

## Primary Care Physician Job Satisfaction and Turnover

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**Objective:** To examine the relationship of personal characteristics, organizational characteristics, and overall job satisfaction to primary care physician (PCP) turnover.

**Subjects and Methods:** A cohort of 507 postresident, nonfederally employed PCPs younger than 45 years of age, who completed their medical training between 1982 and 1985, participated in national surveys in 1987 and 1991. Psychological, economic, and sociological theories and constructs provided a conceptual framework. Primary care physician personal, organizational, and overall job satisfaction variables from 1987 were considered independent variables. Turnover-related responses from 1991 were dependent variables. Bivariate and multivariate analyses were conducted.

**Results:** More than half (55%) of all PCPs in the cohort left at least 1 practice between 1987 and 1991. Twenty percent of the cohort left 2 employers. PCPs dissatisfied in 1987 were 2.38 times more likely to leave ( $P < .001$ ). Primary care physicians who believed that third-party payer influence would decrease in 5 years were 1.29 times more likely to leave ( $P < .03$ ). Non-board certified PCPs were 1.3 times more likely to leave ( $P < .003$ ). Primary care physicians who believed that standardized protocols were overused were 1.18 times more likely to leave ( $P < .05$ ). Specialty, gender, age, race, and practice setting were not associated with PCP turnover.

**Conclusions:** Turnover was an important phenomenon among PCPs in this cohort. The results of this study could enable policy makers, managed care organizations, researchers, and others to better understand the relationship between job satisfaction and turnover.

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Healthcare services are undergoing dramatic changes in organization and financing,<sup>1</sup> and market forces are driving physicians into alternative employment settings at an accelerated rate.<sup>2,3</sup> In 1996, the American Medical Association (AMA) Council on Medical Services reported that, based on the AMA Socioeconomic Monitoring System data, the proportion of primary care physicians (PCPs) who were self-employed had fallen dramatically. The AMA Socioeconomic Monitoring System defined self-employed physicians as those physicians who were owners or part owners of a practice or shareholders in their own professional corporation. All other physicians were considered employed. In 1983, 23% of all practicing PCPs (excluding residents in training) reported being employed; by 1995, that figure had grown to 48%. The proportion of PCPs who were employed

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increased only 3% between 1983 and 1989, but increased by 22% between 1989 and 1995.<sup>3</sup>

Much of the change in physician employment status appears to be due to consolidation of practices and the growth of managed care organizations (MCOs).<sup>3</sup> In 1991, there were 515 health maintenance organizations (HMOs) covering 35 million lives; by 1996 there were 651 HMOs covering 66.8 million lives.<sup>4</sup> Similarly, in 1986, PCPs indicated that 13% of their practice revenue came from managed care; by 1995 that proportion had grown to 32%.<sup>3</sup>

Demand for PCPs in MCOs has been increasing to meet growth in MCO enrollment.<sup>5</sup> In 1994, fewer than 35% of US physicians were in primary care (general pediatrics, general internal medicine, or family practice).<sup>6</sup> The majority of HMOs responding to a Group Health Association of America and US Health Resources and Services Administration survey in 1992 indicated that they were experiencing a shortage of PCPs and that PCP turnover was important.<sup>5</sup>

Voluntary separations from employment are often referred to as “quits,” “voluntary turnover,” or simply “turnover.”<sup>7</sup> In the past, physician turnover was minimal, in part because most physicians owned their own businesses in the form of fee-for-service solo practices or partnerships. Since 76% of young (less than 40 years old) PCPs surveyed in 1987 began practice as employed physicians, the consequences of employment, job satisfaction, and turnover will have the greatest impact on this group, their employers, and the populations they serve. Primary care physician satisfaction and turnover (including magnitude, reasons, and timing) are important to a variety of people.

When choosing a primary care provider, patients want to know how long that relationship will last. Patients who switch physicians in staff-model and group-model HMOs may be “failing to establish primary care relationships that they consider worth maintaining.”<sup>8</sup> Patient satisfaction and patient intent to re-enroll in an HMO are affected by the ability of patients to establish and maintain long-term relationships with individual physicians.<sup>9</sup> Physicians who have higher professional satisfaction (and consequently less turnover) have patients who are more likely to be more satisfied with their healthcare.<sup>10</sup>

Managers operating healthcare plans want to know what factors are likely to work in favor of retaining PCPs. Not only are there costs associated with patient disenrollment, but also there are high recruitment and orientation costs associated with

replacing PCPs.<sup>11</sup> Additionally, primary care performance of healthcare plans has been found to be associated with the level of alignment between HMOs’ financial interests and PCPs’ professional identities.<sup>8</sup>

Physicians and their colleagues might want to be aware of their prognosis with regard to changing practice. Integrating a new PCP into a practice can take a long time. In the meantime, the other PCPs in that setting can be stressed and stretched across a larger patient load. Access to care can decline for patients, which also can contribute to patient disenrollment. The well-being of all—patients, physicians, and the healthcare organization—can deteriorate with PCP turnover.

