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Authors: Bean, Daniel M; Stringer, Clive; Beeknoo, Neeraj; Teo, James; Dobson, Richard J B
Source: PloS one; 2017; vol. 12 (no. 10); p. e0185912
Publication Date: 2017
Publication Type(s): Journal Article
PubMedID: 28968472
Database: Medline

Abstract: The topology of the patient flow network in a hospital is complex, comprising hundreds of overlapping patient journeys, and is a determinant of operational efficiency. To understand the network architecture of patient flow, we performed a data-driven network analysis of patient flow through two acute hospital sites of King's College Hospital NHS Foundation Trust. Administration databases were queried for all intra-hospital patient transfers in an 18-month period and modelled as a dynamic weighted directed graph. A 'core' subnetwork containing only 13-17% of all edges channelled 83-90% of the patient flow, while an 'ephemeral' network constituted the remainder. Unsupervised cluster analysis and differential network analysis identified sub-networks where traffic is most associated with A&E performance. Increased flow to clinical decision units was associated with the best A&E performance in both sites. The component analysis also detected a weekend effect on patient transfers which was not associated with performance. We have performed the first data-driven hypothesis-free analysis of patient flow which can enhance understanding of whole healthcare systems. Such analysis can drive transformation in healthcare as it has in industries such as manufacturing.

2. Two emergency departments, 6000km apart: Differences in patient flow and staff perceptions about crowding.

Authors: Van Der Linden, M Christien; Khursheed, Munawar; Hooda, Khairunnissa; Pines, Jesse M; Van Der Linden, Naomi
Source: International emergency nursing; Jun 2017
Publication Date: Jun 2017
Publication Type(s): Journal Article
PubMedID: 28659247
Database: Medline

Abstract: INTRODUCTION: Emergency department (ED) crowding is a worldwide public health issue. In this study, patient flow and staff perceptions of crowding were assessed in Pakistan (Aga Khan University Hospital (AKUH)) and in the Netherlands (Haaglanden Medical Centre Westeinde (HMCW)). Bottlenecks affecting ED patient flow were identified. METHODS: First, a one-year review of patient visits was performed. Second, staff perceptions about ED crowding were collected using face-to-face interviews. Non-participant observation and document review were used to interpret the findings. RESULTS: At AKUH 58,839 (160 visits/day) and at HMCW 50,802 visits (140 visits/day) were registered. Length of stay (LOS) at AKUH was significantly longer than at HMCW (279 min (IQR 357) vs. 100 min (IQR 152)). There were major differences in patient acuities, admission and mortality rates, indicating a sicker population at AKUH. Respondents from both departments experienced hampered patient flow on a daily basis, and perceived similar causes for crowding: increased patients' complexity, long treatment times, and poor availability of inpatient beds. CONCLUSION: Despite differences in environment, demographics, and ED patient flow, respondents perceived similar bottlenecks in patient flow. Interventions should be tailored to specific ED and hospital needs. For both EDs, improving the outflow of boarded patients is essential.

3. Improving Patient Flow on Adult Mental Health Units: A multimodal Study of Canberra Hospital’s Acute Psychiatric Facilities.

Authors: Fenton, Katherine; Kingsbury, Alison; Jayalath, Sajeeva
Source: Psychiatry Danubina; Sep 2017; vol. 29; p. 594-603
Publication Date: Sep 2017
Publication Type(s): Journal Article
PubMedID: 28953836
Database: Medline
Abstract

BACKGROUND Due to increasing demands on limited resources in the health care system, many hospitals are working to improve patient flow, thereby increasing their effective capacity. Identifying barriers to patient flow provides the best available evidence to improve such flow in The Canberra Hospital's acute psychiatric units.

METHODS This audit uses a multi-method design (combining focus groups, audits of flow in mental health units and retrospective data analysis on a cross-section of patients) to investigate current patterns of patient flow and barriers to discharge through the Canberra Hospital Mental Health Assessment & Adult Mental Health Units, and factors associated with increased length of stay.

