Emergency Department and Patient Flow
Current Awareness Bulletin
October 2019

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The real story of winter 2018/19

What was the real story of winter for trusts, their patients, and hard-pressed frontline staff? This briefing examines winter 2018/19 for the provider sector. It urges health leaders not to draw false comfort from the noticeable absence of stories about ‘winter pressures’ in the media earlier this year.

Improving access to urgent treatment centres using the Directory of Services

This quick guide is designed to provide practical information to urgent care providers, commissioners, Directory of Services (DoS) leads and NHS 111 contact centres/integrated urgent care services on how they can use the DoS to improve access for patients to urgent treatment centre (UTC) services and other services expected to meet the UTC standards.

Journal Articles


Citation: Age & Ageing; Sep 2019; vol. 48
Author(s): Bourke, Robbie; Rice, Ciara; McMahon, Geraldine; Cunningham, Conal; Kenny, Rose Anne; Briggs, Robert

Objective: Patients with falls/syncope/presyncope frequently present to the emergency department (ED) and many that could be managed safely in an ambulatory care setting are admitted for extensive diagnostic work-up. A pilot intervention commenced in March 2019, with direct access to specialist assessment in the ED for patients presenting with falls/syncope/presyncope, aiming to provide appropriate testing and early diagnosis to reduce unnecessary hospitalizations. This pilot study assessed the feasibility of embedding this service within the ED, as well as the effectiveness of the intervention in terms of admission avoidance.

Methods: The study was conducted between 25th March and 19th April 2019 in a large urban teaching hospital with a dedicated Falls & Syncope Unit and compared to similar data from March/April 2018. The core ED-FASU team comprised a consultant geriatrician, specialist registrar in geriatric medicine and clinical nurse specialist. Inclusion criteria were those of all ages, presenting with falls/syncope/presyncope/dizziness between 0800-1800 Monday-Friday. Patients were reviewed directly from triage or after referral from the ED team.

Results: In total, 203 patients were assessed during the pilot, an average of 10 assessments per day. The median age of those seen was 63 (58.0-67.0) years. Almost one third (57/203) were aged ≥75 years. After excluding those who were already admitted to the acute hospital and awaiting a bed when seen in the ED (n=29), 24% (41/174) of those seen were admitted to hospital. This compares to an admission rate of 33% (73/223) for the 2018 comparison group (p = 0.045).
Conclusion: This pilot study shows that it is feasible to embed specialist assessment for falls/syncope/presyncope in the ED. Initial pilot data suggests a significant reduction in admission rates for those seen by this service but needs to be confirmed over a more prolonged assessment period and alongside data on readmission and length of stay.

Title: Creating a Sensory-Friendly Pediatric Emergency Department.

Citation: JEN: Journal of Emergency Nursing; Jul 2019; vol. 45 (no. 4); p. 415-424
Author(s): Wood, Elyssa B.; Halverson, Allyson; Harrison, Gina; Rosenkranz, Amanda

Abstract: For children with autism spectrum disorder (ASD) and sensory-processing disorder (SPD), an unexpected visit to the emergency department can be an overwhelming experience that creates intensifying behaviors and an unsafe clinical interaction for the child, nurses, and providers. Although resources exist to help nurses work with this specialized group, there are limited examples of the challenges and opportunities of modifying an emergency department to be a place where nurses can provide sensory-informed care. Guided by Watson's Theory of Caring, nurses and child life specialists in our pediatric emergency department initiated a practice improvement (PI) project to create a sensory-friendly emergency department. The nurses (1) engaged with community members and families, (2) examined current practices, (3) modified the patient care environment, (4) collaborated in an interprofessional educational session, and (5) created a shared vision for the modified patient-care environment. This article describes the nurse-initiated PI process and the journey to create an evidence-based sensory-friendly pediatric emergency department. A model is presented so that other facilities can embark on their own initiative, and case studies are used to evaluate project outcomes. Integrating current evidence, staff suggestions, community input, and expert advice allowed us to find creative solutions to the unique sensory needs of children who visit our emergency department. Modifying both the patient-care environment and the patient-flow process to accommodate for the needs of children with ASD/SPD created a more peaceful and healing environment for children and their families and gave nurses the support they needed to provide sensory-informed care.

Title: SurgeCon: Priming a Community Emergency Department for Patient Flow Management.

Citation: Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health; Jul 2019; vol. 20 (no. 4); p. 654-665
Author(s): Patey, Christopher; Norman, Paul; Araee, Mehdee; Asghari, Shabnam; Heeley, Thomas; Boyd, Sarah; Hurley, Oliver; Aubrey-Bassler, Kris

Objective: Canadian emergency departments (ED) are struggling to provide timely emergency care. Very few studies have assessed attempts to improve ED patient flow in the rural context. We assessed the impact of SurgeCon, an ED patient-management protocol, on total patient visits, patients who left without being seen (LWBS), length of stay for departed patients (LOSDep), and physician initial assessment time (PIA) in a rural community hospital ED.

