

UC Irvine

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

Title

Impact of Shared Visits with Midlevel Providers or Residents on Resource Use and Admission
Rate

Permalink

<https://escholarship.org/uc/item/2b27g0x9>

Journal

Western Journal of Emergency Medicine: Integrating Emergency Care with Population
Health, 23(5.1)

ISSN

1936-900X

Authors

Stenson, Bryan
Chiu, David
Joseph, Joshua
et al.

Publication Date

2022

DOI

10.5811/westjem.58927

Copyright Information

Copyright 2022 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/>

ED Visits with Shared Providers (n=141,271), UCI Medical Center, July 1, 2016 through April 30, 2019 and ED Visits with Shared Providers (n=141,271), UCI Medical Center, October 1, 2017 through November 30, 2019

ED Visits (7/1/16-4/30/19)	Frequency	Percent	ED Visits (10/1/17-11/30/19)	Frequency	Percent
Yes	313	22.9	Yes	136	15.8
No	1,087	77.1	No	750	84.1
Total	1,400	100	Total	886	100

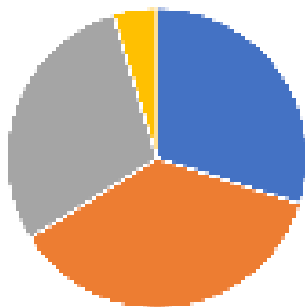
Table 2. Number of older adults with repeat ED visits and the percentage of all elder visits this represents.

Table 3

Intervention Details	Number of Issues Identified
Diagnosis Improvement - Issues	13
Follow-Up Appointment Help - Issues	46
General Status - Issues	10
Medication (Overdose) - Issues	17
Prescribing Prescription - Issues	16
Total Issues Made by the GMM	112

Table 3.

Card-Back Issues Identified by the GMM



Graph 2.

21 Impact of Shared Visits with Midlevel Providers or Residents on Resource Use and Admission Rate

Bryan Stenson; David T. Chiu; Joshua W. Joseph; Leon D. Sanchez; Nathan McDonald; *Peter S. Antkowiak*; Terrance Lee

Objectives: To validate and expand upon prior data suggesting that visits shared with a midlevel or resident influence EP behavior as measured by resource use and propensity to admit a patient.

Background: Variability exists in Emergency Physicians' (EP) resource utilization as measured by ordering practices, propensity to admit patients, and whether a visit is shared with a resident or midlevel provider (nurse practitioner or physician assistant).

Methods: This is a retrospective study of routinely gathered operational data from two community, suburban hospitals within an academic emergency network. We analyzed 34 EPs with 141,433 patient visits from July 1, 2016 to June 30, 2019. We collected individual EP data on advanced imaging (CT, US, MRI), admission rates, and whether a visit was shared with a midlevel or resident for each patient encounter. To investigate whether there might be distinct groups of practice patterns relating these resources, we used a Gaussian Mixture Model (GMM), a classification method used to determine the likelihood of distinct subgroups within a larger population. The total number of groups and covariance structure were determined by Bayesian Information Criteria.

Results: Our GMM revealed three distinct groups of physicians based on their ordering practices. The largest group is characterized by a homogenous pattern of neither high or low resource utilization (n=19, 58% female, median years' experience: 9 [IQR 2-16]; rates of Advanced Imaging: 44%, Admission: 21%, Midlevel/Resident staffing 35% with a modest group of low-resource users (n=10, 0% female, median years' experience: 7 [IQR 5-11]; rates of Advanced Imaging: 31%, Admission: 17%, Midlevel/Resident staffing 32%), and far fewer members of a high-resource use group (n=5, 20% female, median years' experience: 15 [IQR 5-16]; rates of Advanced Imaging: 49%, Admission: 22%, Midlevel/Resident staffing 35%) [Figure 1]. This variation suggests that use of advanced imaging and propensity to admit may be influenced by whether a patient visit is shared with a midlevel or resident provider.

Conclusion: At two community EDs, three distinct subgroups of EP ordering practices exist based on advanced imaging use, propensity to admit a patient, and whether a visit was shared with a midlevel or resident. This data validates prior work showing that resource utilization and admission rates are related, while demonstrating that more nuanced patterns of EP ordering practices exist based on whether a visit is shared with a midlevel or resident provider. Further investigation is needed to understand the impact of EP characteristics and behavior on throughput and quality of care.

