

BRIEF REPORTS

Do Internists and Emergency Physicians Agree on the Appropriateness of Emergency Department Visits?

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The purpose of this study was to determine the levels of agreement between three methods of assessing appropriateness of emergency department (ED) visits. In particular, we tested the agreement between internists and emergency physicians reviewing the ED nurses' triage notes, containing information that might be available by telephone to an internist. For 892 adult patient ED visits reviewed, we found only moderate agreement ($\kappa = 0.47$) between these groups. In cases of disagreement, emergency physicians were 10.3 times more likely than internists to classify those with minor discharge diagnoses as appropriate for ED care. As managed care grows, the determination of ED appropriateness may depend on open discussions between physician groups, as well as on access to timely care in office settings.

KEY WORDS: emergency department, appropriateness of visits; internists; emergency physicians; physicians' opinions.
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Emergency departments (ED) are becoming busier and more crowded. There were 99.6 million visits to EDs in the United States in 1990, 43% of which were considered "nonurgent."¹ Emergency department overcrowding leads to prolonged holding times for admitted patients, and to the development of policies to restrict access to EDs.²

Our previous work demonstrated the difficulty of defining appropriateness of ED visits, finding only moderate agreement between a list of nonurgent complaints, explicit criteria (resource utilization), and the consensus of two emergency medicine specialists.³ The purpose of this study was to compare the judgments of internists and emergency physicians on appropriate ED use. This com-

parison is particularly important because of the pressure from policy makers and managed care organizations to reduce the number of nonurgent ED visits, and the need for physician groups to define sites for appropriate care.⁴

METHODS

Study Design

This study used a historical cohort design based on chart review to compare methods of determining the appropriateness of an ED visit. Detailed methods for this study have been previously published.⁴

Setting and Population

The study population consisted of adults who sought treatment at an urban teaching hospital ED between the hours of 8 AM and midnight on 30 days over a 3-month period in 1994.

Measurements

Three methods were used to define an "inappropriate" ED visit. The three methods used data contained in the nursing triage note, including a brief patient complaint and pertinent history. The first method was a previously described list of nonurgent complaints.³ Second, two board-certified internists (MJF, MDS) reviewed the triage note to answer the question, "Could this have been taken care of within 24 hours by a primary care physician without harm to the patient?" If the answer was yes, the visit was considered to be inappropriate. Third, two board-certified emergency physicians (MJS, RWW) reviewed the triage note with the same question as criterion.

Two physicians (MDS, GMO'B) blinded to the determination of appropriateness reviewed the final diagnosis on all charts and dichotomized them into "minor" and "serious" severity groups (Table 1).

Data Analysis

Levels of agreement between the three methods were calculated using the κ statistic. Matched pair odds ratios

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Table 1. Diagnosis Coding*

Minor Diagnoses	Serious Diagnoses
Upper respiratory infection	Laceration
Sinusitis	Puncture wound
Pharyngitis	Animal bite
Bronchitis	Fractures
Otitis	Headache with CNS abnormality
Epistaxis (minor)	Cellulitis
Contusion	Burns
Abrasion	Abscess
Neuropathy	Allergic reaction
Headache without CNS abnormality	Chest pain
Dental complaint	Gastroenteritis with dehydration
Peptic ulcer disease without bleeding	Pyelonephritis
Hepatitis without complications	GI bleed
Hepatitis exposure	Nephrolithiasis
Gastritis	Severe epistaxis
Urinary tract infection	Eye injury
Prostatitis	Pneumonia
Hematuria (microscopic)	Pulmonary embolus
Suture removal	Pneumothorax
Wound check	Hemoptysis
Medication refill	Asthma
Hemorrhoids	Chronic obstructive pulmonary disease
Rash	Congestive heart failure
Lump	Seizure
Alcohol intoxication	Syncope
Anxiety	Stroke
Viral syndrome	Palpitations
	Pericarditis
	Deep venous thrombosis
	Diabetic ketoacidosis
	Hypoglycemia
	Incarcerated hernia
	Sickle cell crisis
	Dehydration
	Dizziness
	Head injury

*Note CNS indicates central nervous system; GI, gastrointestinal.

(ORs) were calculated for the likelihood of a visit being classified as appropriate by one criterion versus another.

RESULTS

From 1,275 eligible patient visits, 1,035 charts were available for review. Another 143 visits were excluded because of missing data, leaving 892 visits (70%) for analysis. The patients were 64% white, 54% employed, 50% female, and 29% uninsured.

Overall rates of inappropriateness were as follows: internists, 69%; list, 58%; emergency physicians, 47%. For each method, we calculated the percentage that had a discharge diagnosis that was classified as serious. For internists and the list, 29% had serious diagnoses; for emergency physicians, 28%.

There was only moderate agreement between the three methods of determining appropriateness that utilized triage information only (Table 2). To determine if the agreement was only moderate because one method was more likely than the other to classify a visit as appropriate, matched ORs were calculated to determine if there was such an association. In cases of disagreement, we found that emergency physicians were 2.0 times more likely to classify an ED visit as appropriate than the list, and internists were 0.4 times more likely to classify an ED visit as appropriate than the list.

