

Nonemergency Emergency Room Use in Patients With and Without Primary Care Physicians

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Randomly selected charts from 1,003 visits to a community hospital emergency room were reviewed to determine whether nonemergency emergency room use is more common among patients who have no personal primary care physicians than among patients who have physicians. Nonemergency and emergency diagnoses were rigorously defined for the study.

There were no significant differences in age or sex between the 501 patients who had physicians and the 502 patients who did not have physicians, although significantly more of the patients who had physicians were married than single (54 percent vs 43 percent, $P < .01$) and significantly more of the patients who had physicians were nonsmokers than smokers (55 percent vs 39 percent, $P < .001$). Comparison of presenting blood pressures for the two groups yielded no significant differences overall or in any age group. Patients who did not have physicians presented to the emergency room with nonemergency conditions more frequently than patients who had physicians (85.8 percent vs 78.4 percent, $P < .05$). For both groups, the most common nonemergency reasons for emergency room visits were minor lacerations and minor contusions, and the most common emergency reasons were major contusions and fractures of major bones.

This study supports the concept that patients who have regular personal physicians tend to present to emergency services with true emergency conditions more often than patients who do not have personal physicians.

Patient use of hospital emergency facilities for non-emergency reasons has been felt to be a problem in US health care for several years.^{1,2} This episodic form of health care does not provide comprehensive care and is in the long run more expensive to the patient and to the health care system. Frequent misuse of the emergency room might be considered the antithesis of the philosophy of the family physician who emphasizes patient follow-up and comprehensive care.³

Nelson et al³ showed a greater tendency toward inappropriate use of the emergency room in patients on medical assistance than in a self-supporting² population. Benz and Shank⁴ showed that inappropriate emergency room

visits could be reduced in a population by means of a patient education program. The problem, however, has not been studied specifically comparing patients who have personal physicians with those who do not. This study examined the hypothesis that patients who have personal physicians use emergency services less often for non-emergency reasons.

METHODS

A retrospective review of 1,003 randomly selected charts was made from patient visits to the emergency room of St. Joseph Hospital, Flint, Michigan, over a three-month period in 1983. Five hundred one patients who designated themselves as having personal physicians and 502 patients who listed themselves as having no physician were selected. All patients on entry to the emergency room were asked to name a private physician by the admissions clerk and also later by a nurse or attending emergency room physician to facilitate follow-up. If the patient could not

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TABLE 1. SPECIFIC CRITERIA FOR SEPARATION OF SOME EMERGENCY AND NONEMERGENCY DIAGNOSES

Diagnosis	Nonemergency	Emergency
Lacerations	Two or fewer, uncomplicated, less than 5 cm in length	More than two lacerations or lacerations over 5 cm in length
Contusions	Listed as "minor" and not associated with motor vehicle accident, physical assault, or without associated fracture	Listed as "major," or associated with motor vehicle accident, or physical assault
Fracture	Uncomplicated fractures of any digit or metacarpal	Fracture of any bone other than a digit or metacarpal

name a private physician, a designation of no physician was made. Because it was difficult to determine the extent to which a patient was receiving comprehensive primary care from, for example, a surgical subspecialist, only designations of primary care physicians (internists, family physicians in residency or private practice, pediatricians, or obstetrician-gynecologists) were accepted as personal physicians. Approximately 100 charts were deleted from the study to satisfy this criterion. The patient's age, sex, race, and smoking status were taken from the chart face sheet as listed by the patient. The patients were asked to self-report whether they considered themselves a smoker or nonsmoker at the time seen. Financial classification was taken as listed on the emergency room face sheet: Blue Cross-Blue Shield, Medicare, Medicaid, pre-collection hold, commercial insurance, and private payer.

No patients were seen in the emergency room by their personal physician. The emergency room charts were reviewed and final diagnoses were taken as written by the attending emergency room physician. Rigorous criteria were developed for this study, which were modified from the literature,^{5,6} and these criteria were applied uniformly to both sets of patients. A nonemergency diagnosis was defined as any diagnosis of a medical problem that can be treated adequately and safely in an office setting. Included under this definition were minor contusions, minor fractures, pharyngitis, upper respiratory tract infection, and gastroenteritis. An emergency diagnosis was defined as a medical problem that can be treated adequately and safely only in a hospital emergency facility and that any time delay might be harmful to the patient. Included under this definition were fractures of major bones, chest pain (cause unknown), and medication overdose. Specific criteria were defined by the authors for diagnoses for which the degree of urgency might be less clear, and these criteria were applied to all charts selected for the study (Table 1).

