Community–based preceptors provide a large portion of the primary care education for medical students in the United States. Requirements for increased productivity and reduced reimbursement by third-party payers have placed additional burdens on these preceptors. The Association of American Medical Colleges recently called for a 30% increase in medical school enrollment by 2015 to meet the growing physician shortage in the United States.\(^1\) They cite several reasons for this expansion, such as the increase in size and age of the US population, as well as the aging of the physician workforce.\(^2\)–\(^5\) All these factors will place more demands on physicians who teach and increase the need for preceptors.

To meet the current and future demand for preceptors, the positive aspects of teaching students must outweigh the burdens. Of the studies that have addressed community preceptors’ satisfaction, retention, and rewards and incentives, few were multidisciplinary regarding physician specialty.\(^6\)–\(^16\) Objectives of these studies also varied slightly. Only one measured responses among specialties of family physicians, internists, pediatricians, and obstetrician-gynecologists, but that study included less than 100 active preceptors and had only a 46% response rate.\(^10\)

The objective of our statewide study was to compare satisfaction of family physician preceptors with satisfaction of other primary care physicians in the fields of internal medicine, pediatrics, and obstetrics-gynecology. Specifically, we sought to determine each group’s satisfaction as a community preceptor, their likelihood of continuing as a preceptor in the next 5 years, the influence of having students in their practice, their motivation for teaching, the satisfaction with and value placed on rewards/incentives, and their degree of satisfaction with professional life. Similar results by
degree groups (physicians, pharmacists, nurse practitioners, and physician assistants) have been previously reported.17

Methods

Samples and Procedures

We mailed surveys to all 1,221 community physicians in a statewide system of predominantly primary care preceptors. These preceptors receive support services from regional offices associated with each of North Carolina’s Area Health Education Centers (AHECs). The regional staff coordinates clinical experiences and housing for students and organizes local educational programs for preceptors.

The original mail packet included the survey, a personalized cover letter, and a self-addressed stamped envelope (SASE). To increase response rate, we held a random drawing for one of four weekend get-away packages. Three weeks after the first mailing, a second letter, survey, and SASE were mailed to nonresponding preceptors. Three weeks after the second mailing, the remaining preceptors received a final appeal and a copy of the survey by fax.

Survey Design

We designed a four-page, 24-item survey to measure the following areas: the overall degree of satisfaction with precepting, likelihood of continuing as a community preceptor in the next 5 years, the influence of teaching students on their practice,10,16 reasons for teaching students,7,15,16 satisfaction with and value placed on incentives7,16,18 and satisfaction with professional life.3,7,18-21 Preceptors responded on a 5-point Likert scale. Information was also collected on preceptor and practice demographics and type of students. Two physician focus groups pretested the questionnaire before the final revision. The survey then received approval by our Institutional Review Board.

Data Analysis

Summary statistics were calculated on all variables. Physicians were divided into four categories: family medicine (FM), internal medicine (IM), pediatrics (PED) and other (O). The other group consisted of 51 obstetrician-gynecologists. The remaining 47 physicians in that group were surgeons, emergency medicine physicians, pulmonologists, cardiologists, oncologists, urologists, neurologists, infectious disease specialists, and gastroenterologists.

Analyses were conducted using Chi-square for categorical variables (correcting for continuity in 2x2 tables) and t tests for continuous data. We used SPSS 13.0 for Windows and set significance level at $P \leq 0.05$.

Results

Response Rate

Of the 1,221 statewide physicians surveyed, 817 (66%) returned questionnaires (817/1,221). Prior to receiving participants’ responses, only the preceptor’s name, degree, and AHEC affiliation were known. Using preceptors’ first names to determine the gender of nonrespondents, we calculated that preceptors who completed and returned the questionnaire did not differ from nonrespondents in gender. They also did not differ by AHEC affiliation.

Demographics

The responding physicians included 46% FM, 22% IM, 20% PED, and 12% O. Demographics for each physician group are shown in Table 1. Some differences existed among the groups. FM physicians were more likely to practice in rural settings, while IM and O physicians were more likely to practice in urban areas and work more hours per week. More than 37% of pediatricians were female.

