Health and Health Care Among Housestaff in Four U.S. Internal Medicine Residency Programs

Ilene M. Rosen, MD, Jason D. Christie, MD, Lisa M. Bellini, MD, David A. Asch, MD, MBA

BACKGROUND: Although there have been many studies of the health care services that resident physicians provide, little is known about the health care services they receive.

OBJECTIVE: To describe residents' perceptions of the health care they receive.

DESIGN: Anonymous mailed survey.

SUBJECTS: All 389 residents in four U.S. categorical internal medicine training programs.

MAIN RESULTS: Three hundred sixteen residents responded (83%). In aggregate, 116 (37%) reported having no primary care physician, and 36 (12%) reported that they are their own primary care physician. These figures varied substantially across the four programs. Most residents reported receiving basic screening and preventive services; however, their attitudes toward their health and health care differed across postgraduate level, gender, and program. Many residents reported that their long and unpredictable hours interfered with their ability to schedule clinician visits, that their health had declined because of residency, that programs and other residents were unsupportive of residents' health care needs, and that residency raised special issues of privacy that limited access to health care.

CONCLUSIONS: Despite high rates of receipt of preventive services, these internal medicine residents identified several barriers that limited their access to health care. Program directors should explore these barriers and, at the same time, reevaluate the messages being sent to resident physicians about maintaining their health and health care.

KEY WORDS: access; health behaviors; housestaff; mailed survey.

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Although there have been many studies of the health care services resident physicians provide, little is known about the health care services resident physicians receive. Although residents are generally young and healthy, their health care is likely to be unusual for several reasons. They have extensive demands on their time and relatively unpredictable schedules. They work within

a hospital—much more than is typical of more-established physicians—and so special issues of privacy and confidentiality arise. And their own medical knowledge may alter their needs or perceived needs for care delivered by others. At the same time, house officers are socialized into the profession of medicine during their residency and are developing their own standards and practices.¹ As physicians involved in housestaff education, we had noted several incidents in which residents appeared to neglect reasonable medical care. We wondered about the extent of this phenomenon and more generally about the health care services received by physicians in training. Several surveys of physicians in the mid-1980s suggested that physicians' personal health habits influence the counseling they provide to their patients as much as their perceived skill level and comfort with counseling.^{2,3} For example, physicians who were on a regular exercise program, did not smoke, and did not drink alcohol excessively were more likely to discuss preventive behaviors with their patients—suggesting that training programs might stress personal behaviors and habits as much as technical training in counseling. More generally, the care residents receive may later determine in part the care they deliver as established physicians.

In this study, we surveyed the housestaff at four U.S. internal medicine training programs to investigate some of the issues they face in receiving health care services themselves.

METHODS

The subjects were all of the housestaff at four categorical internal medicine training programs in the United States: Johns Hopkins University, Stanford University, Tulane University, and the University of Pennsylvania. In February 1997, we mailed each intern or resident an 8-page questionnaire asking about their health and health care. Although respondents were anonymous, subjects were provided with postcards to mail separately from the completed instrument to indicate that they had responded.⁴ Nonresponders were sent up to three copies of the instrument at 3-week intervals.

The instrument was 8 pages and contained several sections. One section asked about the use of a primary care clinician, the dates of recent visits with clinicians, and the receipt of common services including measurement of blood pressure, serum cholesterol, hemoglobin or hematocrit, pelvic examinations, tuberculosis skin testing, and the receipt of tetanus-diphtheria, influenza, and hepatitis B vaccines. Other sections asked about current health problems and the clinicians seen for these problems

Received from the Department of Medicine, University of Pennsylvania School of Medicine, and Veterans Affairs Medical Center, Philadelphia, Pa (IMR, JDC, LMB, DAA); The Leonard Davis Institute of Health Economics, University of Pennsylvania, and Center for Bioethics, University of Pennsylvania School of Medicine, Philadelphia, Pa (DAA).

Address correspondence to Dr. Asch: Leonard Davis Institute of Health Economics, University of Pennsylvania, 3641 Locust Walk, Philadelphia, PA 19104-6218 (e-mail: asch@wharton.upenn.edu).