RESULTS Mean LoS for MHAU and AMHU was 8.45 hours and 15 days respectively. Multiple factors were associated with an increased LoS including patient factors, certain hospital processes, and limited availability of community services.

CONCLUSIONS These findings inform recommendations on improving patient flow and future research to support increases in available funding, staffing and resources.

4. The three paradoxes of patient flow: an explanatory case study.

Authors
Kreindler, Sara A

Source
BMC health services research; Jul 2017; vol. 17 (no. 1); p. 481

Publication Date
Jul 2017

Publication Type(s)
Journal Article

PubMedID
28701232

Database
Medline

Available at BMC health services research from BioMed Central
Available at BMC health services research from Europe PubMed Central - Open Access

Abstract

BACKGROUND Health systems in many jurisdictions struggle to reduce Emergency Department congestion and improve patient flow across the continuum of care. Flow is often described as a systemic issue requiring a "system approach"; however, the implications of this idea remain poorly understood. Focusing on a Canadian regional health system whose flow problems have been particularly intractable, this study sought to determine what system-level flaws impede healthcare organizations from improving flow.

METHODS This study drew primarily on qualitative data from in-depth interviews with 62 senior, middle and departmental managers representing the Region, its programs and sites; quantitative analysis of key flow indicators (1999-2012) and review of ~700 documents furnished important context. Examination of the interview data revealed that the most striking feature of the dataset was contradiction; accordingly, a technique of dialectical analysis was developed to examine observed contradictions at successively deeper levels.

RESULTS Analysis uncovered three paradoxes: "Many Small Successes and One Big Failure" (initiatives improve parts of the system but fail to fix underlying system constraints); "Your Innovation Is My Aggravation" (local innovation clashes with regional integration); and most critically, "Your Order Is My Chaos" (rules that improve service organization for my patients create obstacles for yours). This last emerges when some entities (sites/hospitals) define their patients in terms of their location in the system, while others (regional programs) define them in terms of their needs/characteristics. As accountability for improving flow was distributed among groups that thus variously defined their patients, local efforts achieved little for the overall system, and often clashed with each other. These paradoxes are indicative of a fundamental antagonism between the system's parts and the whole.

CONCLUSION An accretion of flow initiatives in all parts of the system will never add up to a system approach, and may indeed perpetuate the paradoxes. What is needed is a coherent strategy of defining patient populations by needs, analyzing their entire trajectories of care, and developing consistent processes to better meet those needs.

5. The Impact of Increasing Staff Resources on Patient Flow in a Psychiatric Emergency Service.

Authors
Chepenik, Lara; Pinker, Edieal

Source
Psychiatric services (Washington, D.C.); May 2017; vol. 68 (no. 5); p. 470-475

Publication Date
May 2017

Publication Type(s)
Journal Article

PubMedID
28045348

Database
Medline
Abstract

OBJECTIVE The study illustrates the use of approaches based on queuing theory to understand bottlenecks in patient flow. A queuing simulation was used to predict the potential benefits of additional clinical personnel on patient flow through a psychiatric emergency service (PES). METHOD A discrete-event simulation model was calibrated on the basis of two months of data collected in a PES. This model examined the effects of adding between .5 (half-time) and three additional providers to the 8 a.m. to 4 p.m. shift. RESULTS The model showed that an addition of a half-time clinician produced the biggest change in patient flow metrics. Average length of stay was predicted to drop from 38.1 hours to 33.2 hours for patients who were awaiting hospitalization and from 13.7 to 9.0 hours for patients who were eventually discharged. The number of patients waiting to see a provider decreased by two-thirds between 8 a.m. and 4 p.m., and it decreased by one-half during the rest of the day, even though the number of clinical staff remained the same. Adding more providers failed to reduce these numbers much further. Adding more than a half-time provider also failed to significantly reduce boarding (remaining in the PES while awaiting hospitalization). CONCLUSIONS Queuing simulation predicted a dramatic benefit to patient flow with a fairly small addition in clinician time, a benefit that persisted beyond the time during which the additional staff was on duty, especially when this staff was added during a period of high demand.