Satisfaction of Preceptors

All physicians, regardless of specialty, responded similarly to the four main survey questions. A majority of physicians (745/789 or 94.4%) indicated they were “satisfied” to “very satisfied” with their experience as a community-based preceptor. Most respondents (737/809 or 91.1%) also reported that they would “probably” or “definitely” continue as a preceptor over the next 5 years. A majority of physicians (436/789 or 55.3%) reported being “satisfied” or “very satisfied” with incentives they receive as a preceptor. When asked about degree of satisfaction with professional life, almost all (718/784 or 91.6%) said they were “satisfied” to “very satisfied.”

Some differences were seen among responses to more specific questions on other issues related to precepting. When asked about the influence of students in their practice, most physicians (83.3%) indicated that having a student had a positive influence on overall job satisfaction. Respondents also reported a positive influence on relationships with patients (57.3%), patient satisfaction (52.8%), and relationships with colleagues and staff (49.6%). In contrast, more than half of FM physicians were likely to respond that students had a negative influence on patient flow and working hours (Table 2). Pediatricians also indicated that students had a negative influence on patient flow. Most preceptors (76.3%) felt that students had “neither a positive nor negative” effect on income and no differences were found for this variable between specialty groups.

Reasons for Precepting

In ranking the importance of intrinsic reasons in their decision to precept students, most physicians (694/817
### Table 1

Demographics of Respondents to Preceptor Survey: All Physicians and by Physician Specialty

<table>
<thead>
<tr>
<th>Physicians by Specialty</th>
<th>All Physicians % (n)</th>
<th>Family Medicine % (n)</th>
<th>Internal Medicine % (n)</th>
<th>Pediatrics % (n)</th>
<th>Other % (n)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>73.0 (590)</td>
<td>72.0 (270)</td>
<td>81.1 (142)</td>
<td>62.5 (100)</td>
<td>79.6 (78)</td>
<td>.001</td>
</tr>
<tr>
<td>Female</td>
<td>27.0 (218)</td>
<td>28.0 (105)</td>
<td>18.9 (33)</td>
<td>37.5 (60)</td>
<td>20.4 (20)</td>
<td></td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>81.4 (659)</td>
<td>82.0 (309)</td>
<td>73.1 (128)</td>
<td>85.6 (137)</td>
<td>86.7 (85)</td>
<td>.009</td>
</tr>
<tr>
<td>Non Caucasian</td>
<td>18.6 (151)</td>
<td>18.0 (68)</td>
<td>26.9 (47)</td>
<td>14.4 (23)</td>
<td>13.3 (13)</td>
<td></td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>26.2 (205)</td>
<td>18.2 (67)</td>
<td>33.1 (55)</td>
<td>25.0 (38)</td>
<td>46.9 (45)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Suburban</td>
<td>35.4 (277)</td>
<td>39.6 (146)</td>
<td>29.5 (49)</td>
<td>37.5 (57)</td>
<td>26.0 (25)</td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>38.4 (301)</td>
<td>42.3 (156)</td>
<td>37.3 (62)</td>
<td>37.5 (57)</td>
<td>27.1 (26)</td>
<td></td>
</tr>
<tr>
<td><strong>Miscellaneous (n = 777)</strong></td>
<td>Mean ± SD*</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>46.8 ± 9.3</td>
<td>46.3 ± 8.8</td>
<td>47.8 ± 9.8</td>
<td>46.2 ± 9.3</td>
<td>48.2 ± 9.8</td>
<td>.131</td>
</tr>
<tr>
<td>Number of years in practice</td>
<td>15.9 ± 9.4</td>
<td>15.6 ± 9.4</td>
<td>16.2 ± 9.5</td>
<td>15.5 ± 9.0</td>
<td>16.7 ± 9.7</td>
<td>.709</td>
</tr>
<tr>
<td>Hours worked in typical week</td>
<td>50.0 ± 14.3</td>
<td>50.8 ± 13.6</td>
<td>54.8 ± 13.5</td>
<td>46.8 ± 12.0</td>
<td>55.4 ± 18.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Patients seen in typical week</td>
<td>110.9 ± 48.0</td>
<td>111.5 ± 49.3</td>
<td>109.2 ± 51.3</td>
<td>116.8 ± 40.8</td>
<td>101.6 ± 46.9</td>
<td>.115</td>
</tr>
<tr>
<td>Weeks per year precepting</td>
<td>10.4 ± 7.1</td>
<td>11.1 ± 7.3</td>
<td>9.3 ± 6.1</td>
<td>10.0 ± 7.5</td>
<td>10.5 ± 7.3</td>
<td>.059</td>
</tr>
<tr>
<td>Number of years precepting</td>
<td>12.0 ± 11.3</td>
<td>11.1 ± 10.5</td>
<td>12.8 ± 11.8</td>
<td>12.4 ± 11.9</td>
<td>13.6 ± 11.8</td>
<td>.182</td>
</tr>
</tbody>
</table>

