feasibility and effectiveness. Our novel approach to the analysis of hospital reattendance data may have the potential as a template for future performance analysis of similar services.

El Arab R.A., and Al Moosa, O. A. (2025) **'The Role of AI in Emergency Department Triage: An Integrative Systematic Review.'** ***Intensive & Critical Care Nursing 89*****, 104058.**

BACKGROUND: Overcrowding in emergency departments (EDs) leads to delayed treatments, poor patient outcomes, and increased staff workloads. Artificial intelligence (AI) and machine learning (ML) have emerged as promising tools to optimize triage.

OBJECTIVE(S): This systematic review evaluates AI/ML-driven triage and risk stratification models in EDs, focusing on predictive performance, key predictors, clinical and operational outcomes, and implementation challenges.

METHOD(S): Following PRISMA 2020 guidelines, we systematically searched PubMed, CINAHL, Scopus, Web of Science, and IEEE Xplore for studies on AI/ML-driven ED triage published through January 2025. Two independent reviewers screened studies, extracted data, and assessed quality using PROBAST, with findings synthesized thematically.

RESULT(S): Twenty-six studies met inclusion criteria. ML-based triage models consistently outperformed traditional tools, often achieving AUCs > 0.80 for high acuity outcomes (e.g., hospital admission, ICU transfer). Key predictors included vital signs, age, arrival mode, and disease-specific markers. Incorporating free-text data via natural language processing enhances accuracy and sensitivity. Advanced ML techniques, such as gradient boosting and random forests, generally surpassed simpler models across diverse populations. Reported benefits included reduced ED overcrowding, improved resource allocation, fewer mis-triaged patients, and potential patient outcome improvements.
CONCLUSION(S): AI/ML-based triage models hold substantial promise in improving ED efficiency and patient outcomes. Prospective, multi-center trials with transparent reporting and seamless electronic health record integration are essential to confirm these benefits. IMPLICATIONS FOR CLINICAL PRACTICE: Integrating AI and ML into ED triage can enhance assessment accuracy and resource allocation. Early identification of high-risk patients supports better clinical decision-making, including critical care and ICU nurses, by streamlining patient transitions and reducing overcrowding. Explainable AI models foster trust and enable informed decisions under pressure. To realize these benefits, healthcare organizations must invest in robust infrastructure, provide comprehensive training for all clinical staff, and implement ethical, standardized practices that support interdisciplinary collaboration between ED and ICU teams.

GreenwoodEricksen M., et al. (2025) **'Emergency Department Boarding, Inpatient Census, and Interhospital Transfer Acceptances.'** ***JAMA Network Open 8*****(5), e2512299.**
Importance: Referral hospitals in the US are experiencing unprecedented levels of crowding, leading them to increasingly refuse interhospital transfer (IHT) requests. Crowded hospitals are dangerous, but refusing IHTs undermines the role of referral hospitals and may cause harm.
Objective(s): To measure associations of hospital crowding measures (emergency department [ED] boarding and inpatient census) with IHT acceptances overall and for prioritized conditions.
Design, Setting, and Participant(s): This cross-sectional study from January 2019 to May 2023 analyzed data from the only academic and level I trauma center in a highly rural state in the Southwestern US, including transfer center data, ED boarding hours, and inpatient census. All transfer center calls regarding adults (age >18 years) were eligible for the study. Data were analyzed from June to October 2024. Main Outcome and Measures: The primary outcome was the proportion of transfer requests accepted on a weekly and monthly basis. Adjusted logistic regression was used to analyze associations of ED boarding time and inpatient census with IHT acceptance, considering prioritized conditions (obstetrics, ST-elevation myocardial