Methods: We implemented a set of commonly used methods for increasing ED efficiency with an innovative approach over 45 months. Our intervention involved seven parts comprised of an external review. Lean training, fast track implementation, patient-centeredness approach, door-to-doctor approach, performance reporting, and an action-based surge capacity protocol. We measured key performance indicators including total
patient visits (count), PIA (minutes), LWBS (percentage), and LOSDep (minutes) before and after the SurgeCon intervention. We also performed an interrupted time series (ITS) analysis.

**Results:** During the study period, 80,709 people visited the ED. PIA decreased from 104.3 (±9.9) minutes to 42.2 (±8.1) minutes, LOSDep decreased from 199.4 (±16.8) minutes to 134.4 (±14.5) minutes, and LWBS decreased from 12.1% (±2.2) to 4.6% (±1.7) despite a 25.7% increase in patient volume between pre-intervention and post-intervention stages. The ITS analysis revealed a significant level change in PIA - 19.8 minutes (p<0.01), and LWBS - 3.8% (0.02), respectively. The change over time decreased by 2.7 minutes/month (p< 0.001), 3.0 minutes/month (p<0.001) and 0.4%/month (p<0.001) for PIA, LOSDep, and LWBS, after the intervention.

**Conclusion:** SurgeCon improved the key wait-time metrics in a rural ED in a country where average wait times continue to rise. The SurgeCon platform has the potential to improve ED efficiency in community hospitals with limited resources.

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**Title:** Emergency department care for patients with mental health problems, a longitudinal registry study and a before and after intervention study.

**Citation:** International Emergency Nursing; May 2019; vol. 44; p. 14-19

**Author(s):** Van Der Linden, M. Christien; Balk, Ferdi J.E.; Van Der Hoeven, Bastiaan J.H.; Van Loon, Merel; De Voeght, Frans J.; Van Der Linden, Naomi

**Abstract:** The number of psychiatric patients at the ED is gradually increasing. • Psychiatric patients have lengthier stays at the ED. • Specialist psychiatric input reduces length of stay for patients presenting to the ED. This study aims to describe the numbers and length of stay (LOS) of patients with mental health (MH) problems at a Dutch emergency department (ED) and the effect of a psychiatric intervention team (PIT) on patient flow. A longitudinal design was used to assess number of MH presentations and LOS during a 3-year period (2014–2016). In 2017, we introduced a PIT during ED peak hours, to reduce LOS for patients with MH problems. We evaluate the effects of the PIT on patients’ LOS with an 18-month before and after intervention study (2017–2018). Total number of ED presentations increased with 4%. Total number of MH presentations increased with 23% from 2014 to 2016. LOS increased by 28 min (95 min vs. 123 min) for all presentations, while not changing for MH presentations (2014: 195 min, interquartile range (IQR) 120–293 and 2016: 190 min, IQR 116–296). In the before and after intervention study, number of MH presentations increased with 36% while LOS decreased with 46 min (p < 0.001). The number of MH presentations increased over the three years while LOS remained similar. In the before and after intervention study, number of presentations increased even more while LOS decreased significantly. Specialist psychiatric input reduces ED LOS.

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**Title:** One hundred and counting: Centenarian use of emergency departments in New South Wales.

**Citation:** Emergency Medicine Australasia; Aug 2019; vol. 31 (no. 4); p. 626-631

**Author(s):** Mane, Gabrielle; Alkhouri, Hatem; Dinh, Michael; McCarthy, Sally

**Objective:** To study ED utilisation by people aged 100 years and over with a focus on patient demographics, reasons for presentation and patient flow factors.
Methods: This is a retrospective descriptive analysis of linked ED Data Collection Registry for presentations to New South Wales (NSW) EDs over a 5 year period. Patients were included if they presented to an ED and were aged 100 years and over at the time of presentation. Demographics, triage category, presenting problem, ED length of stay, disposition and ED re-presentation were determined for this age group.

Results: A total of 4033 presentations to 115 NSW EDs during 2010–2014 were analysed. We found that 78% of the patients were females and 76% still living at home. This group were the second most common age group to present to ED, after the 90–99 year age group, with 87% arriving via ambulance. Most presentations were triaged as a category 3 or 4, with the most common presenting problem being because of injury (28.5%) followed by respiratory disease (11.4%) and cardiovascular disease (10.0%). Overall, 64% required hospital admission and the average length of stay for all patients was 5.7 h.

Conclusions: Centenarians ED presentations are increasing over time with injuries as the most common reason for presentation. Most patients have prolonged ED length of stay and many require hospital admission. Early streaming of these patients through specialised geriatric assessment units may be more appropriate to reduce the demand on EDs and improve patient care. Models that facilitate rapid access to supported living arrangements and improved advanced care planning may be more realistic for many centenarians and different models of care need to be considered for this age group.