Table 1. Characteristics of 313 Responding Residents

Characteristic*	Program				Combined (n = 313†)
	A (n = 77)	B (n = 71)	C (n = 92)	D (n = 71)	
Mean age (SD), y	28.4 (2.1)	28.8 (2.8)	29.1 (3.2)	30.1 (4.6)	29.0 (3.3)
Women, %	39	51	34	30	38
PGY-1, %	32	38	39	41	38
PGY-2, %	35	25	32	34	32
PGY-3, %	31	35	27	23	29

*PGY indicates postgraduate year.

†Two respondents could not be identified with a specific program.

since the beginning of their internship, prescription drug use, and diagnostic tests received. Items reflecting prescription drug use have been reported elsewhere.⁵ One section, designed to measure attitudes toward health care, included 16 statements with which respondents were asked to agree or disagree using a 5-point scale. Because responses to some of the attitude items were likely to be correlated, we used factor analysis to represent these items with a smaller number of factors. We compared these factors across program, gender, postgraduate (PGY) level, and the presence of a primary care provider using Student's *t* tests across two groups and analysis of variance (ANOVA) when there were more. In other analyses, we used χ^2 tests to compare proportions. Analyses were performed using Systat 5.1 for the Macintosh computer and SAS for Windows.

Respondents were also invited to share any other comments. To evaluate these comments, two members of the team reviewed the comments and identified six themes. Then, two members of the team independently coded the comments, compared coding, and adjudicated any differences.

Because the use of health care services by housestaff might be influenced by the health insurance offered to residents, we also reviewed the health insurance coverage options provided at each of the four institutions.

The protocol was approved by the human subjects committees at all four participating institutions.

RESULTS

A total of 389 instruments were mailed; 8 were undeliverable because of bad addresses; and 316 completed

instruments were returned for a response rate of 83%. The response rates across the four institutions ranged from 81% to 84%. Three subjects were excluded from further analysis—two because they indicated they were PGY-4 without providing an explanation, and one who reported being a fellow—leaving a total of 313 subjects. Some responses do not total 313 because of missing data. Table 1 reports the characteristics of the respondents.

Table 2 reports residents' primary health care provider. Approximately half of all residents reported either that they had no health care provider, or that they served that role for themselves; however, there were substantial differences across programs. Residents at programs B and D were much more likely to report that they have a personal physician ($p < .001$ by χ^2). Similarly, 61% of women reported having a primary health care provider, compared with 41% of men ($p < .001$ by χ^2). There were no differences in these values across PGY level.

Residents' available medical, dental, and prescription insurance varied considerably across programs, not only in the number of available choices, but also in the out-of-pocket costs to residents for single or family coverage. Costs to the residents varied from \$0 to \$1,269 for single coverage and from \$0 to \$3,900 for family coverage for health insurance and from \$0 to \$103 for single dental coverage and \$0 to \$328 for family dental coverage. Three programs offered prescription coverage to residents with either a 20% or \$5 copayment, but one program offered no prescription coverage.

Tables 3 and 4 report residents' clinician visits and receipt of various screening and preventive services over time. There were only small differences in these results across PGY level, and no differences across individual

Table 2. Residents' Self-report of Their Primary Health Care Provider

Provider	Percentage in Program				Combined (n = 309)*
	A (n = 75)	B (n = 71)	C (n = 91)	D (n = 70)	
None/self	76	20	65	31	49
Fellow resident	0	3	1	3	2
Personal physician†	21	77	31	57	46
Other	3	0	3	9	4

*Two respondents could not be identified with a specific program.

†The differences in residents reporting a personal physician are significant ($p < .001$ by χ^2).

Table 3. Residents' Clinician Visits*

Clinician Visit	Past 6 Months, %	Past Year, %	Past 2 Years, %	Past 3 Years, %	Beyond 3 Years, %
Last physician visit (n = 310)	33	54	74	81	19
Last dentist visit (n = 310)	37	62	78	86	14
Last pelvic examination (n = 120)	31	65	82	91	9

* Values were similar across postgraduate levels and across programs A through D.

programs with the exception of measurement of serum cholesterol: 93% of residents from program A reported a serum cholesterol measurement within 3 years, compared with 42% from the other three programs ($p < .001$ by Kruskal-Wallis). Ninety-eight percent of residents reported receiving at least two doses of hepatitis B vaccine, and 59% reported receiving influenza vaccine for the 1996-97 season.

