

Resident Physician Preventive Health Behaviors and Perspectives on Primary Care

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ABSTRACT

Little is known about lifestyle choices and preventive healthcare seeking behaviors among resident physicians. Residents function under unusual working conditions requiring extensive duty hours. This may significantly affect attentiveness to personal health and wellness. In this study, we surveyed residents across multiple training programs to compare lifestyle choices and access to preventive healthcare.

METHODS: Resident physicians affiliated with Brown University, Providence, Rhode Island, were surveyed between February and April 2009 regarding lifestyle habits and experiences with primary care. We evaluated the relationships between training program and established primary care on health behaviors.

RESULTS: Residents were in one of 5 programs: internal medicine, medicine/pediatrics, emergency medicine, surgery or pediatrics. Respondents slept an average of 6.7 hours per day and worked an average of 70 hours per week, with surgical residents sleeping the shortest and working the longest hours ($p < 0.001$ for both). An average of 58.8% of residents indicated having a primary care physician. This rate was lowest among surgery residents at 37% ($p = 0.081$). Rates of screening with regards to blood pressure, cholesterol and cervical cancer were significantly higher among residents maintaining primary care ($p < 0.001$). A lack of time was the most common barrier to obtaining primary care.

DISCUSSION: Surgical residents may have unique barriers to healthcare seeking behaviors, such as longer work hours. Residents with established primary care had significantly higher rates of adherence to preventive screening. Residency programs should address barriers to accessing healthcare for trainees, particularly among surgical programs.

KEYWORDS: resident wellness; resident health; health behaviors

INTRODUCTION

Physicians in residency training programs constitute a unique population that is not often studied, and little is known about their personal healthcare beliefs and practices. By training, residents are highly educated and have extensive

medical knowledge. Arguably, they also have easier access to healthcare services than the average individual. Despite this, it is unclear if they are able or consider it worthwhile to maintain adequate primary care. Unique barriers to care may exist for residents, including the perception that one can sufficiently monitor his/her own health as a physician, beliefs surrounding the importance of routine primary care, time limitations from the demands of residency, or concerns about privacy.^{1,2}

In 2003, the Accreditation Council for Graduate Medical Education (ACGME) instituted limits on resident work hours to 80 per week, averaged over a 4-week period.³ Implementation of this guideline decreased work hours reported by residents, improved satisfaction with clinical education, and reduced measures of burnout.^{4,5} It is unclear if this has translated into improvements in practicing healthy habits or accessing primary care.

The majority of residents are in a period of life where preventive healthcare would have the greatest impact. In addition to health screening measures, general internists also perform routine counseling on a number of lifestyle behaviors, including diet, exercise, smoking cessation, and alcohol use. Many Americans, including residents, lack adherence to national guidelines for these behaviors,⁶ and opportunities to improve residents' lifestyles may be neglected in the absence of primary care. This is especially significant as personal lifestyle practices of residents influence the counseling they provide to patients.^{7,8}

In this study, we surveyed residents across multiple training programs at one institution to examine their lifestyle choices and access to preventive healthcare. We hypothesized there would be significant need for improvement in both areas examined, especially in the more arduous and time intensive training programs. In addition, we hypothesized residents with established primary care would practice healthier habits and be more likely to obtain health screening.

METHODS

Resident physicians affiliated with Brown University in Providence, RI, were invited via email to complete an online survey between February and April 2009. The survey included limited demographic information, questions regarding residents' lifestyle behaviors such as work hours, sleep, alcohol, tobacco, drug use, and questions pertaining to their

Table 1. Baseline characteristics of residents by training program

| | Medicine (n = 121) | Med/Peds (n = 15) | EM (n = 48) | Surgery (n = 56) | Pediatrics (n = 51) | Combined (n = 291) |
|---------------------|-----------------------|----------------------|----------------|---------------------|------------------------|-----------------------|
| Number of Responses | 71 | 9 | 30 | 30 | 37 | 177 |
| Response Rate (%) | 59 | 60 | 63 | 54 | 73 | 61 |
| Female (%) | 65 | 44 | 50 | 37 | 76 | 59 |
| Age<30 (%) | 75 | 22 | 60 | 43 | 73 | 64 |