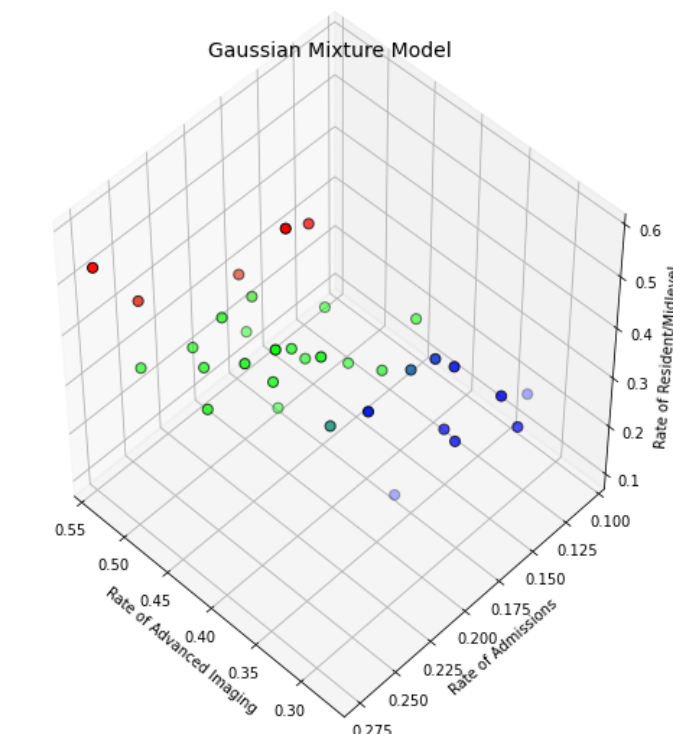


Figure 1. Gaussian mixture model

22 Variation of Emergency Medicine Resident Productivity During the COVID-19 Pandemic

Arjun Dhanik; Bryan Stenson; Daniel L. Shaw; David T. Chiu; Jake Hoyne; Joshua Kolikof; Leon D. Sanchez; Nathan McDonald; Peter S. Antkowiak

Objectives: The purpose of this study is to determine Emergency Medicine (EM) resident productivity (as measured by patients per hour) over the course of the COVID-19 pandemic compared to the prior training environment.

Background: The coronavirus disease 2019 (COVID-19) pandemic disrupted medical education throughout the United States. As a result, many EM residents began residency with atypical clinical experiences. In addition, Emergency Department (ED) patient volumes decreased during the early months of the pandemic.

Methods: This is a retrospective observational cohort

study conducted at an urban, academic medical center with an established EM residency program. Data was collected from electronic medical records between July 1, 2017 and October 31, 2021. EM residents completing full, consecutive years of residency were included in the sample. Classes prior to 2020 were defined as a control group. Due to the structure of the residency, only shifts at the academic medical center during first and second year of residency (PGY1 and PGY2) were included. Productivity was defined as total primary patient encounters divided by aggregate scheduled shift hours. To allow comparison of the most recent data, analysis was performed on the first four months (July-October) of each academic year. The data was analyzed using descriptive statistics, including standard deviation and t-tests.

Results: A total of 63 residents were included in this analysis of the first four months of each training year from 2017-2021. Prior to COVID-19, PGY1 residents evaluated 0.75 ± 0.23 patients per hour and PGY2 residents evaluated 1.46 ± 0.11 patients per hour ($p < 0.001$). Compared with the pre-COVID control group, PGY1 residents evaluated 0.64 ± 0.22 patients per hour in 2020 ($p = 0.15$) and 0.82 ± 0.21 patients per hour in 2021 ($p = 0.34$); PGY2 residents evaluated 1.44 ± 0.17 patients per hour ($p = 0.65$) in 2020 and 1.75 ± 0.17 patients per hour in 2021 ($p < 0.001$).

Conclusion: This analysis suggests that EM resident productivity at the medical center did not decrease significantly compared to prior years during the COVID-19 pandemic. While there was a trend towards fewer patients per hour in 2020, this did not reach statistical significance. These results may have applications to medical education and ED operations. The study is limited by single center, retrospective, and observational design.

23 Point-of-Care Ultrasound Interpretation of Cardiac Standstill in Children

Angela Chen; Kevin Hu

Objectives: This study seeks to determine the level of inter-observer agreement among Pediatric Emergency Medicine (PEM) physicians when interpreting POCUS for cardiac standstill in pediatric patients during cardiac arrest as well as highlight factors that may contribute to lack of agreement.

Background: Use of point-of-care ultrasound (POCUS) to diagnose cardiac standstill and guide continuation of cardiac resuscitation has gained widespread use in adult patients and is becoming more prevalent in pediatric patients. Previous studies have demonstrated moderate inter-observer agreement among physicians using POCUS to diagnose cardiac standstill during cardiac arrests in adult patients. There is limited data regarding POCUS interpretation of