According to these criteria, for example, if two persons were in a motor vehicle accident, and one suffered a major fracture and the other had contusions, both would be listed as emergency patients. Other specific definitions are available on request. All emergency room charts were also reviewed by a nonphysician author (M.S.) to reduce bias in these judgments.

It appeared that patients waited for varying lengths of time before coming to the emergency room for similar conditions and that private physicians had different policies as to when to advise their patient to come to the emergency room. To simplify study design, therefore, only the above criteria and not the time of presentation was used in determining whether the visit was an emergency or nonemergency.

Blood pressure data for all patients were taken as recorded by the emergency room nurse on the emergency room record. Whereas it might be argued that blood pressures taken on arrival to the emergency room might be falsely high because of patient anxiety, the same method and criteria were applied uniformly to all patients. Hypertensive blood pressure readings were determined by the authors as modified from McMahon.⁷ A hypertensive blood pressure measurement for patients aged 18 through 64 years was defined as a reading $\geq 150/85$ mmHg (either or both numbers). For those aged 65 years or older, a reading of $\geq 165/95$ mmHg was considered to be hypertensive. To define a hypertensive blood pressure measurement in those aged 2 to 17 years, standard blood pressure charts⁸ were used. Either systolic or diastolic measurements above the 90th percentile were considered high.

The chi-square test was applied to all results, with $P < .05$ considered significant.

RESULTS

The mean age for patients with physicians was 25.92 years, and for patients without physicians, 25.87 years. A significantly higher proportion of patients without physicians than patients with physicians were in the 21- to 30-year age group (34 percent and 21 percent, respectively, $P = .00006$). The proportions of patients with physicians and patients without physicians in other age groups, however, were similar ($P > .05$). Though more male than female patients presented to the emergency room in both the patients with physicians and patients without physicians groups, the differences between the patients with physicians and patients without physicians groups were not statistically significant (Table 2, $P > .1$). There were somewhat more whites (73 percent with physicians vs 67 percent without physicians) than nonwhites (27 percent with physicians vs 31 percent without physicians) in the

TABLE 2. COMPARISON OF SEX, MARITAL STATUS IN PATIENTS AGED 18 YEARS AND OVER, SMOKING STATUS IN PATIENTS AGED 15 YEARS AND OVER, AND NUMBER OF EMERGENCY AND NONEMERGENCY VISITS FOR PATIENTS WITH AND WITHOUT PHYSICIANS

Patient Characteristics	Patients With Physicians No. (%)	Patients Without Physicians No. (%)	P
Male	267 (53)	288 (57)	
Female	231 (46)	209 (42)	>.1
Not listed	3 (1)	5 (1)	
Single	154 (43)	206 (57)	
Married	155 (54)	132 (46)	<.01
Not listed	5 (21)	19 (79)	
Smoker	135 (36)	216 (62)	
Nonsmoker	207 (55)	171 (45)	<.001
Not listed	3 (21)	11 (79)	
Nonemergency	393 (78)	430 (86)	<.05
Emergency	108 (22)	71 (14)	

patients with physicians vs the patients without physicians group, though this was not statistically significant ($P < .1$). There was a significantly higher percentage of married than single patients in the patients with physicians group than in the patients without physicians group (Table 2). There were many more patients who listed themselves as smokers than nonsmokers in the patients without physicians than in the patients with physicians group (Table 2, $P > .001$). In terms of payment method, there were more patients with Blue Cross-Blue Shield insurance in the patients with physicians than in the patients without physicians group (58 percent with physicians vs 42 percent without physicians). There were somewhat more patients utilizing Medicaid payments in the patients without physicians vs the patients with physicians group (55 percent in patients without physicians vs 45 percent in patients with physicians). There were more patients without insurance and more patients using Workers' Compensation services in the patients without physicians than in the patients with physicians group (72 percent vs 28 percent and 69 percent vs 31 percent, respectively).

There was a significant association between type of emergency room use in patients with and without personal physicians. More patients without physicians than patients with physicians came to the emergency room with non-emergency problems and more patients with physicians than patients without physicians presented with emergency problems (Table 2, $P < .05$). The two most common nonemergency diagnoses were minor lacerations and minor contusions (Table 3). Diagnoses of pharyngitis and nonspecific gastroenteritis appeared more commonly in the patients with physicians group, though these did not

TABLE 3. COMPARISON OF MOST COMMON DIAGNOSES FOR NONEMERGENCY AND EMERGENCY VISITS IN PATIENTS WITH PHYSICIANS AND PATIENTS WITHOUT PHYSICIANS

