

## Family Physicians and Current Inpatient Practice

*Daniel S. Stadler, Stephen J. Zyzanski, PhD, Kurt C. Stange, MD, PhD,  
and Doreen M. Langa*

---

**Background:** Increasing demand for primary care physicians has led some to recommend that family physicians focus on ambulatory care, leaving inpatient care to hospital-based physicians only. This study examines the current level of family physician involvement in the care of hospitalized patients and the factors which determine that involvement.

**Methods:** A questionnaire was sent to a random sample of 415 practicing family physician members of the American Academy of Family Physicians. An inpatient involvement score was generated based on responses to a series of hypothetical clinical scenarios involving hospitalized patients. Physician and practice characteristics were tested for associations with the involvement score.

**Results:** The typical responding physician (n = 228) was male, married, and board certified, with an average age of 45 years and in community-based practice. The median number of annual admissions was 60. Independent predictors of inpatient involvement were younger physician age, greater enjoyment of inpatient and outpatient medicine, fewer extrahospital obligations, and less-complex disease in the hospitalized patient.

**Conclusions:** Inpatient medicine continues to figure prominently in the work of family physicians. The strongest predictors for inpatient involvement are those controlled by the physician's individual choices and characteristics rather than external and bureaucratic factors. (J Am Board Fam Pract 1997;10:357-62.)

---

There are those who argue that as inpatient medicine has become increasingly technically centered and reserved for only the most severely ill, it has become a specialty in itself.<sup>1-3</sup> Despite many who would differ,<sup>4,5</sup> these proponents argue that the United States should emulate other nations and sharply distinguish ambulatory from nonambulatory practitioners.<sup>6,7</sup> Others suggest that restricting control of expensive hospital procedures to a small, highly trained group would facilitate cost control simply because it is easier to effect change in fewer physicians.<sup>3</sup> Still others suggest that as a greater number of procedures are being shifted into the outpatient setting, the average clinic-based physician has less time for hospital care and should be freed from the attendant intense responsibilities.<sup>4,5</sup> What role have these ar-

guments had on the work of family physicians, the most outpatient based of all medical disciplines? We undertook this study to examine how family physicians themselves view their hospital practice, how involved they are with their hospitalized patients, and what factors determine that involvement.

### Methods

A national, random sample of 415 practicing family physicians was drawn from the database of the American Academy of Family Physicians (AAFP), and a 2-page questionnaire was mailed to each in July 1995. After 4 weeks nonresponders were sent a second questionnaire.

The questionnaire was divided into two parts. The first part inquired about various demographic, practice, and attitudinal characteristics. Issues addressed included location and size of practice, areas of hospital privilege, how hospitalized patients were cared for in the practice, and physicians' enjoyment of inpatient and outpatient medicine. In addition, a single question asked respondents to rate various factors as they affected inpatient care. Among these factors were geographic distance from the hospital, outpatient re-

---

Submitted, revised, 9 April 1997.

Case Western Reserve University School of Medicine (DSS), and the Department of Family Medicine, Case Western Reserve University (SJZ, KCS, DML), Cleveland. Address reprint requests to Daniel S. Stadler, 2614 Hampshire Rd, Cleveland Heights, OH 44106.

This work was supported in part by the Robert Wood Johnson Foundation Generalist Initiative at Case Western Reserve University School of Medicine.

**Table 1. Description of the Sample (n = 228).**

Characteristics	
<i>Categorical variables</i>	
Male	Percent 79
Married	90
Children	90
Age < 18 y	77
Age > 18 y	37
Board certified	89
Solo practice	25
Practice admits to one hospital	53
Rural location	25
Hospital privileges	
Medicine	99
Pediatrics	85
Intensive care unit	75
Coronary care unit	73
Surgery (assisting)	43
Obstetrics	36
Psychiatry	26
Neonatal intensive care unit	9
<i>Continuous variables</i>	
Age (y)	Mean (SD) 45 (10)
Years in practice	15 (11)
Hours worked per week	52 (14)
Patients seen per week (median)	100 (46)
Patients hospitalized each year (median)	60 (133)
Practice payment categories (%)	
Fee for service	28 (19)
Managed care	36 (26)
Medicaid	9 (12)
Medicare	23 (15)
Self pay	10 (10)
Time spent (%)	
Patient care	90 (19)
Teaching	4 (11)
Practice management	5 (7)
Research	1 (3)

sponsibilities, personal responsibilities, hospital and insurance regulations, and illness complexity.