infarction [STEMI], stroke, and trauma) and rurality. Transfer data contained IHT request descriptors, including referring facility, date and time of call, decision (accept or decline), diagnosis, and patient demographics. ED boarding was measured daily as a sum of all boarding hours for each ED patient.
Result(s): The study included 26 020 IHT requests (11 267 women [43.2%]; mean [SD] age, 54.4 [19.6] years), of which 16 062 were accepted (61.7%). There were 22 119 (85.0%) requests from urban and 3901 requests (15.0%) from rural hospitals, with the majority of IHT requests (19 912 requests [76.3%]) seeking transfer from an ED. There was a negative correlation between IHT acceptance and ED boarding (Pearson r, -0.73) and inpatient census (Pearson r, -0.87). At times of worst ED boarding (highest vs lowest quartile), the odds of IHT acceptance were lower (adjusted odds ratio [aOR], 0.71; 95% CI, 0.66-0.78). Of the 3901 rural requests, 2196 (56.3%) were accepted, with lower odds of acceptance for rural vs urban requests (aOR, 0.66; 95% CI, 0.64-0.79). Prioritized diagnoses were more commonly accepted, particularly obstetrics (aOR, 5.28; 95% CI, 4.17-6.70), STEMI (aOR, 3.04; 95% CI, 1.86-4.98), and trauma (aOR, 3.19; 95% CI, 2.86, 3.57).
Conclusions and Relevance: In this cross-sectional study of IHT requests, the severity of ED boarding and inpatient census were associated with decreased IHT acceptance, suggesting that overcrowded referral hospitals face tradeoffs as they seek to fulfill seemingly conflicting obligations to safely care for locally hospitalized patients and accept regional patients seeking transfer.

Hanmer J., et al. (2025) **'Better Care, Same Cost - Reducing Unplanned Care for Multi-Visit Patients: A Payer-Provider Model.'** ***Journal of General Internal Medicine 40*****(8), 1877–1884.**
Importance: Many interventions implemented for multi-visit patients (MVP) have been developed to address patient-centric needs of these individuals and reduce unplanned care for ambulatory-sensitive conditions. More rigorous research is needed to better understand the impact of these interventions on changes in care utilization including unplanned care.
Objective(s): To evaluate the impact of the Enhanced Care Program (ECP), a payer-provider collaborative model, on unplanned care use and cost of care.
Design(s): Using propensity methods, a comparison group was constructed using insurer membership files. Comparisons were performed using a difference-in-differences analysis.
Participant(s): Patients enrolled in ECP through December 2019 were considered eligible for the study (n = 357). All patients had five or more ED visits in the past year or two or more inpatient hospitalizations in the past year prior to enrollment.
Exposures: ECP is a high-intensity outpatient intervention intended to reduce avoidable unplanned care such as ED visits and inpatient hospital stays through home visits, chronic/acute disease management, and intensive care coordination.
Main Measures: The primary outcomes of interest were events per 100 members per

year of ED use with return to home, unplanned inpatient and observational status admissions, and unplanned behavioral health inpatient admission, and cost of care per member per month. Key Results: Overall total unplanned care encounters were significantly reduced with a difference-in-difference of 320 unplanned care encounters per 100 members per year in the intervention group ($p < 0.05$). The ECP group showed statistically significant decreases in costs of unplanned ED, unplanned observation admission, and unplanned inpatient behavioral medicine costs, but statistically significant increases in overall pharmacy costs and lab costs. Changes in total costs of care for the ECP group were not statistically different than the control group ($p = 0.55$).
Conclusion(s): ECP showed significant reduction of unplanned care for MVP patients.

Huber J., et al. (2025) **'What is the Purpose of Psychiatric Emergency Care Centres? A Qualitative Study of Health Care Staff.'** ***Australian and New Zealand Journal of Psychiatry 59*****(6), 552–563.**
Background: Psychiatric Emergency Care Centres do not have a clear treatment model or evidence base. An understanding of the patient population, clinical practice and approaches is needed to develop an evidence-based framework.
Objective(s): Identify staff perceptions of the purpose of Psychiatric Emergency Care Centres, who should be treated and how.
Method(s): A multidisciplinary sample of clinicians and administrators currently working in, or with administrative oversight of, Psychiatric Emergency Care Centres were interviewed. All New South Wales Psychiatric Emergency Care Centres were approached and staff self-selected. A total of 36 people participated, including nurses, doctors, social workers and managers. A critical realist qualitative thematic analysis approach was used, with an inductive orientation.
Result(s): Having an achievable admission goal was important. Although 'harm minimization' was often cited as important, this meant conflicting, superimposed notions to different people, including minimizing self-harm, reducing iatrogenic harm from unnecessary or coercive intervention and limiting harm to a resource-constrained system. Participants reported significant clinical practice variation and confidence in their practice.
Conclusion(s): The approach to the primary goal of 'harm minimization' reflects conflicting priorities in a complex system which are often not explicit. However, we identified a clinical practice framework upon which to base care pathways, training, intervention development and outcome assessment.