Table 5 reports residents' mean responses to the 16 items designed to assess their attitudes toward their health and health care. For further exploration, we used factor analysis to reduce these 16 items to a smaller set of underlying dimensions. A four-factor varimax-rotated model explained 43% of the variance and provided a plausible and parsimonious account of the individual attitude items. High loadings in these four factors reflected the belief that residents are too busy to obtain adequate health care, the belief that residency is unhealthy, satisfaction with current medical care, and the belief that residents should get more care. Cronbach's α for these four factors was 0.86, 0.63, 0.79, and 0.55, respectively.

These four factors were associated with resident characteristics in predictable ways. Residents with primary care physicians had higher scores on factor 3 (I am satisfied with my current medical care) than residents without them ($p < .001$ by t test). In general, PGY-1 residents had higher scores on factor 1 (I am too busy to obtain health care) and factor 2 (residency is unhealthy) than PGY-2 residents, who, in turn, had higher factor 1 and factor 2 scores than PGY-3 residents ($p = .05$ for factor 1 and $p = .009$ for factor 2, by ANOVA). Similarly, women had higher scores in factors 1 ($p < .001$) and factor 4 (I should get more health care; $p < .001$) than did men. Other factor scores were similar across resident year and gender.

There were also differences in attitudes across programs. Residents from programs A and C were more likely to think that residency was not healthy ($p < .001$ by ANOVA), and residents from programs B and C were more likely to be satisfied with their current medical care ($p = .002$ by ANOVA).

Fifty-nine residents provided handwritten comments that gave some context to these issues. These comments were coded into six themes. Some comments reflected more than one theme and so received multiple codes. The two independent reviewers agreed on the coding for 48 of the comments. The remaining 11 discrepancies were easily adjudicated. Table 6 summarizes the themes represented in the comments.

Over half the comments (53%) reflected that the structure of residency and, in particular, residents' busy schedules make access to health care difficult. These residents complained that they do not have adequate time for appointments, or their schedules are too unpredictable to arrange appointments in advance:

It would have been nearly impossible to make it to a doctor's appointment during most of my internship. As a result I self-treated my asthma resulting in the need for three courses of oral prednisone for the first time in my life. Now that I am a resident, I have had time to get to an allergist and my asthma is under control.

I would love to see a dentist, but need an appointment months in advance and don't know my schedule until each month begins and usually not until the day or two before I have a day off.

Comments from 44% of residents reflected concerns about the structure of health care delivered to residents. Some residents complained about health insurance plans with strict gatekeeping policies and strong financial

Table 4. Clinical Services Received by Residents*

Clinical Service	Past Year, %	Past 3 Years, %	Past 5 Years, %	Past 10 Years, %	Beyond 10 Years, [†] %
Last blood pressure measurement	68	90	96	97	3
Last serum cholesterol measurement	27	55	74	83	17
Last hemoglobin or hematocrit measurement	24	53	68	80	20
Last tetanus/diphtheria vaccine	11	39	68	90	10
Last skin test for tuberculosis	73	93	96	98	2

* Values were similar across postgraduate levels and across programs A through D, with the exception of serum cholesterol (see text).

[†] Includes those who indicate "never," or who do not recall.