The second part listed nine inpatient clinical scenarios representing a range of patient types and medical complexity not including obstetric care. Respondents were asked to select one of four choices to describe how they would manage each scenario. Selected examples of scenarios included a 9-month-old infant with bronchiolitis and mild retractions, a 2-year-old child with meningitis and new-onset seizures, a 30-year-old depressed patient with suicidal ideation, a 55-year-old patient with uncomplicated myocardial infarction, and a 55-year-old patient with myocardial infarction, ventricular tachycardia, and congestive heart failure.

The respondents' choices were as follows: take primary responsibility (4), manage with a consultant's help (3), turn over care to another physician (2), and I don't see patients like this (1). The numeric values following each alternative represent the points assigned to each choice. For each respondent a total scale score was computed based on the sum of responses to the nine scenarios. Thus, scores on this inpatient involvement scale could range from 9 to 36, with high scores indicating high involvement with inpatients. An assessment of the reliability of internal consistency for the scale was also computed based on the Chronbach alpha statistic.

The statistical analyses of these data were conducted in three phases. In the first phase we computed descriptive statistics characterizing the respondents. These statistics were reported as percentages for categorical variables and means and standard deviations for continuous variables. We then compared these descriptive statistics with statistics reported by the AAFP to assess the representativeness of the respondents.

In the second phase we tested individual physician and practice characteristics for association with the newly developed inpatient involvement scale. Categorical variables were tested for association by means of  $\tau$ -test and analysis of variance, and continuous variables were tested using Pearson correlation.

The third phase of analysis involved a backward elimination stepwise multiple regression analysis of the variables found to be associated with involvement scale scores in the second phase. Through this analysis we found a subset of variables representing physician and practice characteristics that were independently associated with high inpatient involvement. Finally, as an estimate of how well the final subset of variables predicted the degree of inpatient involvement, we computed both multiple correlation and percentage of variance explained by the predictors.

## Results

The response rate to the questionnaire was 55 percent, with 228 physicians returning the questionnaire. The respondents are demographically similar to the AAFP membership—their average age is 45 years, 15 percent are female, 26 percent practice obstetrics, they work an average of 47 hours per week, and they see an average of 107

**Table 2. Association of Physician and Practice Variables with Involvement Scale Scores\* (n = 228).**

Practice Variables			P Value
<i>Categorical</i>	<i>No.</i>	<i>Mean Inpatient Involvement Score*</i>	
Sex			
Male	181	27.9	0.04
Female	46	29.2	
Board certified			
Yes	202	28.4	0.03
No	25	26.2	
Practice type			
Solo	53	26.9	0.03
Group	166	28.4	
Location			
Suburban, urban	171	27.7	0.03
Rural	56	29.2	
Primary coordinator of care for most hospitalized patients			
Yes	185	29.0	0.001
No	33	24.3	
Enjoy outpatient medicine			
Not at all, some	32	25.7	0.001
A lot	195	28.5	
Responsible for hospitalized patients			
Responding physician	143	28.7	0.001
Shared with partners	54	29.1	
Hospital staff, specialists	20	22.4	
Enjoy inpatient medicine			
Not at all	14	22.9	0.001
A little	33	26.9	
Some	82	28.2	
A lot	98	29.5	
<i>Continuous</i>		<i>Correlation Coefficient</i>	
Fewer areas of hospital privileges		-.30	0.001
Younger physician age		-.29	0.001
Fewer family, personal responsibilities		-.23	0.001
Less-complex patient illnesses		-.19	0.004
More time teaching		.17	0.008
Percentage of patients enrolled in Medicaid		.16	0.015
Number of children < 18 y		.16	0.012
Fewer patients per week		-.15	0.023
Less time in patient care		-.15	0.027
Fewer outpatient responsibilities		-.14	0.033

\* Higher score = greater involvement with hospital care (range of scores = 9-36).

patients per week.<sup>8</sup> As expected, all respondents to our survey have hospital privileges of some kind, whereas 87 percent of AAFP members have hospital privileges.<sup>8</sup>

An assessment of the internal consistency reliability of the inpatient involvement scale was computed based on the Chronbach  $\alpha$  statistic and found to be highly reliable. The Chronbach  $\alpha$  reliability coefficient for the nine-item scale was 0.80.