JimenezGarcia A., et al. (2025) **'Impact of the Advanced Practice Nurse in Triage of Primary Care Emergency Departments.'** ***Journal of Emergency***

***Nursing 51*(3), 487–497.**
INTRODUCTION: This study aimed to compare the time spent on episodes seen by primary care emergency departments before (2017) and after (2019) the inclusion of an advanced practice nurse in patient classification.
METHOD(S): Records from 3 primary care emergency departments in 2017 (n = 18,663) and 2019 (n = 22,632) were compared using Student t and chi-square tests. Waiting time for classification, classification time, and total time spent in the consultation area were compared for total episodes, levels of priority, reasons for consultation, and previous clinical processes.
RESULT(S): Mean waiting time decreased in 2019 for all episodes (P < .001), priorities IV (P < .001) and V (P < .001), respiratory (P < .001) and skin and subcutaneous tissue diseases (P = .015), and previous chronic processes (P = .042). Mean classification time increased in 2019 for all episodes (P < .001); priorities III (P < .001), IV (P < .001), and V (P = .045); several reasons for consultation, and previous processes. Mean total time spent in the consultation area decreased in 2019 for all (P = .002), priority V (P < .001), skin and subcutaneous tissue diseases (P = .010), and fever episodes (P = .021).
DISCUSSION(S): The inclusion of nurses with advanced nursing practice roles reduces the waiting time and length of stay in the emergency department, but increases the classification time, which could be linked to early interventions.

Joyce L.R., et al. (2025) **'Evaluation of a Virtual Emergency Care Service to Avoid Unnecessary Emergency Department Presentations and Provide Specialist-Led Definitive Care.'** ***EMA - Emergency Medicine Australasia 37*(3) (pagination), Article Number: e70048. Date of Publication: 01 Jun 2025.**
Objective: A quantitative and qualitative evaluation of the impact of a peer-to-peer telehealth service called Specialist Telehealth Aotearoa (STAR) on transfers to the ED.
Method(s): This mixed-methods study reviewed STAR between 31 July 2023 and 31 October 2023. Reasons for presentation and outcomes were analysed. Thematic analysis was used to examine responses to an electronic survey from referrers to the STAR service, exploring the benefits and barriers to engagement with the service.
Result(s): Eight hundred and sixty-seven consultations occurred, with hospital transfer avoided for 500 (58%) patients. Fifty-one patients (10.2%) re-presented to Christchurch Hospital within 7 days with the same/related issue, similar to the overall hospital 7-day re-presentation rate of 9.5%. Survey responses were received from 130 ambulance staff and rural practitioners, with 97% reporting a 'very good' or 'excellent' experience with STAR. Thematic analysis of responses from referrers identified four main benefits: local FACEMs who understand the local context, mutual trust built on pre-existing relationships, empowering pre-hospital and rural clinicians

and putting the patient first: providing right care-right place-right time.
Conclusion(s): STAR prevented unnecessary transfers to ED with a 7-day representation rate comparable to the wider hospital. Referrers reported a number of benefits to the service, as well as identifying potential barriers to engagement. The integration of a specialist emergency care telehealth service into the health system could alleviate pressure on EDs in Aotearoa New Zealand.

Kijpaisalratana N., et al. (2025) **'Development and Validation of the Discharge Severity Index for Post-Emergency Department Hospital Readmissions.'** ***American Journal of Emergency Medicine 94*, 125–132.**
Introduction: Hospital readmissions often result from a combination of factors, including inadequate follow-up care, poor discharge planning, patient non-adherence, and social determinants of health (SDOH) that impact access to healthcare and follow-up resources, many of which are beyond provider control. Enhanced post-discharge strategies, including risk stratification, are essential. This study aims to develop and validate the Discharge Severity Index (DSI) to predict readmission risk and optimize resource allocation for effective follow-up care.
Method(s): This single-center retrospective study analyzed ED visits from the Medical Information Mart for Intensive Care IV, dividing the data into derivation (75 %) and validation (25 %) cohorts. Univariate analyses were conducted on factors commonly available for most discharges, including patient age, the latest vital signs recorded, medical complexity, and ED length of stay (LOS). Multiple logistic regression (MLR) was employed to identify independent risk factors of patients revisiting the ED within a week and being subsequently admitted to the hospital. Adjusted parameter estimates from the MLR were used to develop a predictive model.
Result(s): Among 229,920 patients discharged from the ED, 1.92 % were readmitted. The analysis identified seven variables correlated with this outcome, with six significant risk factors pinpointed through MLR: age above 65, heart rate over 100, and oxygen saturation below 96 % (assigned 1 point each), along with having more than five active medications administered during the hospital stay or a LOS exceeding 3 h (assigned 2 points each). Using these scores, we categorized patients into five DSI groups, reflecting escalating readmission risk from DSI 5 (lowest risk) to DSI 1 (highest risk): DSI 5 (0; OR: 1.0), DSI 4 (1-2; OR: 3.49), DSI 3 (3-4; OR: 8.44), DSI 2 (5-6; OR: 11.65), and DSI 1 (>6; OR: 14.63). The seven-day readmission rates were comparable between the development and validation cohorts. For instance, for DSI 1, the rates were 5.16 % in the development cohort and 4.67 % in the validation cohort. For DSI 2, the rates were 4.16 % and 4.04 %, respectively.
Conclusion(s): This study seeks to develop and validate the DSI, proposing its