Medical educators may be interested in how turnover may affect career choices of undergraduate students who are considering entering medicine. They also may want to advise and prepare young physicians in training for career transitions. Finally, policy makers and healthcare planners for the public interest want to promote stable patient-physician relationships, as these relationships affect costs and quality of care.<sup>8-15</sup>

Job satisfaction is “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences.”<sup>16</sup> This definition is considered to be the gold standard for the field of organizational psychology. (Different authors may choose other definitions of job satisfaction.) Some believe that job satisfaction and job productivity are the same. Wright and Cropanzano noted in a recent article that a number of authors have provided comprehensive reviews of the relationship between satisfaction/productivity and job performance.<sup>17</sup> Wright and Cropanzano found that the degree of correlation between job satisfaction and productivity is still under discussion. Thus, organizational researchers do not equate job productivity with job satisfaction.

Although the effect of job satisfaction on various aspects of employee behavior has not been fully explained, it has been consistently and significantly associated with likelihood of leaving and actual turnover or quit behavior.<sup>15-27</sup> Because of this close association between intent to quit and actual turnover, a number of researchers have used likelihood of leaving an organization as an operational definition of overall job satisfaction.<sup>28,29</sup> The purpose of this study was to examine the relationship between PCP job satisfaction and actual turnover by secondary analysis of 2 existing databases containing survey responses for a cohort of PCPs at 2 points in time. There were 3 research questions:

1. How do PCP personal characteristics contribute to turnover?
2. How do organizational characteristics contribute to turnover?
3. How does overall PCP job satisfaction contribute to turnover?

For this investigation, PCP personal and organizational variables were considered independent variables. Overall PCP job satisfaction, operationalized as likelihood of leaving, also was considered an independent variable. Turnover was the dependent variable. As outlined in **Table 1**, psychological, economic, and sociological theories and constructs provided a conceptual framework for this empirical study of the relationship between PCP personal characteristics,<sup>16,18-28</sup> organizational characteristics,<sup>16,18-30</sup> and overall PCP job satisfaction<sup>26,27</sup> and PCP turnover.<sup>26</sup>

Masterfile who met the study requirement of being a young physician in 1987 (ie, one who was under age 40 and graduated from medical school after 1969). A simple random sample consisted of 9260 physicians, and a minority oversample of black and Hispanic physicians totaled 1821.<sup>31</sup>

Both surveys were designed to investigate career decisions of young physicians and characteristics of their practices. Key topic areas for the 1987 survey instrument were developed using information gathered from the literature, AMA data, focus groups, and consultations with experts.<sup>31</sup> Topics for both 1987 and 1991 surveys included questions to screen for interview eligibility, as well as questions on past, current, and future practice arrangements; career decisions; family background; patient care activities; hours and utilization; and current expenses and income.

... METHODS ...

**Study Design**

We conducted a cohort study utilizing 533 postresident, nonfederally employed PCPs younger than 45 years of age, who participated in both the AMA Education and Research Foundation *Practice Patterns of Young Physicians, 1987 (United States)*<sup>31</sup> survey and the Robert Wood Johnson Foundation *Practice Patterns of Young Physicians, 1991 (United States)*<sup>32</sup> survey.

**Study Population and Sampling**

The AMA Education and Research Foundation 1987 survey sample was drawn from the AMA Physician Masterfile, which contains current and historical data on more than 689,000 US physicians including members and nonmembers. The entire study sample consisted of 11,081 physicians. These were all physicians in the AMA Physician

**Table 1.** Summary of Research Questions, Conceptual Framework Elements, and Operational Definitions

Research Question	Conceptual Framework Elements	Operational Definition*
Contribution of PCP	Personal characteristics	Demographic variables (I)
	Mentally challenging work	Affect toward profession (I)
	Personal interest, training	Specialty training; board certification (I)
	Work not too physically tiring	Desire for fewer work hours (I)
Contribution of organization	Equitable rewards	Perceived adequacy of income; expectation of ownership (I)
	Positive working conditions	Type of employer; number of work sites; number of patients; types and proportions of patient populations; percent revenue from Medicare and Medicaid; percent free care; number of work hours; freedom to control own work schedule, spend sufficient time with patients, order tests, and hospitalize patients; and perceived use of consultation referrals, tests, protocols (I)
Overall job satisfaction	Overall job satisfaction	Likelihood of leaving (I)
PCP turnover	Turnover	Left practice (D)

PCP = primary care physician.