Table 2. Resident physician personal habits by training program

| | Medicine | Med/Peds | EM | Surgery | Pediatrics | Combined | P value |
|---|------------|------------|------------|-----------|------------|------------|------------------|
| Currently smoke (%) | 0 | 0 | 0 | 3 | 0 | 0.6 | 0.30 |
| Drink alcohol (%) | 72 | 56 | 93 | 73 | 73 | 75 | 0.10 |
| Number of drinks/week | 3.2 | 3.6 | 3.4 | 4.9 | 3.3 | 3.5 | 0.24 |
| Think should drink less (%) | 8 | 0 | 7 | 17 | 0 | 7 | 0.11 |
| Drink caffeine to improve functioning (%) | 57.8 | 77.8 | 83.3 | 60 | 67.6 | 65.5 | 0.13 |
| Use illicit drugs (%) | 3 | 0 | 17 | 10 | 5 | 7 | 0.11 |
| Number of hours sleep/day | 6.7 | 6.8 | 7.2 | 6 | 6.9 | 6.7 | <0.001 |
| Number of hours work/week | 69 | 68 | 65 | 79 | 69 | 70 | <0.001 |
| Number of times exercise/week | 1.8 | 0.9 | 2.1 | 2.1 | 2.3 | 2 | 0.18 |
| Body Mass Index (kg/m ²) | 23.7 | 25 | 23.6 | 23.7 | 23 | 23.6 | 0.59 |
| Consume 1000mg calcium/day (%) | 33.8 | 44.4 | 33.3 | 46.7 | 48.9 | 39.6 | 0.48 |

*P value <0.05 indicates significant differences in resident response among training programs.

perceptions of and experience with primary care while in residency. Residents were also asked about their personal preventive screening status including blood pressure, cholesterol, and age-appropriate cancer screening. Inclusion criteria were current residents employed by the institution, all of whom had work-provided email addresses. Written consent was obtained prior to survey entry, and all responses remained anonymous. Every two weeks, an email reminder was sent to residents that had not yet responded.

Respondents were asked to identify their current training program. Those programs with low response rates (<50%) were excluded from analysis due to concern about bias. Programs with response rates <50% were used for data analysis. We compared resident lifestyle choices and access of preventive healthcare by training program and by whether or not a resident had established primary care.

In testing these relationships, we used one-way analysis of variance (ANOVA), the independent-samples t-test (with adjustment for unequal variance where appropriate), and the chi-square test. We used an alpha probability of 0.05 as the threshold for statistical significance in two-tailed comparisons. All statistics were performed with Stata v.10 (Stata Corp., College Station, TX). Our Institutional Review Board approved the study design.

RESULTS

Of 470 residents receiving the survey, 236 (50%) completed it. Due to a low response rate from certain specialties, 59 were excluded from analysis (neurology, orthopaedics, pathology, radiology, obstetrics/gynecology, and dermatology). The remaining respondents were in one of 5 training programs: internal medicine (IM), medicine/pediatrics, emergency medicine (EM), surgery or pediatrics. The surgery group included general and specialty surgery (neurosurgery, plastic surgery, urology and ophthalmology).

Table 1 reports characteristics of respondents. There were 291 total residents surveyed in these specialties and 177 completed a survey (response rate 61%). Response rates ranged from 54% in surgery to 73% in pediatrics. Women comprised 59% of the respondents.

Table 2 reports on personal habits by training program. Alcohol was used by 75% of individuals with an average of 3.5 drinks per week consumed. There was a trend towards higher rates of use among EM residents with 93% reporting alcohol consumption. Surgery residents had the highest average number of drinks per week at 4.9 along with the greatest percentage reporting they should drink less at 17%. A majority of residents (65.5%) used caffeine with the intent of improving functioning. Twelve residents (7%) reported illicit drug use. The highest rate was among EM residents

at 17%, though this was not statistically significant. The average body mass index (BMI) was 23.6 despite an average exercise frequency of 2 times per week.

Respondents slept an average of 6.7 hours per day and worked an average of 70 hours per week. There was a statistically significant relationship between each of these variables and the training program of the resident ($p < 0.001$). Surgeons-in-training slept the least and worked the most at an average of 6 hours per day and 79 hours per week, respectively.

Analyses of lifestyle choices by presence of a primary care provider demonstrated nonsignificant differences in rates of alcohol consumption, number of alcoholic drinks per week, illicit drug use, and caffeine consumption to improve performance, adequate calcium consumption, average BMI, and exercise frequency among residents with and without a primary care physician (PCP). Residents with a PCP worked significantly less (68.7 vs 72.3 hours/week, $p = 0.018$) and obtained significantly more sleep (6.86 vs 6.51 hours/day, $p = 0.009$) compared to those without a PCP.