effectiveness as a tool for healthcare providers to categorize patients by their risk of post-discharge admission from the ED. The utilization of this tool has the potential to lead to a more informed allocation of resources after discharge.

Kolikof J., et al. (2025) **'Emergency Department Boarding, Crowding, and Error.'** ***JACEP Open 6*(4) (pagination), Article Number: 100169. Date of Publication: 01 Aug 2025.**
Objectives: Emergency department (ED) crowding and boarding have become a public health emergency. Independently, each is associated with morbidity and mortality, but what remains to be elucidated is whether there is an association between these 2 instances and a departmental error. Our objective is to examine adjudicated error as it relates to these 2 instances.
Method(s): We performed a retrospective cohort study, analyzing every patient encounter from July 1, 2018 to June 30, 2023 and queried for the presence and absence of an error. We calculated incident rate ratios and controlled for the patient's age, gender, Emergency Severity Index (ESI) level, the ED work score (a surrogate measure of crowding), and ED crowding surge capacity activation. Our primary exposures were crowding and boarding, and our outcome of interest was the presence of error.
Result(s): Of 250,049 patient encounters, an error rate of 500/100,000 was observed, and there was an increase in both boarding and ED volume. There was a higher likelihood of error with patients whose status was boarding in the ED (adjusted incidence-rate ratios [aIRR] 1.60 [95% CI 1.42-1.82]) and who had higher acuity (ESI 1 IRR 2.9 [95% CI 2.4-3.5], and ESI 2 IRR 1.5 [95% CI 1.3-1.7]) when compared with encounters where no error occurred. There was a lower likelihood of error with a higher ED work score (aIRR 0.81 [95% CI 1.03-1.47]).
Conclusion(s): In our retrospective cohort study of all ED encounters over the past 5 years, ED crowding and boarding increased but did not appear to portend a higher likelihood of an error. However, higher acuity patients, and those who were themselves boarders, had an increased likelihood of an error in their care.

LammilaEscalera E., et al. (2025) **'Safety and Efficacy of Digital Check-in and Triage Kiosks in Emergency Departments: Systematic Review.'** ***Journal of Medical Internet Research 27*(pagination), Article Number: e69528. Date of Publication: 2025.**
Background: Emergency departments (EDs) globally face unprecedented pressures due to aging populations, multimorbidity, and staff shortages. In response, health systems are adopting technological solutions such as digital kiosks to reduce wait times, improve patient flow, and alleviate overcrowding. These tools can automate patient check-in and assist with triage, helping to reduce variability in assessments and identify individuals with urgent needs sooner. However, it remains unclear

whether the potential time-saving benefits of these innovations translate into improved patient outcomes and safety.
Objective(s): This systematic review aims to summarize the safety and efficacy impacts of digital check-in and triage kiosks compared with traditional nurse-led triage methods in EDs.
Method(s): Comprehensive searches were conducted in MEDLINE, EMBASE, and Web of Science. A narrative synthesis was carried out to evaluate the impact on patient safety (eg, agreement rate, accuracy, sensitivity, and specificity) and efficacy (eg, operational efficiency and patient flow). The quality of the studies was assessed using the National Heart, Lung, and Blood Institute quality assessment tools.
Result(s): A total of 5 studies, comprising 47,778 patients and 310,249 ED visits, were included. Out of these 5 studies, 3 focused on self-check-in kiosks, one on self-triage kiosks, and another on technology combining both. Among 5 studies, 2 evaluated safety, reporting high sensitivity for predicting high-acuity outcomes (up to 88.5%) and low under-triage rates (8.0%-10.1%) but poor agreement with nurse-assigned triage scores (27.0%-30.7%). Specificity for low-acuity cases was variable, with one study reporting as low as 27.2% accuracy. Of the 5 studies, 4 examined efficacy, reporting high over-triage rates (59.2%-65.0%) and mixed impacts on waiting times. While 2 studies found significant reductions in time-to-physician and time-to-triage, others reported no significant improvements following adjustments. Kiosks demonstrated high usability, with one study reporting 97% uptake among ED attendees.
Conclusion(s): Evidence on the safety and efficacy of digital check-in and triage kiosks remains sparse. Based on the limited number of studies available, digital kiosks appear effective in accurately identifying high-acuity patients; however, their impact on operational efficiency measures is unclear. High over-triage rates and poor concordance with nurse-assigned triage scores may limit their practical application in busy ED settings. Further research is required to evaluate long-term outcomes, implementation across diverse health care contexts, and integration into ED workflows to better understand how digital kiosks can safely and effectively help address the growing demand for EDs.

