Decline in Consultant Availability in Massachusetts Emergency Departments: 2005 to 2014

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Study objective: Emergency department (ED) consultation is a common practice. There are few data on consultant availability or changes in availability over time, which may hinder resource planning and allocation. We conduct serial surveys of Massachusetts EDs to investigate these trends.

Methods: We surveyed ED directors in Massachusetts in 2006 (n=61 EDs), 2009 (n=63), and 2015 (n=63) about ED characteristics in the previous year, including specialty-specific consultant availability in person (yes/no) and continuous consultant availability (yes/no). We tested trends in consultant availability (*P* for trend) and used multivariable logistic regression to calculate odds of continuous availability in 2014 versus 2005.

Results: Response rates were greater than 80% each year. From 2005 to 2014, there was an increase in the median number of annual ED visits from 32,025 (interquartile range [IQR] 23,000 to 50,000) to 42,000 (IQR 26,000 to 59,300), number of full-time attending physicians from 11 (IQR 8 to 16) to 12 (IQR 8 to 22), and number of full-time ED nurses from 27 (IQR 17 to 54) to 42 (IQR 25 to 65). In adjusted models, there was a significantly reduced odds of consultant availability in 2014 versus 2005 for general surgery (odds ratio [OR] 0.05; 95% confidence interval [CI] 0.01 to 0.35), neurology (OR 0.39; 95% CI 0.17 to 0.86), obstetrics/gynecology (OR 0.40; 95% CI 0.16 to 0.97), orthopedics (OR 0.34; 95% CI 0.13 to 0.89), pediatrics (OR 0.19; 95% CI 0.06 to 0.54), plastic surgery (OR 0.10; 95% CI 0.03 to 0.32), and psychiatry (OR 0.25; 95% CI 0.12 to 0.52).

Conclusion: In Massachusetts EDs between 2005 and 2014, ED consultant availability significantly declined despite accounting for other ED characteristics. [Ann Emerg Med. 2016;68:461-466.]

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INTRODUCTION

Background

Consultation by nonemergency physicians is an integral part of many emergency department (ED) visits, occurring during 20% to 60% of ED visits.[1] Consultations occur for hospitalization, opinion only, treatment or special procedures, transfer of care, and outpatient referral.[2] Despite high consultation prevalence, it is poorly studied; the most recent systematic review in 2008 included only 12 studies between 1966 and 2007.[2] Data suggest that consultation is more frequent at urban tertiary care hospitals and that patients receiving consultation are more likely to be admitted, both associations likely caused by confounding by illness severity and hospital resources. Response times may vary between specialties, depending on their availability, willingness, or incentive to provide consultation, or other factors.

Importance

Two important gaps in the literature may impede developing ED consultation best practices. First, data are scarce on the availability of specific consulting specialties versus overall consultant availability and whether availability changes over time. Second, the majority of data on consultation comes from academic and urban EDs, although the majority of EDs are nonurban and nonacademic. Studying ED consultation over time and among academic or nonacademic and urban or rural EDs may assist in workforce projection, matching resources to patient needs, and policy that promotes high-value consultation.

Goals of This investigation

To study these factors, we surveyed directors of all EDs in Massachusetts in 2006, 2009, and 2015 about the

Editor's Capsule Summary

What is already known on this topic

Consultation provided by specialists to emergency physicians is an ongoing challenge.

What question this study addressed

Has the availability of specialist consultants changed from 2006 to 2015?

What this study adds to our knowledge

According to surveys conducted in 2006, 2009, and 2015 in Massachusetts, consultant availability in the emergency department decreased for many specialties, including general surgery, orthopedics, plastic surgery, obstetrics/gynecology, and psychiatry.

How this is relevant to clinical practice

This article provides evidence that, at least in 1 state, it has become more difficult for patients to obtain the emergency specialty care they need.

previous year's ED characteristics, including consultation availability.

MATERIALS AND METHODS

To identify eligible Massachusetts EDs, we used the National Emergency Department Inventories (NEDI)–USA database, which provides a list of all nonfederal US hospitals with EDs. Methods for creating the database have been previously described.[3] EDs are defined as emergency care facilities open 24 hours per day, 7 days per week (continuously) and available for general public use. NEDI-USA excludes federal hospitals (eg, Veterans Affairs, Indian Health Service, and military hospitals), specialty hospitals (eg, psychiatric), and college infirmaries. The project was approved by our local institutional review board.

After identifying eligible EDs with the NEDI-USA database, we obtained detailed information on EDs with the NEDI-State survey (Appendix E1, available at http://www.annemergmed.com), which measures basic, actual operational characteristics of the ED, such as, "Is your ED open 365 days per year?" It was initially developed by Emergency Medicine Network investigators and then sent to multiple independent emergency physician reviewers from across the United States to iteratively improve it and establish greater face validity. The completed survey was deployed successfully in 2006 in Massachusetts[4] and later in 9 other states,[5,6] with greater than 80% response rate in every state.

We surveyed directors of all EDs in Massachusetts in 2006, 2009, and 2015 about the previous year's ED characteristics. Thus, responses were based on respondent estimates for 2005, 2008, and 2014. Surveys were mailed to ED directors, with up to 2 follow-up mailings sent to nonrespondents. Telephone contact followed for incomplete responses or no response to surveys.

In all years, ED directors were asked, "Are the following consultants available in person to the ED?" Specialties included anesthesia, cardiology, general surgery, neurology, neurosurgery, obstetrics/gynecology, orthopedic surgery, pediatrics, plastic surgery, and psychiatry. If respondents answered yes, they indicated whether the consultant was available continuously (yes/no). Internal and family medicine were not included in the list of consultant specialties because they, in our experience, more often refer patients to an ED or admit patients from the ED. We assumed that a provider would be identified as a consultant by his or her specialty rather than level of training (ie, resident, fellow, attending physician) and therefore did not distinguish by level of training.

We collected several other ED variables, including the number of ED visits per year, number of children ED visits per year, whether there was a separate pediatric ED (defined as a dedicated ED area for children only), percentage of ED visits that led to hospitalization (an indicator of acuity), percentage of ED visitors who arrived by ambulance (an indicator of acuity and triage characteristics), percentage of uninsured or self-pay (an indicator of insurance availability and socioeconomic status), number of critical care transfers, number of full-time ED nurses, whether any ED patients were primarily cared for in the hallway, academic status (ie, affiliated with an emergency medicine residency program), and urban or rural status of the ED. ED location was categorized as urban or rural (including adjacent to urban or not adjacent to urban) with county-based 2003 and 2013 urban influence codes (http://www.usda.gov).

Primary Data Analysis

We used descriptive statistics to summarize basic ED characteristics by year (eg, median and interquartile range [IQR]). Overall trends in ED characteristics and consultation factors across the 3 survey years were tested in bivariate analyses with regression models adjusted only for survey year and clustered by ED. Multivariable logistic regression models were used to examine the continuous availability of consultants (yes/no) during the study period. We accounted for ED clustering with repeated measures