### Table 2

Comparison of Preceptors by Physician Specialty Who Indicated a Negative or Very Negative Effect of Students

<table>
<thead>
<tr>
<th>Physicians by Specialty</th>
<th>All Physicians n=816 % (n)*</th>
<th>Family Medicine n=376 % (n)*</th>
<th>Internal Medicine n=174 % (n)*</th>
<th>Pediatrics n=159 % (n)*</th>
<th>Other n=98 % (n)*</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Practice Areas</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient flow</td>
<td>47.8 (385)</td>
<td>54.4 (204)</td>
<td>37.8 (65)</td>
<td>53.5 (84)</td>
<td>32.3 (31)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Working hours</td>
<td>41.0 (333)</td>
<td>50.5 (190)</td>
<td>37.8 (65)</td>
<td>35.2 (56)</td>
<td>22.4 (22)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

* Percentages are based on actual number of responses per item.

** Survey list also included overall job satisfaction, relationship with colleagues, relationship with patients, patient satisfaction, and income and benefits. There were no differences among physician specialties for these areas.
or 85%) gave greatest importance to enjoyment of teaching. In addition, physicians also cited as important demonstrating community practice to students (682/816 or 83.6%), giving something back to their profession (635/816 or 77.8%), intellectual stimulation (626/817 or 76.6%), and being a role model (578/816 or 70%). FM physicians placed significantly more importance on helping recruit for their specialty than other physician groups (32.8% FM versus 22.4% IM, 17.0% PED, 16.7% O, \(P = .001\)). In addition, more than half of internists and pediatricians placed great importance on keeping their knowledge up to date as motivation for teaching students, while fewer than half of FM and O cited this reason (54.0% IM and 51.9% PED versus 39.8% FM and 35.7% O, \(P = .002\)).

As a group, physicians valued most the following incentives: receiving Category II Continuing Medical Education (CME) credit for teaching, no-cost access to online library resources, academic appointment at university, and continuing education programs on clinical topics (Table 3). FM physicians placed more importance than other physicians on Category II CME credit for teaching and less value on academic appointments. Financial compensation ranked fifth on the list of valued incentives. (Currently, North Carolina preceptors receive $112.50 per student week).

**Overall Professional Satisfaction**

Physicians reported high levels of overall satisfaction with their professional lives and responded similarly to questions involving specific aspects of their professional practice. A total of 710 (88%) reported “great” to “very great” satisfaction with their relationships with patients, 621 (77%) reported satisfaction with control over clinical decisions, and 486 (60.3%) reported satisfaction with supportiveness of colleagues and staff. Adequate personal time and time to spend with patients were areas of least satisfaction among all physician groups. FM physicians reported significantly less satisfaction with their income than internists or pediatricians (39.5% FM versus 49.1% IM, 52.9% PED, \(P = .016\)). Internists indicated more satisfaction with the time available to spend with patients (45.7% I versus 37.3% FM, 38.9% PED, 30.9% O, \(P = .033\)).

**Discussion**

Findings from this study showed that community physician preceptors are not a homogeneous group, a finding that confirms recent other studies.6,10,11,18,22 It is not surprising that physicians in different specialties vary regarding their reasons for precepting students. FM physicians deal with a wide variety of patients, often with complex problems and psychosocial issues and having a student could easily decrease their patient flow more. It is also possible that FM physicians feel there are more topics they need to teach, which makes their working hours with a student longer than other physician groups. As the number of medical school graduates entering family medicine has been declining, it also makes sense that these physicians would place more importance on recruiting students to their specialty. Lastly, FM physicians’ incomes are

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**Table 3**

Comparison of Preceptors by Physician Specialty Who Placed Great or Very Great Value on Certain Incentives