Authors Mohiuddin, Syed; Busby, John; Savović, Jelena; Richards, Alison; Northstone, Kate; Hollingworth, William; Donovan, Jenny L; Vasilakis, Christos

Source BMJ open; May 2017; vol. 7 (no. 5); p. e015007

Publication Date May 2017

Publication Type(s) Journal Article

PubMedID 28487459

Database Medline

Available at BMJ open from HighWire - Free Full Text
Available at BMJ open from Europe PubMed Central - Open Access

Abstract

OBJECTIVES Overcrowding in the emergency department (ED) is common in the UK as in other countries worldwide. Computer simulation is one approach used for understanding the causes of ED overcrowding and assessing the likely impact of changes to the delivery of emergency care. However, little is known about the usefulness of computer simulation for analysis of ED patient flow. We undertook a systematic review to investigate the different computer simulation methods and their contribution for analysis of patient flow within EDs in the UK. METHOD We searched eight bibliographic databases (MEDLINE, EMBASE, COCHRANE, WEB OF SCIENCE, CINAHL, INSPEC, MATHSCINET and ACM DIGITAL LIBRARY) from date of inception until 31 March 2016. Studies were included if they used a computer simulation method to capture patient progression within the ED of an established UK National Health Service hospital. Studies were summarised in terms of simulation method, key assumptions, input and output data, conclusions drawn and implementation of results. RESULTS Twenty-one studies met the inclusion criteria. Of these, 19 used discrete event simulation and 2 used system dynamics models. The purpose of many of these studies (n=16; 76%) centred on service redesign. Seven studies (33%) provided no details about the ED being investigated. Most studies (n=18; 86%) used specific hospital models of ED patient flow. Overall, the reporting of underlying modelling assumptions was poor. Nineteen studies (90%) considered patient waiting or throughput times as the key outcome measure. Twelve studies (57%) reported some involvement of stakeholders in the simulation study. However, only three studies (14%) reported on the implementation of changes supported by the simulation. CONCLUSIONS We found that computer simulation can provide a means to pretest changes to ED care delivery before implementation in a safe and efficient manner. However, the evidence base is small and poorly developed. There are some methodological, data, stakeholder, implementation and reporting issues, which must be addressed by future studies.


Authors Shenoy, Erica S; Lee, Hang; Ryan, Erin E; Hou, Taige; Walensky, Rochelle P; Ware, Winston; Hooper, David C

Source Medical decision making : an international journal of the Society for Medical Decision Making; Jun 2017; p. 272989X17713474

Publication Date Jun 2017

Publication Type(s) Journal Article

PubMedID 28662601

Database Medline
BACKGROUND Hospitalized patients are assigned to available staffed beds based on patient acuity and services required. In hospitals with double-occupancy rooms, patients must be additionally matched by gender. Patients with methicillin-resistant Staphylococcus aureus (MRSA) or vancomycin-resistant Enterococcus (VRE) must be bedded in single-occupancy rooms or cohorted with other patients with similar MRSA/VRE flags.

METHODS We developed a discrete event simulation (DES) model of patient flow through an acute care hospital. Patients are matched to beds based on acuity, service, gender, and known MRSA/VRE colonization.

RESULTS Observed outcomes were well-approximated by model-generated outcomes for time-to-bed arrival (6.7 v. 6.2 to 6.5 h) and length of stay (3.3 v. 2.9 to 3.0 days), with overlapping 90% coverage intervals. Patient-bed acuity mismatches, where patient acuity exceeded bed acuity and where patient acuity was lower than bed acuity, ranged from 0.6 to 0.9 and 8.6 to 11.1 mismatches per h, respectively. Values for observed occupancy, total idle beds, and acuity-related transfers compared favorably to model-predicted values (91% v. 86% to 87% occupancy, 15.1 v. 14.3 to 15.7 total idle beds, and 27.2 v. 22.6 to 23.7 transfers). Rooms with discordant colonization status and transmission due to discordance were modeled without an observed value for comparison. One-way and multi-way sensitivity analyses were performed for idle beds and rooms with discordant colonization.