NHS England. (2025) ***Urgent and emergency care plan 2025/26.***
https://www.england.nhs.uk/publication/urgent-and-emergency-care-plan-2025-26/

Royal College of Emergency Medicine.*‘An Alarming Threat to Patient Safety’ – Over a Million Older Patients Endured 12-Hour Waits in England’s A&Es Last Year [online]*

Savira F., et al. (2025) **'Urgent Care Centres for Reducing the Demand on Emergency Departments: A Scoping Review of Published Quantitative and Qualitative Studies.'** ***Medical Journal of Australia 222*****(9), 450–461.**

Objectives: To identify published studies that examined the impact of urgent care centres on the numbers of presentations to emergency departments (EDs), or explored the experiences and views of patients and practitioners regarding urgent care centres as alternative sources of health care and advice. Study design: Scoping review of qualitative and quantitative studies published to 28 August 2024. Data sources: MEDLINE, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), PsycINFO, and CINAHL databases; grey literature searches. Data synthesis: Of 2698 potentially relevant publications, 51 met our inclusion criteria (30 quantitative studies; 21 qualitative studies). Urgent care centres of various types were led by general practitioners in 41 of 51 studies, primarily managed people with non-urgent conditions or minor illnesses in 34 studies and non-emergency but urgent conditions in eight, and nine of the 22 studies that discussed funding indicated that access to the centres was free of charge. The effect of urgent care centres on ED presentation numbers was mixed; all seven studies of after-hours clinics, one of two studies of 24-hour clinics, and four of five studies of walk-in centres reported reduced ED visit numbers; in eleven studies that reported effects on hospital admissions from the ED, they were lower in seven (studies of an urgent cancer care centre, four community health centres, and a general practitioner cooperative). Patient satisfaction with urgent care centres is generally as high as with other primary care services; they preferred them to EDs, and preferred personal triage to telephone triage. Reasons for people choosing urgent care centres included easier access and the unavailability of doctors or appointments elsewhere. Clinicians reported increased workload, mixed experiences with the coordination of care, concerns about unregistered or undocumented people using the services, and protocol confusion, particularly with respect to triage. Continuity of care was a concern for both clinicians and patients.
Conclusion(s): Urgent care centres, especially walk-in and after-hours clinics, can help reduce the number of ED presentations and reduce health care costs. Patient satisfaction with such clinics is high, but public health education could guide people to appropriate care for non-urgent health problems. Training in the management of conditions frequently seen in urgent care centres is needed to ensure consistent, effective care.

Sax D.R., et al. (2025) **'Emergency Department Triage Accuracy and Delays in Care for High-Risk Conditions.'** ***JAMA Network Open 8*****(5) (pagination), Article Number: e258498. Date of Publication: 02 May 2025.**