<table>
<thead>
<tr>
<th>Incentives</th>
<th>Physicians by Specialty</th>
<th>All Physicians n=671</th>
<th>Family Medicine n=341</th>
<th>Internal Medicine n=141</th>
<th>Pediatrics n=126</th>
<th>Other n=63</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category II CME credit for teaching</td>
<td></td>
<td>47.8 (321)</td>
<td>55.7 (190)</td>
<td>41.1 (58)</td>
<td>42.1 (53)</td>
<td>31.7 (20)</td>
<td>.001</td>
</tr>
<tr>
<td>No-cost access to online library resources</td>
<td></td>
<td>32.9 (190)</td>
<td>28.9 (80)</td>
<td>40.5 (53)</td>
<td>33.3 (37)</td>
<td>34.5 (20)</td>
<td>.453</td>
</tr>
<tr>
<td>Academic appointment at university</td>
<td></td>
<td>30.5 (167)</td>
<td>22.3 (57)</td>
<td>42.3 (52)</td>
<td>30.9 (34)</td>
<td>41.4 (24)</td>
<td>.001</td>
</tr>
<tr>
<td>Continuing education programs on clinical topics</td>
<td></td>
<td>24.6 (134)</td>
<td>19.1 (51)</td>
<td>32.5 (39)</td>
<td>31.1 (32)</td>
<td>22.2 (12)</td>
<td>.055</td>
</tr>
<tr>
<td>Financial compensation</td>
<td></td>
<td>14.6 (96)</td>
<td>13.5 (42)</td>
<td>16.8 (25)</td>
<td>17.6 (22)</td>
<td>9.9 (7)</td>
<td>.411</td>
</tr>
</tbody>
</table>

* Percentages are based on actual number of responses per item.

** Survey list of incentives also included certificate of teaching recognition, faculty development workshops, STFM newsletter (with POEMs), local preceptor newsletter, appreciation dinners, and site visits by university or Area Health Education Center staff. There was no difference between physician groups for these items, and the number of respondents was <20%.
not increasing at the same rate as many other physician groups’ incomes, so the effect of students on income could be important. These additional burdens on FM community preceptors may put them at greater risk for dropout. One possible model to address these concerns could be to decrease the total number of community preceptors and develop “specialized teaching practices” that take students all the time. Outside support of these centers (probably by universities) would allow the preceptor a reduced patient load and therefore more teaching time, while sustaining income and personal time.

Our study also reconfirms that intrinsic rewards are the primary reasons for teaching students. Developing creative opportunities for physicians to cultivate the intrinsic motivation for teaching may enhance their satisfaction and retention as preceptors. One way is to provide a setting in which health care providers can rediscover and nurture the meaning of their work in groups like Naomi Remen’s “Finding Meaning in Medicine.” Additionally, family physicians did identify recruitment as an important reason for teaching. This coincides with the American Academy of Family Physicians’ (AAFP) recent challenge for departments of family medicine to expand their efforts to increase student interest in the specialty. Perhaps future AAFP initiatives could focus on encouraging more members to become advocates for their specialty by being mentors or community preceptors.

Although our study confirms the findings of other research, there are some differences between our study and others. Single found that family physicians rated all incentives significantly higher than gynecologists, pediatricians, and internists. When examining each of the incentives separately, Single found that family physicians rated Category II CME credit and financial compensation higher than other groups of doctors. Our study found that family physicians only preferred the CME credit more than other specialties. This might reflect the greater awareness of family physicians for this incentive. Targeting support specifically for physicians is one strategy for retention. For instance, CME programs to teach physicians how to obtain 0.5 CME credit for documenting an answer to a clinical question or how to use evidence-based resources at point of care would be of particular use and appeal to physicians.

Limitations

Our AHEC system offers a decentralized university-type support. This highly developed infrastructure for local preceptors is not found in many states and may contribute to the higher levels of satisfaction reported by our group of preceptors. This limits generalizability. Conversely, because this support is available to all groups of physicians in this study, it is possible to compare results among the physician groups. Our study also eliminates the potentially confounding factors of location and health care climate because it compares more than one specialty in the same region.

Conclusions

With the increased demand for preceptors, it is important for us to be able to retain our present preceptors and recruit new ones. We need to be proactive and even consider other models before a crisis emerges. Future statewide or regional studies with large response rates are needed to better understand areas of physician preceptor satisfaction, drop-out rates, and differences among physician groups.

Acknowledgments: Partial financial support was received from the North Carolina AHEC Program, Chapel Hill, NC.

The overall study results have been reported as a poster at the 2006 Society of Teachers of Family Medicine (STFM) Predoctoral Education Conference, Charleston, SC; as a research presentation at the 2006 STFM Annual Spring Conference, San Francisco; and as a research presentation at the 2006 National AHEC Conference, Omaha.

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