Diagnosis	Patients With Physicians No. (%)	Patients Without Physicians No. (%)
Nonemergency Visits		
Laceration(s), minor	73 (48)	79 (52)
Contusion(s), minor	36 (46)	42 (54)
Pharyngitis	24 (63)	14 (37)
Gastroenteritis, nonspecific	22 (61)	14 (39)
Upper respiratory tract infection	19 (36)	35 (64)*
Sprain, ankle	15 (58)	11 (42)
Strain, muscle	9 (35)	17 (65)
Otitis media, purulent	10 (40)	15 (60)
Urinary tract infection	10 (44)	13 (57)
Musculoskeletal pain, nonspecific	7 (29)	17 (71)**
Viral syndrome	11 (100)	0 (0)
Emergency Visits		
Contusion(s), major	26 (51)	45 (49)
Fracture, major bone(s)	17 (65)	8 (32)
Laceration(s), major	5 (39)	8 (62)
Head injury, major	3 (33)	6 (67)
Chest pain, cause unknown	5 (100)	0 (0)
Abrasions, secondary to motor vehicle accident	4 (100)	0 (0)
Angina pectoris	3 (100)	0 (0)
Conjunctivitis, traumatic	3 (100)	0 (0)
Foreign body, esophageal	3 (100)	0 (0)
Disruption, tendon	3 (100)	0 (0)
Strain, cervical or muscle, secondary to motor vehicle accident	3 (30)	7 (70)
Medication overdose	0 (0)	3 (100)
Cholecystitis, acute	0 (0)	2 (100)
Keratoconjunctivitis, welding	0 (0)	2 (100)

* $P = .03$

** $P = .04$

reach statistical significance. Diagnoses of upper respiratory tract infection appeared more commonly in the patients without physicians group ($P = .03$). The most common emergency diagnoses were major contusions and fractures of major bones (Table 3). Comparison of numbers for emergency diagnoses for patients with and without physicians did not reach statistical significance. Eight patients in the patients with physicians group had a diagnosis of chest pain, cause unknown, or angina, whereas no patients in the patients without physicians group had these diagnoses.

DISCUSSION

This study supports the concept that patients who have personal physicians tend to make fewer unnecessary emergency room visits. Davidson et al⁹ reported a similar result for the British medical system. The obvious conclusion of this study is that if people simply had personal physicians, nonemergency emergency room use would decrease. What is not clear, however, is whether non-emergency emergency room use exists because many patients elect not to have physicians or people elect not to have physicians because of the existence of emergency services. In either case, it seems appropriate to urge the populace to register with a personal physician. It is interesting that a significantly higher number of patients without physicians presented to the emergency room with upper respiratory tract infections, a condition easily seen at low cost in the physician's office.

Furthermore, it may be an oversimplification to view emergency room use as appropriate or inappropriate. Powers et al¹⁰ in their studies cited patient concern about health, perceived level of stress, and stressful life events as factors in emergency room utilization. They state that ". . . from the patients' perspective, their emergency room use was appropriate because they thought their symptoms were serious." Other authors¹¹ cite other reasons for inappropriate emergency room use, such as closeness of the emergency room to patient's home, the patient's perception of their physician as being unavailable, and the emergency room as being the only 24-hour source of medical care.

It appears that emergency room users who are married have physicians more often than single users. It is not clear, however, whether a person who is married is likely to be concerned about his health and is therefore more likely to have a physician or whether a patient who is likely to have a physician is also likely to be married. It may be that married users are less likely to use emergency services because they have more social support.

There were significantly more emergency room users who listed themselves as smokers in the patients without physicians than in the patients with physicians groups. But again, it is not clear whether a person who considers himself a smoker is perhaps less health conscious and therefore less likely to have a physician or whether a person who chooses not to have a physician is for some reason more likely to be a smoker. It may be that anxiety, smok-

ing, illness, and emergency room use are linked in a cycle for patients without physicians.

As essential hypertension is most often an asymptomatic condition, it seems reasonable to expect that there would be more hypertension in that group of emergency room users that list themselves as not having a physician because these patients would most likely not have knowledge of their condition. Though there was an overall tendency for the patients without physicians group to have more hypertensive readings, these numbers did not reach statistical significance.

In this study data are presented to suggest that patients who have personal primary care physicians make fewer emergency room visits for nonemergency reasons than patients without physicians. The philosophy of the family physician emphasizes office medical care, comprehensive patient care, care of the entire family, and patient follow-up. If having a primary physician helps to prevent non-emergency emergency room use and, therefore, to reduce medical care costs and promote continuity of care, then these findings contribute to the growing database supporting the philosophy of family medicine.

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