Importance: Emergency department (ED) triage may impact timeliness of care for

high-risk conditions.
Objective(s): To determine the association of ED undertriage with delays in care for patients with subarachnoid hemorrhage (SAH), aortic dissection (AD), and ST-elevation myocardial infarction (STEMI).
Design, Setting, and Participant(s): This retrospective cohort study included adult ED patients diagnosed with SAH, AD, or STEMI from January 1, 2016, to December 31, 2020, from a multicenter, community-based health care delivery system. Data analysis were completed in March 2023 to October 2024. Exposure: Undertriage vs correct triage, defined by operational measures of mistriage.
Main Outcomes and Measures: Using a lognormal distribution, the outcomes of interest for patients with SAH and AD were adjusted median time to noncontrast computed tomography (CT) (head CT for patients with SAH, chest CT for patients with AD), antihypertensive medication orders (SAH), and beta-blocker orders (AD), and ED length of stay (LOS). For patients with STEMI, outcomes of interest were adjusted median time to electrocardiogram (ECG) and troponin orders.
Result(s): A total of 5929 patients (median [IQR] age, 63.0 [54.0 to 73.0] years; 3876 [65.4%] male) were identified, including 915 with SAH, 480 with AD, and 4534 with STEMI. There were 1129 Asian patients (19.0%), 553 Black patients (9.3%), 889 Hispanic patients (15.0%), and 2906 non-Hispanic White patients (49.0%). Overall, 2175 patients (36.7%) were undertriaged. For patients with SAH, the lognormal estimate for delay in time to head CT was 0.2 (95% CI, 0.0-0.3), or a delay of 2.4 minutes, and for antihypertensive orders, the lognormal estimate was 4.8 (95% CI, 3.6-5.9), or a delay of 33.3 minutes; the lognormal estimate for ED LOS was 0.1 (95% CI, 0.0-0.1), or 7.7 minutes longer. For patients with AD, the lognormal estimate for delays were 0.2 (95% CI, 0.0-0.4), or 8.9 minutes, for chest CT and 0.5 (95% CI, 0.2-0.7), or 17.6 minutes, for beta-blocker orders, and ED LOS was 0.2 (95% CI, 0.1-0.3), or 64 minutes longer. For patients with STEMI, differences in time to ECG and troponin orders were not statistically significant, at less than 1 minute, comparing correctly and undertriaged patients.
Conclusions and Relevance: In this cohort study of patients diagnosed with SAH, AD, or STEMI, ED undertriage was associated with small but significant delays in key diagnostic and therapeutic orders for patients with SAH and AD but not for patients with STEMI.

Tekin F.C., et al. (2025) **'Evaluation of Patients Applying to the Emergency Department for 3 Years: A City Hospital Example Time of Emergency Department Visits.'** ***Annals of Clinical and Analytical Medicine 16*(5), 373–377.**
Aim: This study seeks to gather data that can aid in the organization of emergency departments to address overcrowding, specifically during the time of patient arrival (time and day). Additionally, it aims to contribute to the existing body of knowledge on the overall patterns of emergency department visits and demographic factors that

could be useful in mitigating overcrowding in emergency department.
Material(s) and Method(s): The study was conducted as a cross-sectional retrospective study. The study examined the data of patients who were admitted to the Emergency Department within 3 years, starting from the day the hospital began its operations, using hospital automation. The study assessed variables including age, gender, day and hour of admission, type of admission, and triage codes.
Result(s): There were 1.251.717 patient admissions to the emergency department in the determined date range. Of the patients admitted to the emergency department, 11,8% were admitted by ambulance, and 72,9% were examined with a green area code. There was a positive and highly statistically significant correlation between the number of years of emergency department admissions (p<0,05 rs =0,994).
Discussion(s): Necessary arrangements should be made to increase capacity and quality during peak times of the emergency department. The resulting data reveal important results in order to identify the busier times of the emergency department.

van Wegen M.E., et al. (2025) **'The Association between Urgency Level and Hospital Admission, Mortality and Resource Utilization in Three Emergency Department Triage Systems: An Observational Multicenter Study.'** ***Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 33*(1), 72.**

BACKGROUND: Effective triage systems are crucial for prioritizing patients based on urgency and optimizing resource utilization. An ideal triage system is expected to have low resource utilization, hospitalization and mortality among patients classified at low urgency levels. Furthermore, it should exhibit an increase in the risk of hospitalization and mortality as urgency levels increase, ensuring the most critically ill patients receive priority care first. However, it is unclear which triage system performs best.
OBJECTIVE(S): To compare the performance of the Manchester Triage System (MTS), the Emergency Severity Index (ESI), and the Netherlands Triage Standard (NTS) by investigating the association between urgency levels and resource utilization, hospitalization and in-hospital mortality in Emergency Department (ED) patients.
METHOD(S): Observational multicenter cohort study using data from the Netherlands Emergency department Evaluation Database, comprising seven representative EDs in six Dutch hospitals. All consecutive ED patients with a registered urgency level were included. Resource utilization, hospitalization and mortality were measured across all urgency levels. In each triage system, multivariable logistic regression was used to assess the association between urgency level and in-hospital mortality and hospitalization, adjusting for age, sex, presenting complaints and hospital type.
RESULT(S): A total of 696,518 ED visits (MTS 320,406 (46.1%), ESI 214,267