Table 5. Residents' Attitudes Toward Personal Health Care Services*

Attitude Item	n	Mean Rating (SD) [†]	Factor Analysis			
			Factor 1: "I am too busy to obtain health care"	Factor 2: "Residency is unhealthy"	Factor 3: "My health care is adequate"	Factor 4: "I should get more health care"
I am satisfied with the medical care I receive	310	3.3 (1.1)	-.21	-.12	.72	.00
I see a physician for medical care often enough	311	2.9 (1.2)	-.23	-.07	.79	-.11
I should see a physician for preventive care	313	3.7 (1.0)	-.04	-.07	-.12	.54
I should see a physician to help manage symptoms or a clinical condition	307	3.5 (1.1)	-.06	.11	.09	.57
My schedule is too busy for me to receive dental care	312	3.5 (1.2)	.82	.05	.22	.06
My schedule is too busy for me to receive medical care	316	3.3 (1.4)	.81	.13	.29	.05
I would see a physician for preventive care more often if I had more time	308	3.4 (1.2)	.56	.24	-.25	.39
I would see a psychiatrist or other mental health counselor more often if I had more time	310	2.2 (1.1)	.28	.27	.04	.15
I would see a physician for specific symptoms or conditions more often if I had more time	310	3.2 (1.2)	.51	.34	-.07	.52
I would see a dentist for dental care more often if I had more time	311	3.9 (1.2)	.72	.07	-.10	.10
My health insurance coverage is adequate for me	307	3.4 (1.1)	-.25	-.21	.25	.08
My health insurance coverage is adequate for my dependents	99	3.4 (1.3)	-.21	-.14	-.06	.03
Problems with my health make it difficult for me to perform my duties as a resident	313	1.6 (0.9)	.14	.50	.05	.07
My health has declined because of the duties of being a resident	312	3.0 (1.3)	.10	.66	-.04	-.08
I get sufficient exercise	312	2.0 (1.1)	-.04	-.44	.23	-.17
I eat a healthful diet	312	2.4 (1.2)	-.10	-.45	.23	-.05
Cronbach's α			0.86	0.63	0.79	0.55
Percentage of variance explained by rotated factors			17.1	9.1	9.6	7.2

*Each attitude item is reflected by a loading on each of the four factors. Extreme positive or negative loadings, noted in boldface, indicate the item is highly represented by the factor and is included in the analysis.

[†]1 = Strongly disagree; 5 = strongly agree.

incentives to stay within the system, about limitations in the kind of care available to them, or about the special privacy needs that arise from working in a health care institution:

Part of the reason I don't see a primary care doctor is that it costs extra to go out of the system. I do not wish to share my medical problems or get a Pap smear by someone I work with on occasion. Privacy of my medical record is also a concern.

As far as I can tell, if any labs/path is sent within our hospital, the data would be open to the housestaff via the computer system.

I have found that when going to a physician, they like to make it a teaching session, try to get you to go through the differential diagnosis, which is incredibly annoying and makes me avoid seeking medical attention.

Comments from 8% of residents suggested a lack of support from other residents may also limit their access to health care:

When I had an episode of uveitis, I had to see the ophthalmologist often and I had difficulty finding time out of my mad schedule. I didn't think the residents were sympathetic in helping me make my appointments.

Table 6. Themes Represented in Handwritten Comments Provided by 59 Residents

Theme	Number of Residents Expressing This Theme (%)
Residency makes health care difficult	31 (53)
The structure of health care delivered to residents causes problems	26 (44)
Residency is unhealthy	7 (12)
Fellow residents/residency program is unsupportive	5 (8)
Insurance is adequate	2 (3)
Other*	28 (47)

*Items in the "other" category reflect comments about unrelated elements in the instrument.

Taking care of myself has nothing to do with "being weak" or "not strong enough to handle . . . [my] work."

When I was sick with fevers, my fellow residents did not encourage me to take time off. Instead, I was encouraged to keep going since I looked well.

Comments from 12% of residents reflected concerns that the environment of residency training is unhealthy.

I have considered going for counseling during internship to ameliorate some of the stress in my life, but I do not have the time to do so.

My health has undoubtedly declined as a result of the stress of residency. I have developed mild hypertension, and increased although mild psoriatic plaques, and I have had increased frequency of paroxysmal atrial fibrillation.

The lunches provided at conferences are unconscionably unhealthy and lack reasonable alternatives.

DISCUSSION

This study uses self-reported data to determine internal medicine residents' views of their health and health care. Although resident physicians are generally young and healthy, residency is a time when physicians begin to develop their own standards and practice patterns. Previous research suggests that the personal habits of established physicians affect their attitudes in counseling and other health maintenance behaviors.^{2,3} Therefore, the health care residents receive may influence their future practice patterns. We are unaware of prior studies investigating the health care habits of resident physicians or their attitudes toward their personal health.

In an era when patients are encouraged to develop a relationship with a primary care provider, it is notable that approximately half of all medical housestaff in this study did not identify a primary care physician other than themselves. This proportion varied somewhat across programs, and this variation may be explained in part by differences in the medical plans offered to residents across institutions. A related analysis in the same respondents revealed that over half of these housestaff who reported taking prescrip-

tion medications had self-prescribed.⁵ Women residents were more likely than men to report having a primary care physician, a difference attributable to gynecologic care.