\*D indicates a dependent variable; I, an independent variable.

Interviewers were trained extensively on both general telephone interviewing techniques and project-specific requirements. Five 5-hour sessions covered materials on general interviewing techniques, gaining respondent cooperation, and instructions for using the Computer-Assisted Telephone Interviewing system. Interviewers watched videos, reviewed written materials, participated in interviewing simulations, and were observed by supervisors for consistency of technique.

Before beginning the telephone calls, letters were sent out to all selected physicians for whom telephone numbers were available. The field period began on April 9, 1987, and ended on November 21, 1987. Each week 197 telephone interviews were completed. The interviewing facility was staffed Monday to Friday from 8:30 AM to 4:45 PM central standard time, during evening hours 4:45 PM to 8:00 PM central standard time, and on 2 Saturdays during the entire field period.

Throughout the entire field period, staff made extensive efforts to obtain correct telephone numbers and to contact physicians. Interviewers called physicians as many times as it was necessary to achieve a 60% response rate. In some cases, this required as many as 32 follow-up telephone calls.<sup>31</sup>

Telephone interviews were completed with 5865 physicians in the sample for a response rate of 63%, which is comparable to that of other physician telephone surveys.<sup>33-37</sup> Comparisons between the eligible sample and respondents were made by the AMA Education and Research Foundation researchers in 1987. They found significant differences between the groups by AMA membership, place of graduation, and specialty ( $P < .001$ ).

The largest differences were for the AMA membership variable. Members comprised 39.4% of the sample, but 42.4% of the respondents. US medical graduates comprised 82.1% of the sample and 84.2% of the respondents. With respect to the specialties of interest in this 1987 study, "only slight variations between the sample and respondents were found." General and family practice physicians comprised 14.8% of the sample, but 15.8% of the respondents. Pediatricians comprised 7.7% of the sample, but 9.2% of the respondents. The largest difference for the specialties of interest was among general internal medicine physicians. Those physicians comprised 19.0% of the sample, but only 13.3% of the respondents.<sup>31</sup>

The methodology for the Robert Wood Johnson Foundation *Practice Patterns of Young Physicians, 1991 (United States)* survey has been published

elsewhere.<sup>38</sup> The 1991 survey was constructed and administered in a manner similar to the 1987 survey.<sup>32</sup> The 1991 interview included questions developed for the first survey in 1987 and new ones developed for the 1991 survey, including questions regarding leaving practices (turnover). Like the 1987 survey, the 1991 survey was designed to represent all allopathic physicians (and osteopathic physicians who completed allopathic residencies) younger than 45 years of age who had been in practice between 2 and 9 years with a minority physician oversample. Black and Hispanic physicians were oversampled to ensure adequate numbers for subsample analyses. Telephone interviews again were conducted.

Half of the Robert Wood Johnson Foundation 1991 survey sample was drawn from the AMA Education and Research Foundation 1987 survey, and half was newly drawn from the AMA Physician Masterfile. For the 1991 interview, the total sample was 9745 physicians: 4400 chosen at random from the AMA Masterfile, 1100 in the minority oversample, and 4245 from the 1987 survey to be reinterviewed. Of the total, 11% (1072) could not be located or contacted or were determined to be ineligible. Interviews were completed with 6053 (69.8%) of the sample physicians. Response rates in the 3 sample segments were 63.1%, 67.4%, and 76.3%, respectively, which is comparable to that of other physician telephone surveys.<sup>33-38</sup> Responding and nonresponding physicians were compared using data from the 1987 and 1991 surveys. Multivariate analyses indicated that nonrespondents were more likely than respondents to have been self-employed in 1987. However, the 2 groups were not significantly different in age, hours worked per week, patients seen per week, and debt at graduation from medical school.<sup>38</sup>

#### Data Collected

Our examination utilized the data for the cohort of 507 reinterviewed PCPs for whom complete data were available from both 1987 and 1991. The independent variables were personal and organizational independent variables from the AMA Education and Research Foundation 1987 survey. The dependent variables were turnover-related responses from the Robert Wood Johnson Foundation 1991 survey. For the 18% of the PCPs who worked at more than 1 practice, only those variables pertaining to the primary practice (ie, the practice in which he or she worked the most hours per week) were utilized.

Variables selected as operational definitions of the elements of the conceptual framework are listed

in Table 1. Overall job satisfaction was operationally defined by the question, "How likely are you to leave this practice within the next 2 years?"

Affect toward the profession of medicine was operationally defined by the following questions: "Given what you now know about medicine as a career, if you were in college today, would you go to medical school?" "In 5 years, do you believe that: The income in today's dollars of a typical physician in your specialty will be higher, lower, or about the same as it is now? The concern over the malpractice climate will be greater, less, or about the same as it is now? The influence of third-party payers on the way doctors practice medicine will increase, decrease, or stay the same?"