Table 1 displays the general characteristics of the respondents and their practices. Typical re-

spondents to our survey were male, married, board-certified physicians with an average age of 45 years. Seventy-five percent practiced in urban or suburban locations, worked an average of 52 hours per week, and saw roughly 100 patients during that time. Most were community clinicians who spent approximately 90 percent of their time practicing patient care. Thirty-six percent of respondents had obstetric privileges. With regard to inpatient practice, these physicians admitted a median of 60 patients each year. Most respon-

**Table 3. Backward Elimination Multiple Regression Analysis of Degree of Involvement Scale Scores in a Sample of 228 Family Physicians.**

Variable	$\beta$	<i>t</i>	<i>P</i> Value
Age of physician	-.34	-6.0	0.001
Greater enjoyment of inpatient medicine	.28	4.8	0.001
Greater family or personal responsibilities	-.22	-3.8	0.001
Greater enjoyment of outpatient medicine	.16	2.8	0.005
Greater complexity of patient's illness	-.15	-2.8	0.006
Patients seen per week	-.13	-2.3	0.021

$F = 18.64$  ( $df = 6, 219$ ),  $P = 0.001$ , multiple  $R = .58$ , multiple  $R^2 = .34$ .

dents had hospital privileges in both medicine and pediatrics.

The results shown in Table 2 relate the physicians' inpatient involvement ratings with the demographic and practice characteristics explored in the questionnaire. Items that directly asked the physician to describe his or her involvement with hospitalized patients were strongly associated with the involvement rating score. These associations help to validate the summary rating measure of physician involvement. Although many items show strong association with involvement, the potential predictors can be grouped into three major categories: those related to age, those related to enjoyment of one's work, and those related to constraints on the physician's time. Institutional or bureaucratic factors (eg, hospital policies, insurance regulations) showed no significant association with the involvement rating.

The consolidation of predictors into three main categories (age, enjoyment, and time limitations) is further evidenced by the findings shown in Table 3, in which we used a backward elimination multiple regression analysis to select a parsimonious set of predictors by reducing the effects of redundant information in the data. Six variables showed an independent and significant association with the involvement rating. Age was a consistent factor; as age increased, involvement with hospitalized patients decreased. Interestingly, enjoyment of both inpatient and outpatient medicine had a positive association with the involvement rating. Finally, as expected, increasing extrahospital obligations, both personal and clinical, had a reverse association with our outcome measure. These variables together accounted for 34 percent of the variance in the physicians' inpatient involvement ratings.

## Discussion

This study shows that inpatient medicine continues to figure prominently in the work of family physicians. With 72 percent of respondents reporting high to very high involvement, it would appear that hospital care has become neither too complicated nor so time consuming as to restrict family physicians to the clinic. Notable in our findings is that the primary factor determining a physician's inpatient work is the physician's desire to see patients in the hospital. The factors having the strongest association with hospital care were associated with individual characteristics and choices, specifically the age of the physician, the degree of the physician's responsibilities outside the practice, and how much that physician enjoyed the practice of medicine. These findings point to issues of personal choice and experience, not to any external structure within the health care system.

The two other variables shown in Table 3, physician perception of greater disease complexity and increasing outpatient load, are not necessarily directly controlled by the individual physician. These two variables, while accounting for less variance than the above factors, suggest that external factors could play a role in the type of hospital care a family physician can offer. The first, increasing disease complexity, raises an important question: Does increasing disease complexity hinder hospital care because of the increased time it requires or because of the physician's lack of expertise? Our study methods did not allow us to make this distinction. Regardless of the cause, however, as hospitals serve sicker patients, will there be less room for clinic-based physicians in inpatient care? Further study is clearly in order.

