Most family medicine clerkship students spend the majority of time learning in the offices of community-based family physician preceptors. With the significant contributions that community preceptors make to the education of clerkship students, it is important to understand the teaching and learning that occurs in their offices.

Our understanding of community preceptor teaching is evolving. Through direct observation, we now appreciate the time that community preceptors devote to teaching. Additional observations have found that common instructional behaviors of family physician preceptors include giving information and direction, allowing students to see patients independently, and asking questions, whereas an infrequently used teaching behavior is giving feedback. Despite the results of these studies, questions still remain. For instance, although the Five-Step “Microskills” Model of Clinical Teaching model has been a popular teaching method discussed in faculty development workshops and written materials, we do not know whether this model is actually used by community preceptors.

Prior research has also given us some understanding of the learning content received by medical students in family medicine clerkships, since many clerkships require students to keep logs of the clinical conditions and diseases seen with their preceptors. A few reports have discussed the severity of illnesses seen by students. One report quantified the frequency of teaching on disease pathophysiology, diagnosis, and disease management. However, little else is known about what the preceptors actually teach and what the students actually learn about assessing and managing conditions seen in the preceptors’ offices.

For our Family and Community Medicine Clerkship, we developed a Task-oriented Processes in Care (TOPIC) teaching model to help students learn appropriate tasks for conducting different types of ambu-
latory visits efficiently. Although we teach clerkship students this model in small-group seminars, we have not studied whether community preceptors use the model in teaching their students.

The study’s purpose thus was two-fold. The first purpose was to increase our understanding of the teaching process of our preceptors and observe how often they actually used the microskills described in the Five-step “Microskills” Model of Clinical Teaching. The second purpose was to increase our understanding of the teaching and learning content in preceptors’ offices and observe how much of it coincided with the tasks described in the TOPIC teaching model.

**Methods**

The Institutional Review Board of Baylor College of Medicine and its affiliated hospitals approved the protocol used for this study.

**Population and Sample**

At the time of this study (January–June 2001), all preceptors were community family physicians in private practice within Texas. The majority of preceptors were in the greater Houston area, and most students chose to work with one of them. For this study, all 43 Family and Community Medicine Clerkship preceptors from the greater Houston area were invited to participate. The principal investigator informed preceptors of the study protocol, including the planned observations of preceptors’ teaching their students through a
letter of introduction and direct visit to most preceptors. Twelve preceptors agreed to participate.

Family and Community Medicine Clerkship
This 4-week clerkship is required for all Baylor College of Medicine students. Most students complete the clerkship during their third year of medical school, but a few students take the clerkship in the second half of their second year or in the fourth year of medical school. Students receive a set of introductory seminars for the first 1.5 days of the clerkship, and the remainder of the time is spent in the office of their preceptors.

Five-Step “Microskills” Model of Clinical Teaching
This teaching model summarizes desirable microskills of clinical teaching: get a commitment, probe for supporting evidence, teach general rules, reinforce what was done right, and correct mistakes. Getting a commitment occurs by asking a question that encourages the learner to synthesize information collected from the patient and make a commitment on how to handle one or more aspects of the case. Probing for evidence involves asking learners to explain their reasoning process in making that commitment or other decision about the case. We had not made any effort to train preceptors to teach according to this model.

TOPIC Teaching Model
As part of the didactic teaching at the beginning of the clerkship, students receive seminars on the approach to handling five different types of ambulatory visits: (1) new problem, (2) chronic illness, (3) checkup/prevention, (4) psychosocial, and (5) behavior change. The seminars point out the general tasks that physicians perform in all visits, such as physician information processing, patient-physician relationship development, integration of information and relationship, and lifelong learning, as well as the specific tasks that physicians perform in conducting each of these five different types of visits. This TOPIC teaching model has previously been described in detail. Although brief mention of this model had been given to preceptors in the past, there had been no dedicated effort to train preceptors to reinforce this model when teaching students at their clinical sites.

Observational Study
Instrument. An observation checklist was created that combined microskills described in the Five-step Microskills Model of Clinical Teaching and tasks described in the TOPIC teaching model (Figure 1). Training Research Assistants. Fourth-year medical students who had completed their Family and Community Medicine Clerkship were recruited as research assistants. A faculty member trained the research assistants to document the teaching process using the teaching microskills items on the checklist and to document the learning content using the TOPIC teaching model tasks on the checklist.

Videotapes of preceptor-student interaction were viewed, and trainees observed and documented which teaching microskills were performed and which tasks from the TOPIC teaching model were discussed by the preceptor and student. Discussion afterward enabled the trainees to understand how these teaching microskills and tasks are used in a clinical teaching encounter. The discussion also enabled trainees to understand the application of teaching microskills and tasks in the clinical teaching encounter. Four students completed the training process and served as research assistants during the study.