CONCLUSIONS We developed and validated a DES model of patient flow incorporating MRSA/VRE flags. The model allowed for quantification of the substantial impact of MRSA/VRE flags on hospital efficiency and potentially avoidable nosocomial transmission.

8. Progressive prediction of hospitalisation in the emergency department: uncovering hidden patterns to improve patient flow.

Authors Barak-Corren, Yuval; Israelit, Shlomo Hanan; Reis, Ben Y
Source Emergency medicine journal : EMJ; May 2017; vol. 34 (no. 5); p. 308-314
Publication Date May 2017
Publication Type(s) Journal Article
PubMedID 28188202
Database Medline

INTRODUCTION One of the factors contributing to ED crowding is the lengthy delay in transferring an admitted patient from the ED to an inpatient department (ie, boarding time). An earlier start of the admission process using an automatic hospitalisation prediction model could potentially shorten these delays and reduce crowding.

METHODS Clinical, operational and demographic data were retrospectively collected on 80 880 visits to the ED of Rambam Health Care Campus in Haifa, Israel, from January 2011 to January 2012. Using these data, a logistic regression model was developed to predict patient disposition (hospitalisation vs discharge) at three progressive time points throughout the ED visit: within the first 10 min, within an hour and within 2 hours. The algorithm was trained on 50% of the data (n=40 440) and tested on the remaining 50%. RESULTS During the study time period, 58 197 visits ended in discharge and 22 683 in hospitalisation. Within 1 hour of presentation, our model was able to predict hospitalisation with a specificity of 94% and an AUC of 0.97. Early clinical decisions such as testing for calcium levels were found to be highly predictive of hospitalisations. In the Rambam ED, the use of such a prediction system would have the potential to save more than 250 patient hours per day.

CONCLUSIONS Data collected by EDs in electronic medical records can be used within a progressive modelling framework to predict patient flow and improve clinical operations. This approach relies on commonly available data and can be applied across different healthcare settings.


Authors Quimby, Alexandra E; Shamy, Michel C F; Rothwell, Deanna M; Liu, Erin Y; Dowlatshahi, Dar; Stotts, Grant
Source The Neurohospitalist; Apr 2017; vol. 7 (no. 2); p. 83-90
Publication Date Apr 2017
Publication Type(s) Journal Article
PubMedID 28400902
Database Medline
Abstract

BACKGROUND AND PURPOSE: Neurointensive care units have been shown to improve patient outcomes across a variety of neurological and neurosurgical conditions. However, the efficacy of less resource-intensive intermediate-level care units to deliver similar care has not been well studied. The purpose of this study is to evaluate the impact of neurocritical specialist comanagement on patient flow and safety in a neuroscience intermediate-level care unit.

METHODS: Our intervention consisted of the addition of a physician with critical care experience as well as training in neurology, anesthesiology, or intensive care to a neuroscience intermediate-level care unit to comanage patients alongside neurology and neurosurgery staff during weekday daytime hours. A retrospective analysis was performed on prospectively collected data pertaining to all patients admitted to the unit over a 3-year period, 1 year before our intervention and 2 years after. Patient statistics including wait times to admission, length of stay (LOS), and mortality were reviewed.

RESULTS: Following the intervention, there were significant reductions in wait times to unit admission from both the emergency department and postanesthetic care unit, as well as reductions in the average LOS. No significant safety concerns were identified.

CONCLUSION: This study has demonstrated that the optimization of a neuroscience intermediate-level care unit involving comanagement of patients by a neurocritical specialist can reduce wait times to admission and lengths of stay, with preserved safety outcomes.