### Analysis

Frequency distributions were generated for all variables for the total sample and for the PCPs who indicated that they had stayed (stayers; n = 228 or 45%) and the PCPs who indicated they had left (leavers; n = 279 or 55%) the practice at which they were employed in 1987. Comparisons for significant differences between stayers and leavers were made using Student's *t* statistic for continuous variables and the chi-square statistic for discrete variables. After being tested for collinearity using Pearson's product moment correlation coefficient, variables with statistical significance (*P* values) up to .20 were entered into survival analyses. These survival analyses utilized Cox proportional hazards models to examine factors independently associated with turnover. Survival time to turnover was defined as the time interval (in months) between the month and the year that the PCP completed graduate medical training and the month and year the PCP left his or her first practice. *P* values less than .05 were considered to indicate statistical significance. Data were analyzed using the *Statistical Package for the Social Sciences (SPSS) for Windows*, Version 8.0 (SPSS, Chicago, IL).

## ... RESULTS ...

### Characteristics of Study Population

Table 2 shows the characteristics of the PCP cohort at baseline in 1987. By design, at the time of the second survey in 1991, all respondents in this cohort were employed in nonfederal settings, under 45 years of age at the time of reinterview in 1991, and had completed their medical training between 1982 and 1985. The self-designated practice special-

ties of the PCPs were general/family practice (n = 174 or 34%), internal medicine (n = 160 or 32%), and pediatrics (n = 173 or 35%). In 1987, 76% of these young PCPs were employed physicians. Only 24% started out in solo practice. On reinterview in 1991, the proportions of employed and solo practice PCPs remained approximately the same at 75% and 25%, respectively.

As outlined in Table 3, physicians or groups of physicians were the major employers of PCPs, followed closely by hospitals. Employer patterns were similar across the specialties (general/family practice, general internal medicine, and pediatrics).

By the time of the second survey in 1991, slightly more than half, or 55% of all the PCPs in this cohort had left the practice in which they had been employed in 1987. More than one third (n = 100 or 36%) of the PCPs who were leavers (20% of the whole sample) had left 2 employers in that same 5-year time period.

### Relation Between PCP Personal Characteristics and Turnover

Associations between PCP personal characteristics and turnover are summarized in Table 4. The

**Table 2.** Characteristics of Physician Cohort at Baseline, 1987 (n = 507)

Characteristic	No. (%)
Age (mean ± SD, y)	34.1 ± 2.4
Sex	
Male	328 (65)
Female	179 (35)
Race	
White	389 (77)
Nonwhite	118 (23)
Employer	
Physician or group of physicians	143 (28)
Hospital	110 (22)
University/college	70 (14)
State/local employer	30 (6)
Health maintenance organization	53 (10)
Medical school	17 (3)
Some other type of employer	84 (17)
Specialty	
General/family practice	174 (34)
General internal medicine	160 (31)
Pediatrics	173 (35)

respondent's age, gender, and number of children living with him or her were not associated with turnover. Race/ethnicity and marital status approached, but did not reach, statistically significant levels of association ( $P < .06$  and  $P < .07$ , respectively).

Those PCPs not having family in the geographic area were 1.18 times more likely to leave the primary practice than those who did ( $P < .04$ ). Primary care physicians who believed that third-party payer influence would decrease in 5 years were 1.29 times more likely to leave than those who did not ( $P < .03$ ). Specialty was not associated with turnover. On the other hand, PCPs who were not board certified were 1.3 times more likely to leave than those who were board certified ( $P < .003$ ). "Work not too physically tiring" operationalized as the average number of fewer hours of work desired also approached, but did not reach, statistical significance ( $P < .08$ ).

**Relation Between Organizational Characteristics and PCP Turnover**

Associations between organizational characteristics and PCP turnover are summarized in Tables 5 and 6. Although net income and perceived adequate income were not correlated with turnover, a discrepancy between net income and perceived adequate income was associated with PCP turnover. If

the PCP perceived that there was either a \$1000 to \$10,000 or more than a \$21,000 discrepancy, then the PCP was 1.25 ( $P < .05$ ) times more likely to leave the primary practice.

Primary care physicians who worked at more than 1 practice were 1.28 times more likely to leave the primary practice at which they worked ( $P < .009$ ). The size of the primary practice also affected PCP turnover. PCPs employed in practices with more than 20 physicians were less likely to leave ( $P < .04$ ). Neither the total number of physician owners in the primary practice nor the number of administrative hours worked were associated with PCP turnover.