Despite the lack of a primary health care provider, over 80% of resident physicians in our study reported seeing a physician and more than 85% reported seeing a dentist in the previous 3 years. In addition, more than 65% reported receiving routine screening and preventive services including blood pressure measurement, cholesterol screening, and tetanus and diphtheria vaccine in the previous 5 years. More than 90% of respondents had received medical care required by their profession, including tuberculosis screening and hepatitis B vaccination. Although these results do not reach full compliance with clinical goals, these housestaff received preventive care at a frequency at least comparable to that of 144 university-based Massachusetts physicians surveyed in 1983.⁶ Among these established physicians, 82% had received a blood pressure measurement in the past 2 years; 70% of women had received a Pap smear within 2 years, and 54% had received a tetanus immunization in 10 years. A 1992 survey of Harvard Medical School faculty reported similar findings; 71% of these established physicians reported having a personal physician.⁷ These comparisons suggest that receipt of screening and preventive services is not more difficult for resident physicians than for established physicians.

Although resident physicians would seem to have unobstructed access to health care services compared with other populations, the handwritten comments of many residents in this study provide insight into what may be unique and important perceptions and attitudes about their health and health care. Fewer than 20% of residents provided comments, but a significant number of these reflected the perception that residents' busy and unpredictable schedules make it very difficult to schedule and obtain medical care, significantly limiting their access to health care. However, prior studies provide no clear benchmarks to evaluate these findings. A 1980 survey of practicing physicians and lawyers demonstrated that although physicians worked longer hours, slept less, and had less time for recreational activities than lawyers, physicians tended to be more concerned with personal health-promoting behaviors.⁸

Other comments revealed the special issues that arise when a resident physician needs medical care. Many residents feel that maintaining privacy is difficult when working in a health care institution. Some of these issues of confidentiality arise because of gatekeeping and preferred-provider procedures in residents' insurance plans that limit their abilities to use clinicians outside their work environment. Other comments reflected the belief that fellow residents are unsympathetic or inconvenienced by a colleague's need for health care. The physician as a patient may be concerned about revealing personal health concerns to professional colleagues.⁹⁻¹¹ Perhaps some of these concerns explain reduced use of clinical services by established physicians in relation to nonphysicians with equivalent insurance.^{12,13} Our results suggest these specific

concerns arise for both established and resident physicians.

In addition to the difficulties encountered in obtaining health care, resident physicians reported environmental obstacles to maintaining health. The handwritten comments reflected a belief that medical residency imparted significant stress, which affected their emotional and physical well-being. A previous study revealed that up to 30% of medical residents reported a period of depression during their internship.¹⁴ Furthermore, practicing physicians are known to have a high risk of depression, narcotic and alcohol abuse, and suicide.^{9,10,11,15-20} Other authors have described the lifestyles of established physicians as being associated with occupational hazards,^{10,11,15-17} including a propensity to overwork, minimize vacation time, and neglect family and spouses. Addressing some of the access, confidentiality, and peer-related concerns raised by our study might promote a healthier work environment for residents and reduce these negative personal outcomes.

This study has several limitations. First, we surveyed internal medicine residents at four U.S. training programs. Although geographically diverse, all four training programs were university based. Different attitudes were noted between training programs, suggesting a limited ability to generalize aggregate responses of individual programs. Furthermore, a sample incorporating residents from other specialties might have yielded different results. Second, our results are based on self-reports in the setting of an anonymous mailed survey. Our instrument was piloted to judge completeness, readability, and accuracy, but in the end the validity of these results depends on respondents' comprehension, recall, and honesty. Recall bias might result in underreporting or overreporting the number of preventive and screening services or incorrect recollection of when those services occurred. Finally, solicited comments written by residents might be expected to reveal criticism and discontent more often than praise and satisfaction.

Despite these limitations, this study contributes to our understanding of the health and health care of resident physicians. This issue is important because although many of the health services received by residents were close to ideal targets, other findings of this study point to opportunities for improvement. Residency program directors can have a large impact on fostering the cultural and programmatic changes necessary to help residents maintain their personal health and feel comfortable obtaining personal health care. Program directors should be especially concerned about residents' perceptions of their own health care because they likely help establish enduring personal health practices. In the end, if residents learn to preach what they practice, these cultural changes within medical education may contribute greatly to public health.

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