Authors: Bein, Kendall J; Berendsen Russell, Saartje; Muscatello, David; Chalkley, Dane; Ivers, Rebecca; Dinh, Michael M
Source: Emergency medicine Australasia : EMA; Apr 2017; vol. 29 (no. 2); p. 173-177

OBJECTIVE: The objective of the present study is to demonstrate a novel method of mapping ED activity to analyse patterns presentations, occupancy and performance trends.

METHODS: This was a retrospective, descriptive analysis of de-identified and linked ED presentations across NSW, Australia, over five calendar years, 2010-2014. It was undertaken as part of the Demand for Emergency Services Trend in Years 2010-2014 (DESTINY) study. The DESTINY project analysed 10.8 million presentations during 2010-2014. Hourly Emergency Activity Tracking (HEAT) maps were generated to visually represent and analyse the number of emergency arrivals to ED occupancy and proportion of patients leaving the ED within 4 h per hour of day across consecutive months of the year.

RESULTS: HEAT maps provided a means of visually representing ED activity to demonstrate hour-to-hour trends in presentations, occupancy and performance between 2010 and 2014. This analysis has shown that the most marked increase in presentations per hour has occurred during the 10.00-14.00 hour period, associated with an improvement in ED performance during the same period.

CONCLUSION: HEAT maps may be used to facilitate further analyses of ED demand, patterns of patient presentations and patient flow and future health system redesign.


Authors: Jones, Richard W; Despotou, George; Arvanitis, Theodoros N
Source: Studies in health technology and informatics; 2017; vol. 238; p. 60-63

As patient numbers continue to rise Emergency Department’s (ED’s) are struggling to not only control patient wait times but also to maintain the quality of patient care. Improving patient flow through the ED has been a priority for many years with techniques such as Lean Six-Sigma being implemented specifically to help alleviate the problem. The Institute for Healthcare Improvement recently stated that the best opportunities to improving patient flow relate to the front-end of the ED, namely triage. This contribution examines the use of Telehealth initiatives at the front-end of the ED, specifically tele-consultation, to reduce patient loading, provide timelier healthcare (with improved patient outcomes) and reduce costs.

12. Slick scripts: impact on patient flow targets of pharmacists preparing discharge prescriptions in a hospital with an electronic prescribing system.

Authors: Tran, Tim; Hardidge, Andrew; Heland, Melodie; Taylor, Simone E; Garrett, Kent; Mitri, Elise; Elliott, Rohan A
Source: Journal of evaluation in clinical practice; Apr 2017; vol. 23 (no. 2); p. 333-339
13. The Elimination of Transfer Distances Is an Important Part of Hospital Design.

**Authors**
Karvonen, Sauli; Nordback, Isto; Elo, Jussi; Havulinna, Jouini; Laine, Heikki-Jussi

**Source**
HERD; Apr 2017; vol. 10 (no. 3); p. 142-151

**Abstract**
OBJECTIVE The objective of the present study was to describe how a specific patient flow analysis with from-to charts can be used in hospital design and layout planning. BACKGROUND As part of a large renewal project at a university hospital, a detailed patient flow analysis was applied to planning the musculoskeletal surgery unit (orthopedics and traumatology, hand surgery, and plastic surgery). METHOD First, the main activities of the unit were determined. Next, the routes of all patients treated over the course of 1 year were studied, and their physical movements in the current hospital were calculated. An ideal layout of the new hospital was then generated to minimize transfer distances by placing the main activities with close to each other, according to the patient flow analysis. The actual architectural design was based on the ideal layout plan. Finally, we compared the current transfer distances to the distances patients will move in the new hospital. RESULT The methods enabled us to estimate an approximate 50% reduction in transfer distances for inpatients (from 3,100 km/year to 1,600 km/year) and 30% reduction for outpatients (from 2,100 km/year to 1,400 km/year). CONCLUSION Patient transfers are non-value-added activities. This study demonstrates that a detailed patient flow analysis with from-to charts can substantially shorten transfer distances, thereby minimizing extraneous patient and personnel movements. This reduction supports productivity improvement, cross-professional teamwork, and patient safety by placing all patient flow activities close to each other. Thus, this method is a valuable additional tool in hospital design.