Types and proportions of patient populations within the main practice were examined in relationship to PCP turnover. Turnover was not associated with the proportion of black patients. If 11% to 20% of the primary practice was devoted to uninsured patients, PCP turnover approached, but did not reach, a statistically significant increase ( $P < .08$ ). If more than 25% of the primary practice was devoted to uninsured patients, the PCP was less likely to leave ( $P < .07$ ). However, in practices where more than 5% of the patients were chronically mentally ill, PCPs were 1.3 times more likely to leave ( $P < .03$ ).

Primary care physicians who did not expect an offer of full or part ownership were 1.31 times more likely to leave than those who did expect such offers ( $P < .05$ ). Perceptions of professional autonomy within the workplace were associated with turnover. Primary care physicians who believed that consultations and referrals were overused were 1.34 times more likely to leave than those who thought they were used about right or underused ( $P < .01$ ). Primary care physicians who believed that standardized protocols were overused were 1.18 times more likely to leave than those who thought they were used about right or underused ( $P < .05$ ). Primary

**Table 3.** Employer by Primary Care Specialty

Employer	No. (%)			
	GP/FP (n = 174)	GIM (n = 160)	PEDS (n = 173)	Total (n = 507)
Physician or group of physicians	53 (31)	48 (30)	42 (24)	143 (28)
Hospital	36 (21)	39 (24)	35 (20)	110 (22)
University/college	14 (8)	23 (14)	33 (19)	70 (14)
State/local employer	13 (7)	4 (3)	13 (8)	30 (6)
Health maintenance organization	12 (7)	20 (13)	21 (12)	53 (10)
Medical school	4 (2)	5 (3)	8 (5)	17 (3)
Some other type of employer	42 (24)	21 (13)	21 (12)	84 (17)

GIM = general internal medicine; GP/FP = general practice/family practice; PEDS = pediatrics.

care physicians who believed that routine diagnostic tests were overused were 1.54 times more likely to leave than those who felt they were used about right or underused ( $P < .004$ ).

The perceived overuse of expensive tests and procedures approached, but did not reach, statistical significance ( $P < .09$ ). Primary care physicians who perceived that they were not free to order tests and procedures were 1.23 times more likely to leave than those who felt that they could ( $P < .04$ ). Primary care physicians who felt that they couldn't control their own work schedule were 1.18 times more likely to leave than those PCPs who felt that they could ( $P < .05$ ). Although employment setting was not associated with turnover, employer type

was. Primary care physicians employed in not-for-profit organizations were 1.3 times more likely to leave than those employed in for-profit organizations ( $P < .02$ ).

**Relation Between PCP Overall Job Satisfaction and Turnover**

Overall job satisfaction, operationalized as likelihood of leaving, was associated with PCP turnover (Table 7). Primary care physicians who indicated that they were very likely to leave the practice within the next 2 years on the first survey were 2.38 times more likely to have done so by the time of the second survey than those who indicated that they were very unlikely to leave ( $P < .001$ ).

**Table 4.** Primary Care Physician Personal Characteristics and Turnover: Bivariate Results

Variable	Stayers No. (%)	Leavers No. (%)	Unadjusted Relative Risk (95% CI)	P
Family from geographic locale				
Yes	117 (50)	118 (50)	1.0 (reference)	
No	109 (41)	160 (59)	1.18 (1.01, 1.39)	.04
Belief that third-party payer influence would decrease in 5 years				
No	213 (47)	245 (53)	1.0 (reference)	
Yes	15 (31)	34 (69)	1.29 (1.05, 1.59)	.03
Specialty				
GP/FP	70 (40)	104 (60)	1.0 (reference)	
GIM	69 (43)	91 (57)	.95 (.79, 1.14)	.59
PEDS	89 (51)	84 (49)	.81 (.67, .98)	.04
Board certification status				
Board certified	187 (49)	197 (51)	1.0 (reference)	
Not board certified	41 (33)	82 (67)	1.3 (1.11, 1.52)	.003
Number of fewer hours desired				
2-10	32 (45)	39 (55)	1.0 (reference)	
11-15	13 (50)	13 (50)	.91 (.59, 1.4)	.67
16-20	13 (43)	17 (56)	1.03 (.71, 1.5)	.87
>20	5 (23)	16 (76)	1.4 (1.01, 1.9)	.08
Weeks of sick time in 1986				
0-2	74 (50)	75 (50)	1.0 (reference)	
>2-3	29 (50)	30 (50)	1.01 (.75, 1.36)	.94
>3-4	46 (44)	58 (56)	1.12 (.87, 1.34)	.39
>4	27 (35)	51 (65)	1.3 (1.03, 1.6)	.03

CI = confidence interval; GIM = general internal medicine; GP/FP = general practice/family practice; PEDS = pediatrics.