(30.8%), NTS 161,845 (23.3%) patients) were included. Resource utilization was substantially lower in the lowest urgency level of the ESI compared to the MTS and NTS. Hospitalization to a regular ward, cardiac, medium or intensive care unit in the least urgent level was 3.9% in the ESI, considerably lower than in the MTS (23.1%) and NTS (34.3%) (P < 0.05). Mortality in the lowest urgency level of the ESI was 0.8%, while in the MTS and NTS this was 6.3% and 12.4%, respectively (P < 0.05). In the ESI, the risk (Adjusted Odds Ratios) for hospitalization and mortality increased much more with increasing urgency levels compared to the MTS and NTS. CONCLUSION(S): This study suggests that the ESI may be more effective in distinguishing between patients with low and high urgency, with a reduced risk of undertriage when compared to the MTS and NTS.

Wang C., et al. (2025) **'Patient Triage and Guidance in Emergency Departments using Large Language Models: Multimetric Study.'** ***Journal of Medical Internet Research 27*****(pagination), Article Number: e71613. Date of Publication: 2025.**
Background: Emergency departments (EDs) face significant challenges due to overcrowding, prolonged waiting times, and staff shortages, leading to increased strain on health care systems. Efficient triage systems and accurate departmental guidance are critical for alleviating these pressures. Recent advancements in large language models (LLMs), such as ChatGPT, offer potential solutions for improving patient triage and outpatient department selection in emergency settings.
Objective(s): The study aimed to assess the accuracy, consistency, and feasibility of GPT-4-based ChatGPT models (GPT-4o and GPT-4-Turbo) for patient triage using the Modified Early Warning Score (MEWS) and evaluate GPT-4o's ability to provide accurate outpatient department guidance based on simulated patient scenarios.
Method(s): A 2-phase experimental study was conducted. In the first phase, 2 ChatGPT models (GPT-4o and GPT-4-Turbo) were evaluated for MEWS-based patient triage accuracy using 1854 simulated patient scenarios. Accuracy and consistency were assessed before and after prompt engineering. In the second phase, GPT-4o was tested for outpatient department selection accuracy using 264 scenarios sourced from the Chinese Medical Case Repository. Each scenario was independently evaluated by GPT-4o thrice. Data analyses included Wilcoxon tests, Kendall correlation coefficients, and logistic regression analyses.
Result(s): In the first phase, ChatGPT's triage accuracy, based on MEWS, improved following prompt engineering. Interestingly, GPT-4-Turbo outperformed GPT-4o. GPT-4-Turbo achieved an accuracy of 100% compared to GPT-4o's accuracy of 96.2%, despite GPT-4o initially showing better performance prior to prompt engineering. This finding suggests that GPT-4-Turbo may be more adaptable to prompt optimization. In the second phase, GPT-4o, with superior performance on emotional responsiveness compared to GPT-4-Turbo, demonstrated an overall guidance accuracy of 92.63% (95% CI 90.34%-94.93%), with the highest accuracy in

internal medicine (93.51%, 95% CI 90.85%-96.17%) and the lowest in general surgery (91.46%, 95% CI 86.50%-96.43%).
Conclusion(s): ChatGPT demonstrated promising capability for supporting patient triage and outpatient guidance in EDs. GPT-4-Turbo showed greater adaptability to prompt engineering, whereas GPT-4o exhibited superior responsiveness and emotional interaction, which are essential for patient-facing tasks. Future studies should explore real-world implementation and address the identified limitations to enhance ChatGPT's clinical integration.