Table 3 shares results for questions on access to primary care and preventive services. Fifty-nine percent of residents indicated having a PCP. This was lowest among surgical housestaff at 37%, though not statistically significant ($p = 0.081$). Of this group 72% had a visit with their PCP in the past year for an overall rate of 42% of residents

surveyed having seen their PCP within one year. In contrast, 71% overall had a dental visit in the past year. Among those who did not have a PCP, the majority (93%) felt they should. Eight residents (4.5%) had been evaluated in an emergency room during residency. The rates were similar among those with and without a PCP ($p = 0.61$).

Thirty-eight percent of residents had received a prescription from an individual other than a PCP during residency. Rates were lowest among medicine and surgery programs ($p = 0.01$). The rate was similar between residents with and without a PCP (42% versus 32%, $p = 0.145$). Females engaged in this practice more than males with rates of 43% versus 30%, but this was not statistically significant ($p = 0.076$).

In our study, the majority of residents had their blood pressure and cholesterol checked within the past year and 5 years, respectively. Almost 2/3 of females had a PAP smear within the past year. Rates of screening were similar across training programs. **Figure 1** examines the adherence of residents to preventive screening by whether or not they had a PCP. Rates of screening were significantly higher among residents maintaining primary care compared to those who did not. This was consistent across all variables assessed ($p \leq 0.001$).

Table 4 reports resident perceptions of barriers to establishing and maintaining primary care. By far, the most common issue cited was a lack of time, with about 1/3 of

Table 3. Resident physician access to primary care and preventive services by training program

| | Medicine | Med/Peds | EM | Surgery | Pediatrics | Combined | P value |
|---|----------|----------|-----|---------|------------|----------|---------|
| Have PCP (%) | 61 | 78 | 63 | 37 | 65 | 59 | 0.08 |
| Seen PCP in past year (%) | 72 | 71 | 74 | 91 | 63 | 72 | 0.55 |
| Have another doctor (%) | 45 | 33 | 43 | 33 | 57 | 45 | 0.37 |
| If no PCP, feel they should have one (%) | 93 | 50 | 100 | 89 | 100 | 93 | 0.09 |
| Blood pressure measured within 1 year (%) | 75 | 78 | 80 | 77 | 76 | 76 | 0.99 |
| Cholesterol checked within 5 years (%) | 63 | 67 | 70 | 63 | 81 | 68 | 0.41 |
| For females, PAP smear within 2 years (%) | 89 | 75 | 93 | 82 | 92 | 89 | 0.36 |
| Seen dentist in past year (%) | 73 | 78 | 70 | 64 | 73 | 71 | 0.86 |
| Emergency department visit (%) | 4 | 0 | 10 | 7 | 0 | 5 | 0.33 |
| Prescription from another provider (%) | 30 | 56 | 60 | 33 | 54 | 38 | 0.01 |

*P value < 0.05 indicates significant differences in resident response among training programs.

Table 4. Resident physician perceived barriers to accessing primary care

| | Number of Responses | Percent (%) |
|---|---------------------|-------------|
| Do not have time to see PCP | 55 | 31.1 |
| Hard to find PCP accepting new patients | 20 | 11.3 |
| Other | 17 | 9.6 |
| Do not have health problems | 10 | 5.7 |
| Do not need annual exam | 8 | 4.5 |
| Can manage care on my own | 7 | 4.0 |
| Not important to have PCP | 7 | 4.0 |
| PCP will not be helpful | 5 | 2.8 |
| Too young to worry about medical care | 3 | 1.7 |
| Do not need preventive screening | 3 | 1.7 |