Citation: Age & Ageing; Sep 2019; vol. 48

Author(s): Randles, Mary; Hickey, Sylvia; Cotter, Susanne; Walsh, Carmel; O’Connor, Kieran; O’Sullivan, Catherine; McGrath, Keith; O’Sullivan, Aine; Looney, Eileen; Maher, Sharon; McGuaran, Jane; Higgins, Anna; Quirke, Anne; Allen, Yvonne

Objective: Patient flow, the movement of patients is an integral part of the patient care pathway. With the goal of improving overall patient care and discharge planning, a hospital wide, multidisciplinary team based, patient discharge meeting or ‘Huddle’ was devised with the goal of facilitating onward care planning for all inpatients especially those with complex discharge needs in a city centre teaching hospital.

Methods: The patient flow huddle has evolved to include a Patient Flow Clinical Nurse Manager, Bed Manager, Medicine for Older Persons Clinical Nurse Specialist, Physiotherapist/Occupational Therapist, Consultant Geriatrician and Geriatric Medicine Registrar. Each team in the hospital are requested to attend at least twice a week. Predicted discharge dates are established. Teams discuss patients who have a requirement for rehabilitation, either short-term or complex rehabilitation and patients over 65 years who may need review from Older Persons Services. We sought to optimise issues including housing, home care packages, interim home supports, community intervention team referrals, integrated care and Nursing Home Support Scheme applications.

Results: There were 3918 Emergency Department presentations by adults over 75 in 2018 and 2113 admissions (3704, 2081 respectively in 2017). Accuracy for discharge within one day of PDD ranged from 52.5% (Jan) to 72.6 % (Nov). The average length of stay was 6.2 days (SD 0.47). 172 patients (84 female, 88 male) were admitted for slow stream rehabilitation (median length of stay 30 days).

Conclusion: Rather than using a negative view of older adults as potential ‘bed blockers’, the discharge huddle allowed a pro-active approach to assist medical and surgical teams in the management and re-enablement of patients with complex care needs. Early identification
of such patients with complex care and discharge needs allowed greater focus on appropriate planning earlier in the patient's hospital journey.

Title: Predicting Admission at Triage: Comparison of the Sydney Triage to Admission Risk Tool (START) and the Glasgow Admission Prediction Score (GAPS)...10th Mediterranean Emergency Medicine Congress, 22-25 September, 2019, Dubrovnik, Croatia.

Citation: Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health; Sep 2019; vol. 20

Author(s): O., Yigit; G., Bilge

Objective: Emergency departments (ED) are the units where patient flow is intense, fast, and accurate. In recent years because of increased ED intensity, patient management became more complicated, patient satisfaction decreased, and emergency service expenditures increased. Current triage systems can predict the urgency of patients’ needs but cannot predict hospitalization requirements. In this study we evaluated two established clinical scores, the Glasgow Admission Prediction Score (GAPS) and the Sydney Triage to Admission Risk Tool (START), for hospitalization predictions and compared them for superiority in predicting hospitalization requirements.

Methods: In this prospective observational study, all patients admitted to the Akdeniz University Hospital Emergency Department adult triage area between June 1-8, 2018, were evaluated. We calculated GAPS and START scores of patients during triage, and then patients were checked for their final management in the ED if they were hospitalized or discharged. The ability of both scoring systems for predicting hospitalization were calculated. We analyzed these comparisons with area under the receiver operating characteristic curve (AUC) values.

Results: A total of 2117 patients were enrolled to the study and 236 (11.1%) were hospitalized. The AUC value of GAPS was 0.894 (95% confidence interval [CI], 0.881 to 0.907) and the AUC value of START was 0.819 (95% CI, 0.801 to 0.835). The prediction of admission was high for both scoring systems; however, GAPS was a significantly better predictor for admission than START (p<0.0001).

Conclusion: In predicting hospitalization during triage in ED evaluation, both GAPS and START could be used; however, GAPS is a better predictor for hospital admission than START.

Title: Short and Long term predictions of Hospital emergency department attendances.

Citation: International journal of medical informatics; Sep 2019; vol. 129; p. 167-174

Author(s): Jilani, Tahseen; Housley, Gemma; Figueredo, Graziella; Tang, Pui-Shan; Hatton, Jim; Shaw, Dominick

Objective: Emergency departments in the United Kingdom (UK) experience significant difficulties in achieving the 95% NHS access standard due to unforeseen variations in patient flow. In order to maximize efficiency and minimize clinical risk, better forecasting of patient demand is necessary. The objective is therefore to create a tool that accurately predicts attendance at emergency departments to support optimal planning of human and physical resources.
Methods: Historical attendance data between Jan-2011 - December-2015 from four hospitals were used as a training set to develop and validate a forecasting model. To handle weekday variations, the data was first segmented into each weekday time series and a separate model for each weekday was performed. Seasonality testing was performed, followed by Box-Cox transformations. A modified heuristics based on a fuzzy time series model was then developed and compared with autoregressive integrated moving average and neural networks models using Harvey, Leybourne and Newbold (HLN) test. The time series models were tested in four emergency department sites to assess forecasting accuracy using the root mean square error and mean absolute percentage error. The models were tested for (i) short term prediction (four weeks ahead), using weekday time series; and (ii) long term predictions (four months ahead) using monthly time series.