**Independent Factors Associated With PCP Turnover**

Proportional hazards (Cox) regression was used to identify factors associated with PCP turnover.<sup>39</sup> Survival time to turnover was operationalized as the time interval (in months) between the month and

year that the PCP completed graduate medical training and the month and year that the PCP left his or her first practice.

Variables either approaching or having statistically significant associations with PCP turnover were entered into separate regression models. **Table 8**

**Table 5.** Organizational Setting and Practice Characteristics and Turnover: Bivariate Results

Variable	Stayers No. (%)	Leavers No. (%)	Unadjusted Relative Risk (95% CI)	P
Number of practices				
1	199 (48)	219 (52)	1.0 (reference)	
>1	29 (33)	60 (67)	1.28 (1.08, 1.52)	.009
Number of physicians*				
1-3	168 (44)	210 (56)	1.0 (reference)	
4-7	13 (38)	21 (62)	1.11 (.84, 1.47)	.48
8-20	18 (38)	29 (62)	1.11 (.87, 1.41)	.42
>20	29 (60)	19 (40)	.71 (.49, 1.02)	.04
Number of physician owners*				
0-1	25 (42)	34 (58)	1.0 (reference)	
>1-2	17 (40)	25 (60)	1.03 (.74, 1.44)	.84
>2-4.5	20 (54)	17 (46)	.79 (.53, 1.20)	.26
>4.5	24 (52)	22 (48)	.82 (.57, 1.20)	.32
Number of administrative hours*				
0	70 (48)	76 (52)	1.0 (reference)	
1-2	37 (43)	48 (57)	1.08 (.85, 1.38)	.51
3-7	46 (42)	64 (58)	1.12 (.89, 1.39)	.33
>8	46 (46)	55 (54)	1.04 (.83, 1.33)	.71
Employer status*				
For profit	92 (49)	94 (51)	1.0 (reference)	
Not for profit	27 (34)	52 (66)	1.3 (1.05, 1.61)	.02
Percent black patients*				
0-5	58 (47)	65 (53)	1.0 (reference)	
6-19	41 (48)	45 (52)	.99 (.76, 1.28)	.94
20-40	48 (45)	58 (55)	1.03 (.81, 1.31)	.77
>40	35 (40)	52 (60)	1.13 (.89, 1.43)	.32
Percent uninsured patients*				
0-1	40 (50)	40 (50)	1.0 (reference)	
2-10	50 (41)	71 (59)	1.17 (.90, 1.53)	.22
11-25	18 (35)	34 (65)	1.3 (.97, 1.75)	.08
>25	35 (66)	18 (34)	.68 (.43, 1.04)	.07
Percent chronic mentally ill patients*				
0-1	74 (50)	75 (50)	1.0 (reference)	
2-3	29 (49)	30 (51)	1.01 (.75, 1.35)	.94
4-5	46 (44)	58 (56)	1.11 (.87, 1.39)	.39
>5	27 (35)	51 (65)	1.3 (1.03, 1.62)	.03

CI = confidence interval.

\*In the physician's main practice.



outlines the risks of turnover due to personal variables, organizational variables, and overall job satisfaction. As can be seen in Table 8, 4 variables made substantial contributions to the risk of PCP turnover. Primary care physicians who indicated that they were dissatisfied (very likely to leave) in 1987 were 2.38 times more likely to leave ( $P < .001$ ). When this relative risk was adjusted for age, gender, and race/ethnicity, PCPs were 2.22 times more likely to leave ( $P < .001$ ). Primary care physicians who believed that third-party payer influence would

decrease in 5 years were 1.29 times more likely to leave than those who thought third-party payer influence would increase or remain about the same ( $P < .03$ ). When this relative risk was adjusted, PCPs who believed that third-party payer influence would decrease in 5 years were 1.62 times more likely to leave ( $P < .01$ ). Primary care physicians who were not board certified were 1.3 times more likely to leave than those PCPs who were ( $P < .003$ ). When this relative risk was adjusted, non-board-certified PCPs were 1.26 times more likely to leave ( $P < .09$ ).

