

UC Irvine

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health

Title

Major Incident Triage: The Civilian Validation of the Modified Physiological Triage Tool

Permalink

<https://escholarship.org/uc/item/7df3w1rc>

Journal

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 18(6.1)

ISSN

1936-900X

Authors

Vassallo, J
Smith, J E
Bouamra, O
[et al.](#)

Publication Date

2017

Copyright Information

Copyright 2017 by the author(s). This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

7 Transparency as a Tool to Reduce Opioid Prescribing in One Emergency Department

Friedman FD¹, Mostofi MB², Barnewolt BA^{2/1} Tufts Medical Center, Department of Emergency Medicine, Tufts University School of Medicine, Boston, MA

Objective: Between 2013 and 2016 opioid-related deaths in Massachusetts increased by over 53% (MA Department of Public Health). Nonmedical use of prescription opioids is a strong risk factor for heroin use, and even single, small prescriptions increase the risk for developing chemical dependency (*NEJM* 374;2). To promote physician stewardship in opioid prescribing, we studied prescribing practices before and after an administrative intervention. We proposed that full-time providers in our single-hospital group should have similar prescribing practices and that transparency in individual physician prescribing would result in an opportunity for physicians to compare their practices. Transparency would highlight significant practice variations and result in an opioid-prescribing change.

Design and Method: The setting was a 46k visit/year urban academic medical center. To establish a baseline, we tabulated all opioid prescribing by faculty for calendar year 2015. Starting in January 2016, using data from the electronic medical record, individual physician opioid prescribing was presented at a monthly physician meeting with complete transparency, including providers' names and opioid prescriptions. Shared data also included the percentage of discharged patients receiving an opioid prescription, the number of opioid prescriptions as a percentage of total prescriptions written, and year-to-date trends. There was no discussion of optimal target numbers, individual prescriptions, guidelines, rewards or penalties. We then contrasted 2016 and 2015 data.

Results and Conclusion: Over 12 months, opioid prescriptions decreased by 34%, the percentage of prescriptions for an opioid decreased by 33.9%, and the number of patients receiving an opioid prescription dropped by 37.6% (Table 1). Although there are other external factors that were not controlled, transparency regarding the number of opioid prescriptions written by the ED physician group and a monthly departmental discussion resulted in a significant decrease in the number of opioids prescribed.

Table 1. Comparison of physicians' opioid-prescribing frequency before and after an administrative intervention during which their prescribing practices were shared openly at monthly meetings.

Time Period	D/C Pts	Rxs	Pts Receiving Rx	# Opioid Rx	% Opioid Rx	% D/C Pts w/Opioid Rx
Jan-Dec 2015	32725	21282	17985	3120	14.70%	9.53%
Jan-Dec 2016	34628	21180	17652	2059	9.72%	5.95%
% CHANGE	5.82%	(-10.48%)	(-1.9%)	(-34.0%)	(-33.9%)	(-37.6%)

8 Major Incident Triage: The Civilian Validation of the Modified Physiological Triage Tool

Vassallo J^{1,2}, Smith J E^{3,4}, Bouamra O⁵, Lecky F E^{5,6}, Wallis L A¹ / ¹Division of Emergency Medicine, University of Cape Town, Cape Town, South Africa ²Institute of Naval Medicine, Gosport, United Kingdom ³Emergency Department, Derriford Hospital, Plymouth, United Kingdom ⁴Academic Department of Military Emergency Medicine, Royal Centre for Defence Medicine (Research & Academia), Medical Directorate, Birmingham, United Kingdom ⁵Trauma Audit and Research Network, University of Manchester, Salford, Manchester, United Kingdom ⁶School of Health and Related Research, University of Sheffield, Sheffield, United Kingdom

Objective: Triage is a key principle in the effective management of a major incident. Existing triage tools have demonstrated limited performance at predicting need for life-saving intervention. Derived using a military cohort, the Modified Physiological Triage Tool (MPTT) demonstrated the greatest performance at predicting the need for life-saving intervention. This study aimed to validate the MPTT in a civilian environment using trauma registry data.

Design and Method: The UK Trauma Audit Research Network database was interrogated for all adult patients between 2006-2014. We defined patients as Priority One if they received one or more life-saving interventions from a previously defined list. Using first recorded hospital physiological data, patients were categorised by the MPTT and existing primary physiological triage tools. We included only patients with complete physiological data in the analysis. Data was described as number (%) and median (interquartile range) as appropriate. We evaluated performance characteristics using sensitivity, specificity and area under the receiver operator characteristic (ROC) curve. Additional sensitivity analysis was performed on missing data using multiple imputation.

Results: During the study period, 218,985 adult patients were included in the database with 127,233 (58.1%) meeting inclusion criteria. Of those, 55.6% were male, aged 61.4 (43.1-80.0), Injury Severity Score 9 (9-16); 122,802 (96.5%) sustained blunt trauma, with low falls the most common mechanism (53.7%). We defined as Priority One 24,791 patients (19.5%) who received a life-saving intervention.