Results: Data analysis revealed that presentations to emergency department and subsequent admissions to hospital were not a purely random process and therefore could be predicted with acceptable accuracy. Prediction accuracy improved as the forecast time intervals became wider (from daily to monthly). For each weekday time series modelling using fuzzy time series, for forecasting daily admissions, the mean absolute percentage error ranged from 2.63% to 4.72% while for monthly time series mean absolute percentage error varied from 2.01%-2.81%. For weekday time series, the mean absolute percentage error for autoregressive integrated moving average and neural network forecasting models ranged from 6.25% to 7.47% and 6.04%-7.42% respectively. The proposed fuzzy time series model proved to have statistically significant performance using Harvey, Leybourne and Newbold (HLN) test. This was explained by variations in attendances in different sites and weekdays.

Conclusions: This paper described a heuristic-based fuzzy logic model for predicting emergency department attendances which could help resource allocation and reduce pressure on busy hospitals. Valid and reproducible prediction tools could be generated from these hospital data. The methodology had an acceptable accuracy over a relatively short time period, and could be used to assist better bed management, staffing and elective surgery scheduling. When compared to other prediction models usually applied for emergency department attendances prediction, the proposed heuristic model had better accuracy.

Title: The impact of a multimodal intervention on emergency department crowding and patient flow.

Citation: International Journal of Emergency Medicine; Aug 2019; vol. 12 (no. 1)
Author(s): van der Linden, M. C. (Christien); van Ufford, H. M. E. (Jet); van der Linden, N. (Naomi)

Objective: The objective of this study is to assess the impact of a multimodal intervention on emergency department (ED) crowding and patient flow in a Dutch level 1 trauma center.

Methods: In this cross-sectional study, we compare ED crowding and patient flow between a 9-month pre-intervention period and a 9-month intervention period, during peak hours and overall (24/7). The multimodal intervention included (1) adding an emergency nurse practitioner (ENP) and (2) five medical specialists during peak hours to the 24/7 available emergency physicians (EPs), (3) a Lean programme to improve radiology turnaround times, and (4) extending the admission offices’ openings hours. Crowding is measured with the modified National ED OverCrowding Score (mNEDOCS). Furthermore, radiology turnaround times, patients' length of stay (LOS), proportion of patients leaving without being seen (LWBS) by a medical provider, and unscheduled representations are assessed.
**Results:** The number of ED visits were grossly similar in the two periods during peak hours (15,558 ED visits in the pre-intervention period and 15,550 in the intervention period) and overall (31,891 ED visits in the pre-intervention period vs. 32,121 in the intervention period). During peak hours, ED crowding fell from 18.6% (pre-intervention period) to 3.5% (intervention period), radiology turnaround times decreased from an average of 91 min (interquartile range 45–256 min) to 50 min (IQR 30–106 min., p < 0.001) and LOS reduced with 13 min per patient from 167 to 154 min (p < 0.001). For surgery, neurology and cardiology patients, LOS reduced significantly (with 17 min, 25 min, and 8 min. respectively), while not changing for internal medicine patients. Overall, crowding, radiology turnaround times and LOS also decreased. Less patients LWBS in the intervention period (270 patients vs. 348 patients, p < 0.001) and less patients represented unscheduled within 1 week after the initial ED visit: 864 (2.7%) in the pre-intervention period vs. 645 (2.0%) patients in the intervention period, p < 0.001.

**Conclusions:** In this hospital, a multimodal intervention successfully reduces crowding, radiology turnaround times, patients' LOS, number of patients LWBS and the number of unscheduled return visits, suggesting improved ED processes. Further research is required on total costs of care and long-term effects.

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**Title:** Development and Evaluation of a Virtual Research Environment to Improve Quality of Care in Overcrowded Emergency Departments: Observational Study.

**Citation:** JMIR serious games; Aug 2019; vol. 7 (no. 3); p. e13993

**Author(s):** Houze-Cerfon, Charles-Henri; Vaissié, Christine; Gout, Laurent; Bastiani, Bruno; Charpentier, Sandrine; Lauque, Dominique

**Objective:** Despite a wide range of literature on emergency department (ED) overcrowding, scientific knowledge on emergency physicians' cognitive processes coping with overcrowding is limited. This study aimed to develop and evaluate a virtual research environment that will allow us to study the effect of physicians' strategies and behaviors on quality of care in the context of ED overcrowding.

**Methods:** A simulation-based observational study was conducted over two stages: the development of a simulation model and its evaluation. A research environment in emergency medicine combining virtual reality and simulated patients was designed and developed. Afterwards, 12 emergency physicians took part in simulation scenarios and had to manage 13 patients during a 2-hour period. The study outcome was the authenticity of the environment through realism, consistency, and mastering. The realism was the resemblance perceived by the participants between virtual and real ED. The consistency of the scenario and the participants' mastering of the environment was expected for 90% (12/13) of the participants.