**Table 6.** Organizational Expectations and Perceptions: Bivariate Results

Variable	Stayers No. (%)	Leavers No. (%)	Unadjusted Relative Risk (95% CI)	P
Perceived discrepancy in income (\$)				
-300-0	72 (50)	71 (50)	1.0 (reference)	
1000-10,000	38 (36)	67 (64)	1.29 (1.03, 1.59)	.03
11,000-21,000	56 (51)	55 (50)	.99 (.78, 1.28)	.98
>21,000	44 (38)	72 (62)	1.25 (1.01, 1.55)	.05
Expectation of ownership				
Yes	57 (53)	50 (47)	1.0 (reference)	
No	30 (38)	48 (62)	1.31 (1.01, 1.72)	.05
Perceived overuse of consultations and referrals				
No	206 (47)	234 (53)	1.0 (reference)	
Yes	15 (28)	38 (72)	1.34 (1.11, 1.63)	.01
Perceived overuse of standardized protocols				
No	150 (47)	168 (53)	1.0 (reference)	
Yes	55 (37)	92 (63)	1.18 (1.00, 1.39)	.05
Perceived overuse of routine diagnostic tests				
No	216 (46)	252 (54)	1.0 (reference)	
Yes	4 (17)	20 (83)	1.54 (1.27, 1.88)	.004
Perceived freedom to order tests and procedures				
Yes	200 (47)	226 (53)	1.0 (reference)	
No	28 (35)	53 (65)	1.23 (1.02, 1.47)	.04
Perceived freedom to control own work schedule				
Yes	142 (49)	150 (51)	1.0 (reference)	
No	78 (40)	122 (60)	1.18 (1.01, 1.38)	.05
Perceived overuse of expensive tests and procedures				
No	194 (46)	224 (54)	1.0 (reference)	
Yes	25 (36)	45 (64)	1.19 (.98, 1.45)	.09

CI = confidence interval.

Finally, PCPs who believed that standardized protocols were overused were 1.18 times more likely to leave than those who did not ( $P < .05$ ). After relative risk adjustment, these PCPs were 1.29 times more likely to leave ( $P < .04$ ).

... DISCUSSION ...

Turnover was an important phenomenon among this cohort of young PCPs, as evidenced by the fact that after 5 years more than half of the cohort had left the practice in which they had been employed at the time of the first survey in 1987.

Two PCP personal characteristics, belief that third-party payer influence would decrease and lack of board certification, were associated with turnover. Organizational characteristics had associations with turnover, but only 1 organizational factor, perceived overuse of standardized protocols, emerged. Overall PCP job satisfaction was the most powerful predictor of PCP turnover.

Those PCPs who indicated in 1987 that they believed that third-party payer influence would decrease in the next 5 years were likely to have been disappointed. The physicians in this cohort had completed their medical training between 1982 and 1985. This means that they attended medical school and completed their postgraduate work in the 1970s, a very different decade from the 1980s and 1990s for the practice of medicine. Medical schools and academic health centers had not really felt the impact of third-party payer influence during this time period. Therefore, many PCPs may have been unprepared for a major shift in payment systems. Researchers have noted the interplay of expecta-

tions regarding future events and the impact on job satisfaction.<sup>40</sup> If one expects the work environment to have certain important attributes and those attributes are subsequently found to be lacking, then job satisfaction plummets. In the case of PCPs with the expectation and belief that third-party payer influence would decrease, the encroachment of third-party payers and managed care into their lives could have had a major effect on their job satisfaction.

The data available for this study did not indicate whether a PCP left a practice voluntarily or involuntarily. This makes it difficult to determine whether lack of board certification caused PCPs to be terminated or to seek employment elsewhere. Board certification status is considered to be desirable because it is used as a proxy for quality by most physician employers. Lack of board certification makes one less marketable, may cause lack of upward mobility in either job title or income, and may be a determining factor in an employer's decision to retain or release a PCP in a competitive marketplace.

One of the major strengths of this study was that it utilized cohort data. The cohort methodology (also known as a "panel" study to social scientists) collects information on overlapping sets of questions from the same sample on 2 or more occasions. The sample, in this study, was individual respondent physicians who were interviewed in 1987 and 1991.

Cohort studies are superior to cross-sectional studies for the following reasons. Cohort studies permit the researcher to estimate the extent of gross change in the population. Data collected from cohort studies are useful in exploring questions

**Table 7.** Likelihood of Leaving (PCP Overall Job Satisfaction) and Turnover Status: Bivariate Results

Likelihood of Leaving*	Stayers No. (%)	Leavers No. (%)	Unadjusted Relative Risk (95% CI)	P
Very unlikely	131 (64)	75 (36)	1.0 (reference)	
Somewhat unlikely	52 (45)	64 (55)	1.57 (1.31-1.87)	
Somewhat likely	27 (47)	31 (53)	1.62 (1.26-2.08)	
Very likely	16 (13)	104 (87)	2.38 (1.96-2.88)	.001

CI = confidence interval; PCP = primary care physician.