Wang S.T., et al. (2025) 'Optimizing Emergency Department Patient Flow through Bed Allocation Strategies: A Discrete-Event Simulation Study.' ***Inquiry : A Journal of Medical Care Organization, Provision and Financing 62*, 469580251335799.**
Emergency department (ED) overcrowding and prolonged length of stay (LOS) remain critical issues in healthcare systems. This study compared 4 bed allocation strategies to optimize patient flow and resource utilization in a regional teaching hospital in Taiwan. A discrete-event simulation model was developed using 1 year hospital data from January 2022, including 29 718 ED visits. The following strategies were evaluated: (1) intra-departmental bed sharing, (2) optimized bed allocation, (3) cross-departmental bed lending with 5% capacity, and (4) combined optimization with bed borrowing. The model was validated by t-tests comparing the simulation outputs with actual hospital data.
Result(s): All strategies demonstrated improvement compared to current operations. Of these, Strategy 4, combined optimization with bed borrowing, was the most promising: it maintained stable ED nursing utilization at 45.65% with a 95% confidence interval (CI) of 45.60% to 45.71% while reducing the cases of extended LOS. The rates of ED LOS exceeding 6, 12, and 24 h were 2.48%, 0.38%, and 0.12%, respectively, which is a significant improvement compared with the baseline. Optimization alone contributed to a 20% improvement in extended LOS under Strategy 2, while additional bed-sharing policies further improved performance by 10%.
Conclusion(s): Strategic bed allocation combined with controlled bed-sharing policies achieved a 30% reduction in extended ED LOS without increasing nursing workload. The optimal strategy (Strategy 4) reduced cases of ED LOS exceeding 6 h to 2.48% while maintaining stable nursing utilization at 45.65%, demonstrating the effectiveness of combining optimization with resource sharing in ED patient flow management.

Webster A., and McGarry, J. (2025) 'Exploring the Effects of Emergency Department Crowding on Emergency Nurses.' ***Emergency Nurse : The Journal of the RCN Accident and Emergency Nursing Association 33*(3), 16–21.**

Although the phenomenon of crowding in emergency departments (EDs) is not new, it remains a significant problem for patients, ED staff and the wider healthcare system. Crowding in EDs, which is also called overcrowding, has been widely explored in the literature, but there are relatively few studies of the subject from an emergency nurse perspective. This article reports the findings of a literature review that aimed to explore the effects of crowding on nurses working in EDs. Four key themes were identified from a synthesis of 16 articles included in the review: staffing and skill mix; inadequate care and the effect on nurses' well-being and stress levels; violence in the ED; and hospital metrics and patient flow. Further research is required to explore in more depth the effects of ED crowding on emergency nurses and to address the multiple factors that perpetuate the phenomenon.

Zeltzer D., et al. (2025) **'Comparison of Initial Artificial Intelligence (AI) and Final Physician Recommendations in AI-Assisted Virtual Urgent Care Visits.'** ***Annals of Internal Medicine 178*****(4), 498–506.**
Background: Whether artificial intelligence (AI) assistance is associated with quality of care is uncertain.
Objective(s): To compare initial AI recommendations with final recommendations of physicians who had access to the AI recommendations and may or may not have viewed them.
Design(s): Retrospective cohort study.
Setting(s): Cedars-Sinai Connect, an AI-assisted virtual urgent care clinic with intake questions via structured chat. When confidence is sufficient, AI presents diagnosis and management recommendations (prescriptions, laboratory tests, and referrals).
Patient(s): 461 physician-managed visits with AI recommendations of sufficient confidence and complete medical records for adults with respiratory, urinary, vaginal, eye, or dental symptoms from 12 June to 14 July 2024. Measurements: Concordance of diagnosis and management recommendations of initial AI recommendations and final physician recommendations. Physician adjudicators scored all nonconcordant and a sample of concordant recommendations as optimal, reasonable, inadequate, or potentially harmful.
Result(s): Initial AI and final physician recommendations were concordant for 262 visits (56.8%). Among the 461 weighted visits, AI recommendations were more frequently rated as optimal (77.1% [95% CI, 72.7% to 80.9%]) compared with treating physician decisions (67.1% [CI, 62.9% to 71.1%]). Quality scores were equal in 67.9% (CI, 64.8% to 70.9%) of cases, better for AI in 20.8% (CI, 17.8% to 24.0%), and better for treating physicians in 11.3% (CI, 9.0% to 14.2%), respectively.
Limitation(s): Single-center retrospective study. Adjudicators were not blinded to the source of recommendations. It is unknown whether physicians viewed AI

recommendations.
Conclusion(s): When AI and physician recommendations differed, AI recommendations were more often rated better quality. Findings suggest that AI performed better in identifying critical red flags and supporting guideline-adherent care, whereas physicians were better at adapting recommendations to changing information during consultations. Thus, AI may have a role in assisting physician decision making in virtual urgent care.

Zielinski L, Jones B, McGeoch L, Jones D, Horton T. (2025) ***Bridging the great divide: coordination of primary and secondary care in the management of chronic disease***
Lessons from international case studies.
https://www.health.org.uk/reports-and-analysis/briefings/bridging-the-great-divide-coordination-of-primary-and-secondary-care

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