**Results:** The virtual ED was considered realistic with no significant difference from the real world with respect to facilities and resources, except for the length of time of procedures that was perceived to be shorter. A total of 100% (13/13) of participants deemed that patient information, decision making, and managing patient flow were similar to real clinical practice. The virtual environment was well-mastered by all participants over the course of the scenarios.

**Conclusions:** The new simulation tool, Virtual Research Environment in Emergency Medicine, has been successfully designed and developed. It has been assessed as perfectly authentic by emergency physicians compared with real EDs and thus offers another way to study human factors, quality of care, and patient safety in the context of ED overcrowding.
Title: Real-time forecasting of emergency department arrivals using prehospital data.

Citation: BMC emergency medicine; Aug 2019; vol. 19 (no. 1); p. 42

Author(s): Asheim, Andreas; Bache-Wiig Bjørnsen, Lars P; Næss-Pleym, Lars E; Uleberg, Oddvar; Dale, Jostein; Nilsen, Sara M

Objective: Crowding in emergency departments (EDs) is a challenge globally. To counteract crowding in day-to-day operations, better tools to improve monitoring of the patient flow in the ED is needed. The objective of this study was the development of a continuously updated monitoring system to forecast emergency department (ED) arrivals on a short time-horizon incorporating data from prehospital services.

Methods: Time of notification and ED arrival was obtained for all 191,939 arrivals at the ED of a Norwegian university hospital from 2010 to 2018. An arrival notification was an automatically captured time stamp which indicated the first time the ED was notified of an arriving patient, typically by a call from an ambulance to the emergency service communication center. A Poisson time-series regression model for forecasting the number of arrivals on a 1-, 2- and 3-h horizon with continuous weekly and yearly cyclic effects was implemented. We incorporated time of arrival notification by modelling time to arrival as a time varying hazard function. We validated the model on the last full year of data.

Results: In our data, 20% of the arrivals had been notified more than 1 hour prior to arrival. By incorporating time of notification into the forecasting model, we saw a substantial improvement in forecasting accuracy, especially on a one-hour horizon. In terms of mean absolute prediction error, we observed around a six percentage-point decrease compared to a simplified prediction model. The increase in accuracy was particularly large for periods with large inflow.

Conclusions: The proposed model shows increased predictability in ED patient inflow when incorporating data on patient notifications. This approach to forecasting arrivals can be a valuable tool for logistic, decision making and ED resource management.

Title: The effects of interactive training of healthcare providers on the management of life-threatening emergencies in hospital

Citation: Cochrane Systematic Review - Intervention Version published: 24 September 2019

Preparing healthcare providers to manage relatively rare life-threatening emergency situations effectively is a challenge. Training sessions enable staff to rehearse for these events and are recommended by several reports and guidelines. In this review we have focused on interactive training, this includes any element where the training is not solely didactic but provides opportunity for discussions, rehearsals, or interaction with faculty or technology. It is important to understand the effective methods and essential elements for successful emergency training so that resources can be appropriately targeted to improve outcomes.
Title: The effect of integrated care on self-management and emergency department attendance.

Citation: BJPsych bulletin; Jun 2019; vol. 43 (no. 3); p. 117-122

Author(s): Scheiner, Nikki; Cohen, Sarah; Davis, Ruth; Gale, Tim; Agyare, Amanda

Objective: The Frequent Attenders Programme is a joint initiative between Hertfordshire Rapid Assessment, Interface and Discharge service and the Emergency Department of the West Hertfordshire NHS Trust, which aims to divert frequent attenders from the emergency department by addressing their unmet needs. This paper describes the range of interventions put in place from the time that the service was set up in 2014 until the introduction of the new national Commissioning for Quality and Innovation 2017-2019, which tasked National Health Service trusts to improve services for people with mental health needs who present to Accident and Emergency. The terms emergency department and Accident and Emergency are used interchangeably, reflecting the practice in policy documents. A subsequent article will report on the impact of the Commissioning for Quality and Innovation in Hertfordshire.

Results: Analysis of the interventions indicated a highly significant (P < 0.0001) mean reduction in attendances. Lower gains were made in patients whose primary presentations were alcohol-related. A failure to effect change in two patients led to a significant revision of their respective care plans, resulting in a subsequent reduction in their attendances.

Clinical implications: An integrated approach to patients with complex presentations was associated with high levels of both patient and referrer satisfaction. It is hypothesised that dismantling the barriers between physical and mental health may lead to similar successes in frequent attenders in other in-patient and community medical and psychiatric services.

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Title: 2.5 years on: what are the effects of a ‘frequent attenders’ service in the Emergency Department?