\*Physicians surveyed in 1987 indicated the likelihood that they would leave the profession within the next 2 years.

about the dynamics of change. By adding a few new questions to each successive interview, the researcher can collect more information about each respondent than from cross-sectional studies. Finally, and most importantly for this research, the cohort study can be used to measure the degree and direction of change after the introduction of the experimental variable (in this case, “job satisfaction” or “likelihood of practice change”).<sup>41</sup>

Cohort studies also can have some disadvantages. They are expensive to conduct because of the inherent difficulties in tracking down mobile populations. It is often extremely difficult to obtain a sample of respondents who are willing to be reinterviewed. There can be sample mortality—people move, die, get sick, or lose interest in the project. There can be contamination through reinterviewing. Essentially, the sample develops a learning curve, and there can be a greater possibility of the respondent wanting to provide socially acceptable responses. As time goes on, respondents can find the interviewing process to be increasingly burdensome and they may refuse to be reinterviewed.<sup>41</sup>

The fact more than 500 PCPs agreed to be reinterviewed 5 years after the initial study tells us that they are concerned about the practice of medicine in a changing environment. The cohort began as a group of physicians younger than 40 years of age, who were reinterviewed only 5 years later; so mortality was not a major issue for this study. Nor is it likely that the PCPs who responded wanted to give only socially acceptable answers. Those who did not respond to the follow-up interview may have found the interviewing process to be burdensome.

Our study also has a number of limitations. The findings may be dated if events and issues being measured are highly volatile and dynamic in nature. Since the data were collected in 1987 and 1991, some of the information obtained may not be generalizable. Another limitation is that, because of choices made by the surveyors, only physicians under the age of 45 were included. Other physicians of different ages may behave differently.

Additionally, the data used for this study were taken from databases stripped of potentially identifying variables to preserve the confidentiality of individual respondents. Hence, it was not possible to explore practice change behavior in terms of geographical factors.

Finally, and perhaps most importantly, the variables that were used in this secondary data analysis may not have been ideal operational definitions of the theoretical constructs of the dimensions of physician job satisfaction. Despite these limitations, these data may shed some light on the factors associated with physician job satisfaction and turnover.

... CONCLUSION ...

In conclusion, this study is important because of both the methodology and the research findings. Cohort studies provide a powerful way to track change in PCP attitudes and behavior over time. Although they can be expensive to conduct, the information they provide is valuable. The findings of our study are consistent with those of other researchers in the field. Many researchers have looked at PCP job satisfaction or PCP turnover. This

**Table 8.** Factors Independently Associated with PCP Turnover: Multivariate Analysis

Variable	Unadjusted Relative Risk (95% CI)	P	Adjusted* Relative Risk (95% CI)	P
Overall job satisfaction	2.38 (1.96, 2.88)	.001	2.22 (1.71, 2.88)	.001
Belief that third-party payer influence would decrease in 5 years	1.29 (1.05, 1.59)	.03	1.62 (1.11, 2.36)	.01
Not board certified	1.3 (1.11, 1.52)	.003	1.26 (.96, 1.66)	.09
Perceived overuse of standardized protocols	1.18 (1.00, 1.39)	.05	1.29 (1.01, 1.67)	.04

CI = confidence interval; PCP = primary care physician.

\*Relative risk was adjusted for age, gender, and race/ethnicity in a Cox proportional hazards model.

study is unique because it clearly links PCP job satisfaction to PCP turnover.

The message from this study is that if PCPs are very dissatisfied, they *are* very likely to leave. No longer can healthcare managers afford to say, "Oh, PCPs always complain, but they never leave." A standardized physician job satisfaction instrument based on the conceptual framework outlined in this paper would be a useful tool to improve the measurement and management of PCP job satisfaction and turnover. Such a tool could include improved operational definitions of elements of PCP job satisfaction and would provide healthcare managers with an opportunity for primary data collection. It also could provide healthcare managers with an opportunity to intervene and make needed organizational changes to improve PCP retention before these physicians leave.

When PCPs leave, human resources are missing that would otherwise contribute to the production of healthcare services. The resulting loss in production, disruption in continuity and longitudinality of patient care, and the need to recruit and train new physicians can be costly<sup>11</sup> and has the potential to affect health outcomes. Patient disenrollment may also follow, which is of particular concern for prepaid group practice settings such as MCOs.<sup>42</sup> Many healthcare planners are concerned about availability and continuity of medical care, especially with respect to geographic distribution of physicians.<sup>43</sup> The recent decision by the AMA's House of Delegates to form a national labor organization has underscored the need to examine the quality of physician working life.<sup>44</sup> Additionally, a recent article has made a case for more US medical students, in part due to the "continuing challenge" that medical schools have in promoting careers in primary care.<sup>45</sup> Policy makers interested in physician workforce issues, healthcare planners, MCOs, managers, medical educators, researchers, and individual physicians can utilize the findings of this research and of subsequent studies. With a better understanding of job satisfaction and turnover, they can act to address the reasons for and timing of physician turnover.

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