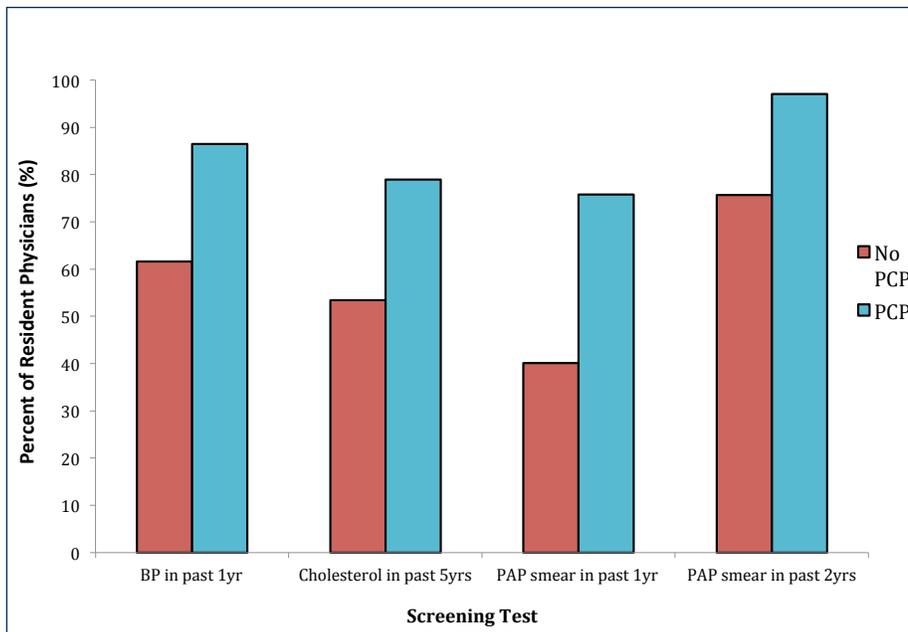


Figure 1. Age-appropriate preventive screening rates of resident physicians by status of established primary care.

* $P \leq 0.001$ for all variables

residents expressing this concern. Eleven percent of residents found it difficult to find an internist accepting new patients. Some respondents felt they were healthy and did not need a PCP, annual exam or preventive screening. Some expressed concerns about knowing whom to trust and wanting to avoid an internist who may be a supervisor in the future.

DISCUSSION

Residency training is an unusually demanding time for physicians with a high prevalence of burnout due to increased emotional stress, difficult job situations and workload.⁹ Despite the rigors of training, our results indicate that respondents were able to maintain fairly healthy lifestyle habits. Tobacco use and excessive alcohol consumption were uncommon. The average BMI was maintained within the normal range, in contrast to national average BMI of 28.4 kg/m².¹⁰ Reasons for this trend are unclear, but may include a selection bias in the medical field. Residents on an inpatient service often walk a significant amount within the hospital on a daily basis, which may contribute to weight maintenance as well.

There were several areas of concern. It is worrisome that 17% of EM residents and 7% of residents overall reported illicit drug use, which may be underreported figures. For adults, the National Sleep Foundation recommends 7 to 9 hours of sleep per night.¹¹ Residents slept less than recommended at an average of 6.7 hours of sleep per night. It is not surprising that surgery residents slept the least, given they also worked the most.

Surgery residents reported the lowest rate of having a PCP at 37%, possibly a result of increased work hours. Overall, there were a large percentage of residents without

established primary care (41%), though almost all felt it was important to have a PCP (93%). The USPSTF recommends high blood pressure screening for adults over age 18 every 1 to 2 years, lipid disorder screening for women over age 20 and those with risk factors every 5 years and cervical cancer screening for women over age 21 every 3 years.¹² Even in the era of duty hour limits, time was commonly perceived as a barrier to obtaining primary care. Adults (ages 25 to 44) in the general population have similar rates of access to primary care at 63.3%. This rate is higher among the insured with 81.5% of adults less than age 65 having a PCP.¹³

We found that residents with a PCP were significantly more likely to have had preventive screening compared to those without a PCP. This was true with regards to screening for hypertension, dyslipidemia and cervical cancer, highlighting a benefit of maintaining primary care.

Self-prescription of medications (most commonly antibiotics, allergy and asthma medications and contraceptives) among residents was common in a prior study with a rate of 52%.¹⁴ Our results also demonstrated high rates with 38% of residents receiving prescriptions from an individual not identified as their medical provider. Females were more likely to do so. This may be because female residents are more concerned about privacy issues in obtaining healthcare than male residents.¹ These rates were similar between residents with and without established primary care, so that even those housestaff that had access to a medical provider chose to obtain some prescriptions elsewhere. Reasons for this trend may be related to concerns about privacy around sensitive issues, time constraints and convenience.

There are several limitations of the study. The results are drawn from self-reported data so there may be a recall and reporting bias. Alcohol consumption and illicit drug use

may be underreported. The survey asked residents to estimate work and sleep hours, exercise frequency and other habits over a year's time that may fluctuate every month during various rotations. We performed comparisons between five training programs, but sample size may have limited power to detect differences that exist. We did not have data regarding post-graduate year (PGY) of respondents and did not factor this into our analysis. Since interns (PGY1) generally work the longest hours, it is possible they access primary care to a lesser degree than senior residents. Our sample included one institution and findings may be different at another location.

Our study adds to the literature on resident health and wellness, a uniquely important and understudied topic. One of the strengths was the inclusion of 5 different training programs, allowing for comparison and evaluation for trends particular to a specialty. We found that surgical residents may have distinct barriers to healthcare seeking behaviors given increased work and decreased sleep hours, as manifested by lower rates of established primary care. This highlights a need by residency program directors for education about and encouragement of resident attention to personal health, particularly in the surgical training programs.

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Disclosures

The authors have no financial interests to disclose.

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