The MPTT (sensitivity 57.6%, 95%CI 0.569-0.582, specificity 71.5%, 95%CI 0.712-0.718) outperformed all existing triage methods with a 44.7% absolute reduction in under-triage compared to existing United Kingdom civilian methods. Comparison of the area under the ROC curve

demonstrated statistical significance, supporting the use of the MPTT over other tools ($\chi^2=484.55$, $p<0.001$.) Results were unchanged following multiple imputation.

Conclusion: The performance characteristics of the Modified Physiological Triage Tool exceed existing major incident triage systems, whilst maintaining an appropriate rate of over-triage and minimising under-triage within the context of predicting the need for a life-saving intervention in a civilian population. Its use within a civilian major incident context is encouraged.

9 Point-of-care Ultrasound Use in the Diagnostic and Therapeutic Approach to Peritonsillar Abscesses

R Gibbons¹, M Mulflur², H Goett¹, W Satz¹, T Costantino¹ / ¹Lewis Katz School of Medicine at Temple University, Philadelphia PA ²Aria Health System, Philadelphia, PA

Objective: Our previous retrospective, case-control study from January 2007 through December 2008 suggested that emergency medicine point-of-care ultrasound (POCUS) improved successful needle aspiration of peritonsillar abscesses. During that time period, POCUS was used in only 20% of cases. This study aimed to assess the more contemporary use and impact of POCUS since our initial review.

Design & Method: This was a single-center, retrospective, case-control study of all adult patients with a diagnosis of peritonsillar abscess who presented to the emergency department from January 2013 through December 2014. Chart review and abstraction were performed. We separated the data into those with emergency medicine POCUS versus those without ultrasound (NUS). The primary endpoint was successful aspiration with POCUS. Secondary endpoints were frequency of specialty consultation, need for computed tomography (CT), unscheduled return visits within one week, and length of stay. We used Fisher's exact method to analyze the frequency data, and applied the t-test to length of stay.

Results: There were 114 patients enrolled, 89 of whom had POCUS performed (78%). The results were as follows: successful aspiration by an emergency physician (EP), US 89% vs. NUS 4% $p=0.001$, (OR 189.6; 95% CI 23, 1157); overall success (including ear nose throat [ENT] consultant), US 98% vs. NUS 88% $p=0.30$, (OR 2.5; 95% CI 0.39, 15.8); ENT consultation rate, US 15% vs NUS 64% $p=0.002$, (OR 154; 95% CI 19, 1246); additional imaging (CT only), US 27% vs NUS 65% $p=0.002$, (OR 4.8; 95% CI 1.9, 12.3); return visit rate, US 4% vs NUS 12% $p=0.18$, (OR 0.34; 95% CI 0.72, 1.66); length of stay (minutes), US 166 vs NUS 267 $p=0.0002$, (95% CI 146, 309.5).

Conclusion: The increased availability and utilization of ultrasound has impacted our diagnostic and treatment approach to peritonsillar abscesses. Nearly 80% of cases employed POCUS in comparison to 20% previously. Likewise, ultrasound use by EPs improves the rate of successful aspiration of peritonsillar abscesses. Additionally, it appears to decrease specialty consultation rates, CT imaging, and length of stay.

10 Free Open Access Meducation (FOAM): The Global Distribution of Users in 2016

TW Burkholder¹, JW Bellows², RA King³ / ¹Denver Health and Hospital Authority, Department of Emergency Medicine, Denver, CO, ²Denver Health, Department of Emergency Medicine, Denver, CO, ³University of Colorado School of Medicine, Department of Emergency Medicine, Aurora, CO

Objectives: Free Open Access Meducation (FOAM) is a collection of interactive online medical education resources—free and accessible to students, residents, physicians and other learners. This novel approach to medical education has the potential to reach learners across the globe; however, the extent of its reach is still unknown. This study aims to describe the global distribution of FOAM users.

Design and Method: This descriptive report evaluates the 2016 web analytics data from a convenience sample of FOAM web blogs with a focus on emergency medicine & critical care (EMCC). We categorized the number of times a blog site was accessed, or “hits,” by country of access, cross-referenced with World Bank data for population and income level, and then analyzed the data using simple descriptive statistics.

Results: We analyzed 12 FOAM blogs published from six countries, with a total reported volume of approximately 18.7 million hits worldwide in 2016. The number of unique countries accessing each blog ranged from 82 to 209.

The gross annual volume for the 20 countries with the most hits in 2016 is reported in Figure 1, and the adjusted annual volume of the 20 countries with the most hits weighted by country population is reported in Figure 2.

High-income countries have the largest proportion of FOAM users, with 75.3% of total hits and 74% of population-adjusted hits. Low-income countries contributed the least proportion of FOAM users, with only 0.41% and 0.29%, respectively.

Conclusion: FOAM, while largely used in high-income countries, is beginning to be used in low- and middle-income countries as well. The potential to influence medical education in places that otherwise have limited access to emergency medical education is prime for further research.