The association of increasing number of patients seen per week and decreasing inpatient care suggests that cost-cutting mechanisms might indirectly push health care toward distinct ambulatory and inpatient arenas. As resources continue to become scarce, and more physicians work for larger institutions, it is possible the pressure to see more patients would increase. It is likely that these physicians will have less time to care for their hospitalized patients, and someone else will need to provide inpatient services. It is interesting that the association between the number of patients seen per week and physician's inpatient involvement was nonlinear, ie, it displayed a threshold effect. High inpatient involvement was maintained up to about 145 patients seen a week. Further increases in the number of patients seen each week were associated with a significant drop in inpatient involvement.

Certain factors in our study limit its implications. Self-reported behavior is used as the basis of our outcome measure, leaving room for bias and false reporting. Although our sample was demographically similar to AAFP members as a whole, the modest response rate of 55 percent raises questions about whether our respondents represented a skewed or a truly representative sample. The absence of physicians without hospital privileges among the respondents helps to explain factors affecting the degree of inpatient involvement but limits efforts to explore why physicians might decide not to perform hospital practice. The national random sample, the strong similarity between our respondents and AAFP members, and the strong measure of internal consistency reliability give strength to the study's findings.

A number of physicians took advantage of an open-ended question to share their experiences of inpatient care in a managed care setting. One respondent wrote, "Our hospital developed an inpatient team of MDs on site to take primary responsibility for medical patients of any physician. Our group now admits exclusively to the team. It is such a relief not to have to admit medical patients after office hours or [while] on call." Another wrote, "I am not supposed to take care of my HMO patients...when hospitalized. That means I admit only 4 patients a year and tend to forget a lot about hospital medicine." Still another wrote, "I have served on the board since its inception 10 years ago of an IPA which was physi-

cian owned. We recently sold out to a large managed care organization. One of the first things the new owners did was hire physicians to devote their time solely to caring for any patients in the managed care plan who had to be hospitalized. Primary care physicians who wish to give their time gratis can certainly continue to see their hospitalized patients.... The smart managed care people realize that...the big money is, and always has been, in savings that could be derived from the hospital side.... I see the time quickly coming when the majority of physicians will either provide inpatient care or outpatient care, not both. It is not economical to do so; therefore, it will not be done."

The views of these physicians seem to predict a sharp distinction, driven by managed care, between the outpatient generalist and the inpatient hospitalist (who is responsible for inpatients only). Our study supports the view that, at present, for family physicians this distinction has not developed to any particular degree. In the recent AAFP hospital practice characteristics survey,<sup>8</sup> only 1.3 percent of physicians reported having given up their hospital privileges when they entered a managed care system. Family physicians are still free to choose whether and to what degree they will practice inpatient medicine, outpatient medicine, or both and, as our study suggests, a substantial number continue to enjoy hospital-based medicine.

If, however, the predictions of these physicians do emerge, the entire discipline of family medicine will need to address some important questions: Will family physicians be allowed to choose between inpatient and outpatient medicine, or will that choice be made for them? Does the family physician have a role in the care of patients whose illnesses require even the most highly specialized services? How central is continuity of care to the philosophy and culture of family medicine? Will an exclusively outpatient-based practice be an attractive option for the medical students of the future? At present these issues do not directly affect the lives of most family physicians. Given the current dynamic health care environment, however, these issues could begin to take on increasing importance in the not-too-distant future.

---

The authors acknowledge the family physicians who thoughtfully responded to the survey upon which this report is based.

## References

1. Wachter RM, Goldman L. The emerging role of "hospitalists" in the American health care system. *N Engl J Med* 1996;335:514-7.
2. Proger S. A career in ambulatory medicine. *N Engl J Med* 1975;212:1318-24.
3. Petersdorf RG. Issues in primary care: the academic perspective. *J Med Educ* 1975;50:5-13.
4. Geyman JP. Hospital practice of the family physician. *J Fam Pract* 1979;8:911-2.
5. Rosenblatt RA, Moscovice IS. The hospital role of family physicians. *West J Med* 1985;143:537-40.
6. Melzer SM, Grossman DC, Rivara FP. Physician experience with pediatric inpatient care in Washington State. *Pediatrics* 1996;97:65-70.
7. Menna VJ. Inpatient care: the general pediatrician's future. *Pediatr Rev* 1990;12:165-6.
8. Facts about family practice, 1994. Kansas City, Mo: American Academy of Family Physicians, 1994.