We hypothesized that agreement might have been better for sicker patients. Both between internists and the list and between emergency physicians and the list, agreement remained moderate for minor and for serious diagnoses. When we compared the two physician specialists, however, there was a more marked difference in agreement between diagnosis severity groups. Agreement was low for minor diagnoses ($\kappa = 0.29$) but higher for serious diagnoses ($\kappa = 0.55$). When considering disagreements on the minor diagnoses, emergency physicians were 10.3 times more likely to classify those patients with minor diagnoses as appropriate than internists.

DISCUSSION

Comparison of internists and emergency physicians' judgments of ED appropriateness yielded moderate agreement; however, there was stronger agreement about patients with serious diagnoses and a lower level of agreement about patients with minor diagnoses. For those with minor diagnoses, physicians in each specialty preferred their own setting for evaluation.

There are at least four possible reasons for the emergency medicine physicians' preference for ED evaluation. First, emergency physicians believe their role is both to evaluate patients and to provide initial diagnosis and treatment regardless of the condition. Second, many services and tests necessary for evaluation are readily available in the ED, making it efficient for emergency physicians to perform this role. Third, controversy remains over the safety of limiting ED access. Emergency physicians are acutely aware that patients on Medicaid or without insurance may not have access to timely medical care in an alternative setting.^{5,6} There is evidence for this in the failure to validate the safety of triaging patients out of the ED as reported at the University of California at Davis.^{7,8} Finally, there is financial gain from seeing these patients in the ED, although the true costs to payers of nonurgent care in the ED are relatively low.⁹

There are at least four possible reasons for internal medicine physicians' preference for office evaluation of patients with minor illness. First, internists may feel that one of their primary roles is to care for patients with minor diagnoses in an office setting. Second, by seeing such patients in an office setting, internists can more readily ensure continuity of care. Third, internists may be biased

Table 2. Levels of Agreement (κ), Absolute Agreement (%), and Matched Odds Ratios of Inappropriateness Determinations

	Emergency Physicians/List	Internists/List	Emergency Physicians/Internists
Overall κ (% absolute agreement)	0.42 (69)	0.40 (72)	0.47 (73)
Minor diagnosis κ (% absolute agreement)	0.37 (70)	0.29 (76)	0.29 (70)
Serious diagnosis κ (% absolute agreement)	0.34 (70)	0.36 (68)	0.55 (78)
Overall OR (95% CI)	2.02 (1.61–2.53)*	0.40 (0.30–0.53)*	8.95 (6.58–12.16)*
Minor diagnosis OR (95% CI)	2.27 (1.58–3.26)*	0.28 (0.18–0.43)*	10.3 (6.4–16.4)*
Serious diagnosis OR (95% CI)	1.79 (1.21–2.64)*	0.55 (0.37–0.82)*	6.89 (3.79–12.53)*

* $p < .01$.

by pressure from managed care organizations to assume the role of gatekeeper and keep patients out of the ED to reduce costs. Finally, there is financial gain from seeing patients in the office setting, and in capitated systems, there is financial loss when patients are seen outside the primary care setting.

Our results show only moderate agreement between the list and the two physician methods of determining inappropriate ED visits. Previous work has suggested that similar lists are not good predictors of the need for ED care, and agreement is only moderate between this list and other criteria for defining an inappropriate visit to the ED.^{3,8}

Predictions of appropriateness in advance of an evaluation such as the list may be suboptimal, both because acute and nonacute illnesses may manifest in similar ways and because nonmedical factors such as degree of pain, access to other sources of care, and social resources must be considered.⁵ In addition, studies on gatekeepers report that 0.25% to 1.9% of nonurgent patients triaged to sites other than the ED are admitted the same day.^{10–13} Our data support the difficulty in using incomplete patient information. Approximately one third of patients deemed inappropriate by any of these three methods ultimately had an ED discharge diagnosis that was serious.

This study has several limitations. First, it is limited by the retrospective review of triage information. However, the triage data are similar to information that would be available by telephone to an internist or a nurse, and the same as would be available to an emergency physician. Second, we were unable to assess whether there were any specific complaints from the list which were more likely to be associated with being deemed appropriate by the physicians. Third, our physician reviewers practice in an academic setting and their judgments may reflect their personal practice style and philosophy of their roles. Fourth, the dichotimization of diagnoses into minor and serious was not based on any standard, but a previously published study also used similar methodology.¹⁴ Finally, we were limited to a few physicians at a single study site, albeit a large busy urban ED with a significant indigent population, similar to the settings in which "overuse" of the ED has been described.^{2,15–18}

This study demonstrated only moderate agreement between different methods of defining an inappropriate

ED visit. When addressing visits for minor diagnoses, both emergency physicians and internists believed they could provide efficient, cost-effective quality care in their setting. The larger issue of access to care may depend more on the patient population, economic issues, and local resources than on physician preference. Access to alternative sites of primary care may in fact be the greatest barrier to care for persons with minor problems.⁷ This highlights the need not only for internists to provide timely access to primary care for those with minor diagnoses, but also for emergency physicians to make charges better reflect actual costs for such visits for persons who do not yet have access to primary care providers.

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