**Authors**
Marshall, Brett G; Assef, Maija S; Pitney, Ryan B; Mocco, Maria Cj; Tschoeke, Bradley M; Oksa, Marcus A; Yeatman, Amy

**Source**
Journal of patient experience; Mar 2017; vol. 4 (no. 1); p. 10-16

**Abstract**
BACKGROUND Patients who had received surgical services at Bellin Hospital reported anxiety with the surgical flow. This study tested the hypothesis that the introduction of a surgical navigator, someone who guided the patient and their accompanying others throughout the surgical process, would improve patient satisfaction. METHOD Ambulatory surgical patients were randomized to control and study groups. The study group patients were assigned a surgical navigator. Prior to discharge from the hospital, patients were asked to complete a patient satisfaction survey. RESULT The study group had significantly higher mean scores (P value ≤ 0.026), top box scores (P value ≤ 0.021), and positive comments. CONCLUSION The addition of a surgical navigator to the perioperative process significantly enhanced patient satisfaction in ambulatory surgical patients.
15. Reducing Length of Stay by Enhancing Patients' Discharge: A Practical Approach to Improve Hospital Efficiency.

Authors: Khalifa, Mohamed

Source: Studies in health technology and informatics; 2017; vol. 238; p. 157-160

Publication Date: 2017

Publication Type(s): Journal Article

PubMedID: 28679912

Database: Medline

Abstract:

For years, hospitals have responded to inefficiencies by adding more resources, whereas research suggests that it is a flow problem. King Faisal Specialist Hospital and Research Center decided to improve efficiency and enhance patient flow through improving patient discharge and reducing length of stay. Eight interventions were implemented; dedicating slots in diagnostic services for discharges, improving communication, eliminating pending exams, identifying discharges the day before, prioritizing laboratory tests, coordinating discharge medication processing and utilizing case management. 14.1% of discharges after improvement, compared to 21.7% before, experienced delays. Discharge cycle duration was reduced from 17.9 to 9.2 hours. 4.1% of discharges after improvement, compared to 14.8% before, experienced procedures delays. Procedure turnaround time was reduced from 46.9 to 15.3 hours. Average length of stay (ALOS) was reduced from 12 days to less than 10. Improving hospital efficiency is an integrated process and the responsibility of all hospital staff.

16. Adjusting patients streaming initiated by a wait time threshold in emergency department for minimizing opportunity cost.

Authors: Kim, Byungjoon B J; Delbridge, Theodore R; Kendrick, Dawn B

Source: International journal of health care quality assurance; Jul 2017; vol. 30 (no. 6); p. 516-527

Publication Date: Jul 2017

Publication Type(s): Journal Article

PubMedID: 28714834

Database: Medline

Abstract:

Purpose: Two different systems for streaming patients were considered to improve efficiency measures such as waiting times (WTs) and length of stay (LOS) for a current emergency department (ED). A typical fast track area (FTA) and a fast track with a wait time threshold (FTW) were designed and compared effectiveness measures from the perspective of total opportunity cost of all patients’ WTs in the ED. The paper aims to discuss these issues.

Design/methodology/approach: This retrospective case study used computerized ED patient arrival to discharge time logs (between July 1, 2009 and June 30, 2010) to build computer simulation models for the FTA and fast track with wait time threshold systems. Various wait time thresholds were applied to stream different acuity-level patients. National average wait time for each acuity level was considered as a threshold to stream patients. Findings: The fast track with a wait time threshold (FTW) showed a statistically significant shorter total wait time than the current system or a typical FTA system. The patient streaming management would improve the service quality of the ED as well as patients’ opportunity costs by reducing the total LOS in the ED. Research limitations/implications: The results of this study were based on computer simulation models with some assumptions such as no transfer times between processes, an arrival distribution of patients, and no deviation of flow pattern. Practical implications: When the streaming of patient flow can be managed based on the wait time before being seen by a physician, it is possible for patients to see a physician within a tolerable wait time, which would result in less crowded in the ED. Originality/value: A new streaming scheme of patients’ flow may improve the performance of fast track system.