Citation: BJPsych bulletin; Jun 2019; vol. 43 (no. 3); p. 112-116

Author(s): Sousa, Soraia; Hilder, Tracey; Burdess, Christopher; Bolton, Philippa

Abstract: This study focused on an evaluation over 2.5 years to establish if a frequent attenders' service in an Emergency Department (ED) impacted on the overall number of patients attending as well as the numbers of their attendances. For this, three patient lists from April-September 2015 and three lists from a matched period in 2017 were randomly selected and the two samples compared. Results showed both a reduction in the number of total patients identified as frequent attenders as well as a reduction on the number of attendances to ED. The study suggests that the implementation of a frequent attenders' service is associated with benefits, not only for the individual attendances per patient, but also in an overall reduction of the number patients classed as frequent attenders.

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Title: Freestanding Emergency Departments: What Is Their Role in Emergency Care?

Citation: Annals of Emergency Medicine; June 2019

Authors: Alexander J Alexander, Cedric Dark

Abstract: Freestanding emergency departments (EDs), health care facilities that offer emergency care without being physically attached to a hospital, are becoming more common throughout the United States. Many individuals propose that these facilities can help
alleviate the stress our current emergency care system faces and provide care to people with limited access to traditional hospital-based EDs. We reviewed the current literature on freestanding EDs to investigate whether these facilities are meeting those goals.

Title: Associations Between Crowding and Ten-Day Mortality Among Patients Allocated Lower Triage Acuity Levels Without Need of Acute Hospital Care on Departure From the Emergency Department.

Citation: Annals of emergency medicine; Jun 2019
Author(s): Berg, Lena M; Ehrenberg, Anna; Florin, Jan; Östergren, Jan; Discacciati, Andrea; Göransson, Katarina E

Objective: We describe the association between emergency department (ED) crowding and 10-day mortality for patients triaged to lower acuity levels at ED arrival and without need of acute hospital care on ED departure.

Methods: This was a registry study based on ED visits with all patients aged 18 years or older, with triage acuity levels 3 to 5, and without need of acute hospital care on ED departure during 2009 to 2016 (n=705,699). The sample was divided into patients surviving (n=705,076) or dying (n=623) within 10 days. Variables concerning patient characteristics and measures of ED crowding (mean length of stay and ED occupancy ratio) were extracted from the hospital's electronic health records. ED length of stay per ED visit was estimated by the average length of stay for all patients who presented to the ED during the same day and shift and with the same acuity level. The 10-day mortality after ED discharge was used as the outcome measure. Multivariable logistic regression analyses were conducted.

Results: The 10-day mortality rate was 0.09% (n=623). The event group had larger proportions of patients aged 80 years or older (51.4% versus 7.7%) and triaged with acuity level 3 (63.3% versus 35.6%), and greater comorbidity (age-combined Charlson comorbidity index median interquartile range 6 versus 0). We observed an increased 10-day mortality for patients with a mean ED length of stay greater than or equal to 8 hours versus less than 2 hours (adjusted odds ratio 5.86; 95% confidence interval [CI] 2.15 to 15.94) and for elevated ED occupancy ratio. Adjusted odds ratios for ED occupancy ratio quartiles 2, 3, and 4 versus quartile 1 were 1.48 (95% CI 1.14 to 1.92), 1.63 (95% CI 1.24 to 2.14), and 1.53 (95% CI 1.15 to 2.03), respectively.

Conclusion: Patients assigned to lower triage acuity levels when arriving to the ED and without need of acute hospital care on departure from the ED had higher 10-day mortality when the mean ED length of stay exceeded 8 hours and when ED occupancy ratio increased.

Title: Reducing repeat paediatric emergency department attendance for non-urgent care: a systematic review of the effectiveness of interventions.

Citation: Emergency medicine journal: EMJ; Jun 2019
Author(s): Poku, Brenda Agyeiwaa; Hemingway, Pippa

Objective: Non-urgent paediatric ED (PED) visits appear to contribute a large portion to the growing use of EDs globally. Several interventions have tried to curb repeated non-urgent attendances, but no systematic review of their effectiveness exists. This review examines the effectiveness of interventions designed to reduce subsequent non-urgent PED visits after a non-urgent attendance.
Method: A systematic review design. A systematic search of four databases and key journals was conducted from their inception to November 2018. Experimental studies, involving children aged 0-18 years presenting to an ED for non-urgent care, which assessed the effectiveness of interventions on subsequent non-urgent attendance were considered.

Results: 2120 studies were identified. Six studies, including four randomised controlled trials (RCTs) and two quasi-experimental, were included. Studies were of moderate quality methodologically. All studies originated from the USA and involved informational and/or follow-up support interventions. Only two RCTs demonstrated the longest duration of intervention effects on reducing subsequent non-urgent PED attendance. These studies identified participants retrospectively after ED evaluation. The RCT with the largest number of participants involved follow-up support by primary physicians. Meta-analysis was impractical due to wide heterogeneity of the interventions.

Conclusions: There is inconclusive evidence to support any intervention aimed at reducing subsequent non-urgent PED visits following a non-urgent attendance. The long-term impact of interventions is limited, although the effect may be maximised if delivered by primary care providers in children identified after their ED attendance. However, further research is required to evaluate the impact of any such strategies in settings outside the USA.

Title: Triage Performance in Emergency Medicine: A Systematic Review.

Citation: Annals of emergency medicine; Jul 2019; vol. 74 (no. 1); p. 140-152

Author(s): Hinson, Jeremiah S; Martinez, Diego A; Cabral, Stephanie; George, Kevin; Whalen, Madeleine; Hansoti, Bhakti; Levin, Scott

Objective: Rapid growth in emergency department (ED) triage literature has been accompanied by diversity in study design, methodology, and outcome assessment. We aim to synthesize existing ED triage literature by using a framework that enables performance comparisons and benchmarking across triage systems, with respect to clinical outcomes and reliability.

Methods: PubMed, EMBASE, Scopus, and Web of Science were systematically searched for studies of adult ED triage systems through 2016. Studies evaluating triage systems with evidence of widespread adoption (Australian Triage Scale, Canadian Triage and Acuity Scale, Emergency Severity Index, Manchester Triage Scale, and South African Triage Scale) were cataloged and compared for performance in identifying patients at risk for mortality, critical illness and hospitalization, and interrater reliability. This study was performed and reported in adherence to Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines.

Results: A total of 6,160 publications were identified, with 182 meeting eligibility criteria and 50 with sufficient data for inclusion in comparative analysis. The Canadian Triage and Acuity Scale (32 studies), Emergency Severity Index (43), and Manchester Triage Scale (38) were the most frequently studied triage scales, and all demonstrated similar performance. Most studies (6 of 8) reported high sensitivity (>90%) of triage scales for identifying patients with ED mortality as high acuity at triage. However, sensitivity was low (<80%) for identification of patients who had critical illness outcomes and those who died within days of the ED visit or during the index hospitalization. Sensitivity varied by critical illness and was lower for severe sepsis (36% to 74%), pulmonary embolism (54%), and non-ST-segment elevation myocardial infarction (44% to 85%) compared with ST-segment elevation myocardial infarction (56% to 92%) and general outcomes of ICU admission (58% to 100%) and lifesaving intervention (77% to 98%). Some proportion of hospitalized patients (3% to 45%) were triaged to low acuity (level 4 to 5) in all studies. Reliability measures (κ) were variable across evaluations, with only a minority (11 of 42) reporting κ above 0.8.
**Conclusion:** We found that a substantial proportion of ED patients who die postencounter or are critically ill are not designated as high acuity at triage. Opportunity to improve interrater reliability and triage performance in identifying patients at risk of adverse outcome exists.

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**Title:** Factors associated with frequent use of emergency-department services in a geriatric population: a systematic review.

**Citation:** BMC geriatrics; Jul 2019; vol. 19 (no. 1); p. 185

**Author(s):** Dufour, Isabelle; Chouinard, Maud-Christine; Dubuc, Nicole; Beaudin, Jérémie; Lafontaine, Sarah; Hudon, Catherine

**Objective:** Frequent geriatric users of emergency departments (EDs) constitute a small group of individuals accounting for a disproportionately high number of ED visits. In addition to overcrowding, this situation might result in a less appropriate response to health needs and negative health impacts. Geriatric patients turn to EDs for a variety of reasons. A better understanding of the variables associated with frequent ED use will help implement interventions best suited for their needs. This review aimed at identifying variables associated with frequent ED use by older adults.

**Methods:** For this systematic review, we searched Medline, CINAHL, Healthstar, and PsycINFO (before June 2018). Articles written in English or French meeting these criteria were included: targeting a population aged 65 years or older, reporting on frequent ED use, using an observational study design and multivariate regression analysis. The search was supplemented by manually examining the reference lists of relevant studies. Independent reviewers identified articles for inclusion, extracted data, and assessed quality with the JBI Critical Appraisal Checklist for Studies Reporting Prevalence. A narrative synthesis was done to combine the study results. A sensitivity analysis was performed to evaluate the effect of removing the studies not meeting the quality criteria.

**Results:** Out of 5096 references, 8 met our inclusion criteria. A high number of past hospital and ED admissions, living in a rural area adjacent to an urban center, low income, a high number of prescribed drugs, and a history of heart disease were associated with frequent ED use among older adults. In addition, having a principal-care physician and living in a remote rural area were associated with fewer ED visits. Some variables recognized in the literature as influencing ED use among older adults received scant consideration, such as comorbidity, dementia, and considerations related to primary-care and community settings. **Conclusion:** Further studies should bridge the gap in understanding and give a more global portrait by adding important personal variables such as dementia, organizational variables such as use of community and primary care, and contextual variables such as social and economic frailty.

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**Title:** Reasons for longer LOS at the emergency departments: Practical, patient-centred, medical, or cultural?