17. High reliability in healthcare: creating the culture and mindset for patient safety.

Authors: Cochrane, Bonnie S; Hagins, Mitch; Picciano, Gino; King, John A; Marshall, David A; Nelson, Brian; Deao, Craig

Source: Healthcare management forum; Mar 2017; vol. 30 (no. 2); p. 61-68

Publication Date: Mar 2017

Publication Type(s): Journal Article

PubMedID: 28929881

Database: Medline
18. Describing wait time bottlenecks for ED patients undergoing head CT.

**Authors**
Fulbrook, Paul; Jessup, Melanie; Kinnear, Frances

**Source**
Australasian emergency nursing journal; Aug 2017; vol. 20 (no. 3); p. 114-121

**Publication Date**
Aug 2017

**PubMedID**
28624270

**Database**
Medline

**Abstract**
STUDY OBJECTIVES: Facing increased utilization and subsequent capacity and budget constraints, ED's must better understand bottlenecks and their effect on process flow to improve process efficiency. The primary objective of this study was to identify bottlenecks in obtaining a head CT and investigate patient waiting time based on those bottlenecks. METHODS: This observational study included all patients undergoing a head CT between July 1, 2013 and June 30, 2014 at a large, urban academic ED with over 100,000 visits per year. The primary study outcome was total cycle time, defined as the elapsed time between patient arrival and head CT preliminary report, divided into four components of workflow. RESULTS: 8312 patients who had a head CT were included in this study. The median cycle time from patient arrival to head CT preliminary report was 3h and 13min with 39min of waiting time resulting from bottlenecks. In the 4-step model (time from patient arrival to head CT order, time from head CT order to head CT scheduled, time from head CT scheduled to head CT completed, and time from head CT completed to head CT preliminary report), each process was the bottleneck 30%, <1%, 27%, and 42% of the time, respectively. CONCLUSION: Demand capacity mismatch in head CT scanning has a significant impact on patient waiting times. This study suggests opportunities to improve wait times through future research to understand the causes of delays in CT ordering, CT completion and timeliness of radiology reports.

19. Implementation and evaluation of a 'Navigator' role to improve emergency department throughput.

**Authors**
Rogg, Jonathan G; Huckman, Robert; Lev, Michael; Raja, Ali; Chang, Yuchiao; White, Benjamin A

**Source**
The American journal of emergency medicine; Oct 2017; vol. 35 (no. 10); p. 1510-1513

**Publication Date**
Oct 2017

**PubMedID**
28487098

**Database**
Medline

**Abstract**
BACKGROUND: Emergency department overcrowding impacts patients, staff, and quality of care, and there is government pressure to optimize throughput and reduce waiting times. One solution for improving patient flow is the emerging 'navigator' role: a nurse that supports staff in care delivery; facilitating efficient and timely patient movement through the emergency department. METHOD: A 20-week project was implemented to evaluate an emergency department nurse navigator role. A controlled trial was used. The navigator worked on a week-on-week-off basis, eight hours per day, seven days per week. RESULTS: Data from nearly 20,000 presentations during the trial period were analysed. All outcomes were improved during the ten weeks the Navigator was working. A slight improvement in National Emergency Access Target compliance was shown, with an average of 4.5min per presentation saved. The labour cost associated with the time saved was estimated to be $170,000. CONCLUSION: The results from this study indicate that for a relatively small investment, complementary nursing roles such as the navigator can impact emergency department patient flow. However, further studies are required to determine optimisation of the role. RELEVANCE TO PRACTICE: This study provides rigorous evidence of the effects of a nurse navigator role on emergency department throughput. Whilst positive outcomes were demonstrated, suggesting a whole-of-system benefit, the magnitude of effect on a per-presentation basis was relatively small. Further studies are required to demonstrate the clinical relevance of such roles.