**Citation:** The International journal of health planning and management; Jul 2019

**Author(s):** Khorram-Manesh, Amir; Wennman, Ingela; Andersson, Björn; Dahlén Holmqvist, Lina; Carlson, Tobias; Carlström, Eric

**Abstract:** Emergency department (ED) overcrowding is caused by external and/or internal factors. One critical internal factor, leading to longer length of stay (LOS) at ED (eg, frequent ED users), is the physician's uncertainty in management of patients with unclear diagnosis...
and or complex medical history. The aim of this study was to identify whether the causes of physicians’ uncertainty was practical, patient-centred, medical, or cultural. Using earlier published dimensions of uncertainty, 18 physicians were asked to reply to a template by choosing a relevant dimension that causes a delay in assessment of a known complex patient. This stage was completed by interviews through which participants had an opportunity to express their concerns and critical thoughts, if any. The data obtained from the template were collected and analysed. The interviews were recorded and transcribed verbatim. The results of the template indicated medical dimension as the main factor in delayed assessment of a complex patient. However, this finding was challenged by the results of the interviews, which indicated higher impact of personal/routines/cultural dimension (e.g., being afraid of criticism, reprimand, and gossip or feelings of guilt). Although medical, patient-centred, and practical issues are important causes of longer LOS at ED, physicians’ working and professional environment may have a higher impact than previously perceived. The uncertainty caused by interpersonal, organisational, and cultural issues within a clinic/hospital seems to influence the physician's ability to make decisions and thus a patient’s medical outcome.

Title: The Role of Health and Social Care Professional Teams in the Emergency Department: A Qualitative Study of Key Stakeholders’ Views.

Citation: Age & Ageing; Sep 2019; vol. 48
Author(s) Cassarino, Marica; Robinson, Katie; Quinn, Rosie; Boland, Fiona; Ward, Marie E et al.

Abstract: Background Introducing Health and Social Care Professional (HSCP) teams to the emergency department (ED) has increasingly demonstrated benefits for ED patient and process outcomes. However, there is a dearth of research exploring the views of key ED stakeholders on the role of HSCP teams in care delivery the ED. This qualitative study investigated the perspectives of a wide range of ED stakeholders about HSCPs teams working in the ED.

Methods: A total of 65 participants including older adults who had recently attended the ED and their carers/relatives, ED doctors and nurses, HSCPs and pre-hospital staff participated in four World Café style focus groups and individual interviews across two Irish hospital sites. Written and audio-recorded data were transcribed and thematically analysed.

Results: Overall, participants expressed positive views on HSCPs working in teams in the ED, with benefits for patients, staff members and the hospital (Theme 1). Having an ED-based HSCP team was described as promoting effective and timely decision-making and a more integrated approach to patient care, particularly for frail older adults with complex needs (Theme 2). Barriers and enablers for effective implementation were identified at multiple levels (Theme 3) including the ED physical environment, (e.g. space and equipment), operational factors (e.g. working hours), and relations (e.g. patient-staff or staff-staff communication); factors at system level included availability of community resources and financial pressures.

Conclusion: Our study indicates overall acceptability of HSCPs working in teams in the ED and positive views on their contribution to enhance the quality care of older adults. However, a number of operational and relational factors need to be considered to ensure feasibility and effectiveness. This information is crucial to inform implementation.
Background: Older adults are frequent users of emergency services and demonstrate high rates of adverse outcomes following emergency care. There is some evidence to suggest that Health and Social Care Professions (HSCP) teams working in the emergency department (ED) can enhance the care of older adults but the quality of these studies is mixed. This randomised controlled trial (Trial registration: NCT03739515) explores the impact of early assessment and intervention by an ED-based HSCP team on the quality, safety and cost-effectiveness of care of older adults.

Methods: Consecutive ED attendees aged ≥65 years were considered eligible for inclusion to the trial and were screened for eligibility based on pre-defined inclusion criteria. Participants were randomised to either early assessment/intervention by interdisciplinary team comprising a senior occupational therapist, senior physiotherapist and senior medical social worker or usual care. Primary outcomes included: ED length of stay and hospital admission rates. Secondary outcomes included: patient satisfaction, function, quality of life, incidence of ED re-visits, hospital admissions, nursing home admission, healthcare utilisation and mortality at 30-day and 6-month follow-up.

Results: Considering the first 140 participants, the intervention group spent significantly shorter time in the ED than the control group (7.5 vs. 15.2 median hours, p<0.001) and experienced lower admission rates (18.6% vs. 64.3%). At 30-day follow up, healthcare utilisation rates were higher in the intervention than control group (77.2% vs. 61.4%, p=0.04). There were no significant differences between the groups regarding satisfaction with their ED visit, function, quality of life and incidence of adverse outcomes at 30 days. Our cost-effectiveness analysis is ongoing.

Conclusion: Preliminary findings from our trial indicates that HSCPs working in the ED can contribute to improved older patients’ care by reducing their duration of stay in the ED and increasing rates of discharge home. Participant recruitment and six month follow-up is continuing.