20. Psychometric Evaluation of the Hospital Culture of Transitions Survey.
BACKGROUND Ineffective or inefficient transitions threaten patient safety, hinder communication, and worsen patient outcomes. The Hospital Culture of Transitions (H-CuIT) survey was designed to assess a hospital's organizational culture related to within-hospital transitions in care involving patient movement. In this article, psychometric properties of the H-CuIT survey were examined to assess and refine the hospital culture of transitions.

METHODS A cross-sectional, multicenter, multidisciplinary correlational design and survey methods were used to examine the psychometric properties of the H-CuIT survey. Exploratory factor analysis was used to quantify the accuracy of the previously identified structure. Specifically, the analysis involved the principal axis factor method with an oblique rotation, based on a polychoric correlation matrix.

RESULTS A sample of 492 respondents from 13 diverse hospitals participated. Cronbach's alpha for the instrument was 0.88, indicating strong internal consistency. Seven subscales emerged and were labeled: Hospital Leadership, Unit Leadership, My Unit's Culture, Other Units' Culture, Busy Workload, Priority of Patient Care, and Use of Data. Correlations between subscales ranged from 0.07 to 0.52, providing evidence that the subscales did not measure the same construct. Subscale correlations with the total score were near or above 0.50 (p < 0.001). Use of a factor-loading cutoff of 0.40 resulted in the elimination of 12 items because of weak associations with the topic.

CONCLUSION The H-CuIT is a psychometrically sound and practical survey for assessing hospital culture related to patient flow during transitions in care. Survey results may prompt quality improvement interventions that enhance in-hospital transitions and improve staff satisfaction and patient satisfaction with care.


Authors Garland, Adam; Ashton-Cleary, David; Sinclair, Ray
Source Journal of the Intensive Care Society; May 2017; vol. 18 (no. 2); p. 177
Publication Date May 2017
Publication Type(s) Journal Article
PubMedID 28979569
Database Medline

22. Solving the negative impact of congestion in the postanesthesia care unit: a cost of opportunity analysis.

Authors Ruiz-Patiño, Alejandro; Acosta-Ospina, Laura Elena; Rueda, Juan-David
Source The Journal of surgical research; Apr 2017; vol. 210; p. 86-91
Publication Date Apr 2017
Publication Type(s) Journal Article
PubMedID 28457345
Database Medline

Abstract BACKGROUND Congestion in the postanesthesia care unit (PACU) leads to the formation of waiting queues for patients being transferred after surgery, negatively affecting hospital resources. As patients recover in the operating room, incoming surgeries are delayed. The purpose of this study was to establish the impact of this phenomenon in multiple settings. METHODS An operational mathematical study based on the queuing theory was performed. Average queue length, average queue waiting time, and daily queue waiting time were calculated. Calculations were based on the mean patient daily flow, PACU length of stay, occupation, and current number of beds. Data was prospectively collected during a period of 2 months, and the entry and exit time was recorded for each patient taken to the PACU. Data was imputed in a computational model made with MS Excel. To account for data uncertainty, deterministic and probabilistic sensitivity analyses for all dependent variables were performed. RESULTS With a mean patient daily flow of 40.3 and an average PACU length of stay of 4 hours, average total lost surgical opportunity time was estimated at 2.36 hours (95% CI: 0.36-4.74 hours). Cost of opportunity was calculated at $1592 per lost hour. Sensitivity analysis showed that an increase of two beds is required to solve the queue formation. CONCLUSIONS When congestion has a negative impact on cost of opportunity in the surgical setting, queuing analysis grants definitive actions to solve the problem, improving quality of service and resource utilization.

23. Improving patient flow: setting up of an ambulatory care unit in Nevill Hall Hospital using the CORE role of the chief registrar.

Authors Akhtar, S; Brouns, M; Wales, D; Ward, C
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