Table 1
Baseline Characteristics of Participating Preceptors Compared to Non-participating Preceptors

<table>
<thead>
<tr>
<th></th>
<th>Participating Preceptors (n=12)</th>
<th>Non-participating Preceptors (n=30)*</th>
<th>P Value†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male, # (%)</td>
<td>8 (66.7)</td>
<td>20 (66.7)</td>
<td></td>
</tr>
<tr>
<td>Female, # (%)</td>
<td>4 (33.3)</td>
<td>10 (33.3)</td>
<td></td>
</tr>
<tr>
<td>Practice location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban, # (%)</td>
<td>1 (8.3)</td>
<td>6 (20.0)</td>
<td></td>
</tr>
<tr>
<td>Suburban, # (%)</td>
<td>10 (83.3)</td>
<td>22 (73.3)</td>
<td></td>
</tr>
<tr>
<td>Rural, # (%)</td>
<td>1 (8.3)</td>
<td>2 (6.7)</td>
<td></td>
</tr>
<tr>
<td>Years in practice, mean (SD)</td>
<td>18.8 (8.7)</td>
<td>16.0 (11.3)</td>
<td>.439</td>
</tr>
<tr>
<td>Years teaching, mean (SD)</td>
<td>12.8 (6.9)</td>
<td>10.3 (9.5)</td>
<td>.430</td>
</tr>
</tbody>
</table>

* We were unable to obtain data on one nonparticipating preceptor
† Paired two-tailed t test for two independent samples

SD—standard deviation
Data Analysis. In reviewing the checklists for the frequency of items observed, we considered an item to have been observed only if both observers documented the item being performed. At the completion of the observations, the checklists from simultaneous observations were compared, and the inter-rater concordance and the Cohen’s Kappa coefficient were calculated.

Results
Table 1 summarizes the baseline characteristics of the 12 participating preceptors in comparison to preceptors who chose not to participate. Although participating preceptors had practiced and taught longer than nonparticipating preceptors, the difference in length of teaching experience was not statistically significant. Inter-rater concordance between the dual observers was 96.2% with a Cohen’s Kappa coefficient of 0.89.

The research assistants observed 86 teaching encounters between preceptors and students. Forty-eight encounters were new problem visits, 13 encounters were chronic illness visits, five encounters were checkup visits, and one encounter was a psychosocial visit. There were also 19 mixed visits, of which seven encounters combined new problem and chronic illness visits, four encounters combined new problem and psychosocial visits, four encounters combined two other visit types, and four encounters combined three visit types.

In observing the process of teaching, preceptors used the microskills in the Five-Step Microskills Model of Clinical Teaching in varying degrees. In most encounters, the community preceptor used the microskills “probe for supporting evidence” (65.1% of encounters) and “teach general rules” (68.6%). With moderate frequency (40.7%), the preceptor used the microskill “get a commitment.” However, preceptors did not often use the microskills “reinforce what was done right” and “correct mistakes” (12.8% to 18.6%, respectively).

In observing the content of teaching, tasks in the TOPIC teaching model also were discussed by preceptors and students in varying degrees. In combining the data for tasks common to all five visit types, preceptors and students frequently discussed “assess patient’s expectations and concerns” (65.1%) and “negotiate management plan” (78.0%). The tasks “develop therapeutic relationship” (49.6%) and “support patient’s self-care” (33.1%) were less often discussed. Preceptors and students almost never discussed the task “learn from the encounter by reviewing (relevant resources)” (0.9%). Table 2 reports these data divided according to the five visit types.

Table 2 also includes data for tasks specific to individual visit types. In 65 new problem encounters, the preceptor and student often discussed the tasks “assess presenting complaint” (100%) and “construct a problem list/make a diagnosis” (83.1%).

In 24 chronic illness encounters, the preceptor and student often discussed the tasks: “assess severity and...
control of the condition” (79.2%), “evaluate adherence to and side effects of treatment” (66.7%), and “review status of comorbid conditions” (62.5%). The preceptors and students less frequently discussed the task “scan for target-organ damage from the condition” (41.7%).

In 11 checkup encounters, the preceptor and student frequently discussed the task “assess risk factors and prior preventive services in six major areas” (63.6%) but less frequently discussed “recommend preventive services based on risk profile and prior services” (54.5%). In five psychosocial encounters, the preceptor and student often discussed the tasks “evaluate for diagnosable mental illness” (80%) and “evaluate suicidal risk” (60%) but did not discuss “assess the emotional needs of the patient/family” (0%). In four behavior-change encounters, the preceptor and student often discussed the tasks “get background information on the problem behavior” (75%) and “assess the patient’s stage of change” (75%).

Discussion
The findings of our study provide insight into the teaching and learning that occurs in the offices of family and community medicine clerkship preceptors. Specifically, our data quantify the frequency of use of microskills in the Five-Step Clinical Microskills Model of Clinical Teaching, a well-accepted model for the community preceptor teaching process.22 Despite the lack of formal training in this model, preceptors in this study frequently used two of the model’s microskills, “probe for supporting evidence” and “teach general rules.” However, the preceptors infrequently used the microskills “reinforce what was done right” and “correct mistakes.” This is consistent with other reports indicating that feedback is not often given in clinical teaching encounters in the ambulatory setting.5,6

Regarding the content of the clinical teaching encounters, most were new problem or chronic illness visits. The number of observed checkup/prevention, psychosocial, and behavior change visits was small, so any conclusions about these three visit types are preliminary. Nevertheless, some findings are noteworthy. First of all, we noted that preceptors do use many of the tasks we make explicit to students in seminars on the TOPIC teaching model. That preceptors discussed most new problem, chronic illness, psychosocial, and behavior change visit tasks with their students, demonstrates the relevance of the TOPIC model in the “real world.” It also was encouraging to see that preceptors and students frequently discussed tasks such as “assess the patient’s stage of change,” indicating that students used Prochaska’s and DiClemente’s Stage of Change Model23 that they learned in the behavior change visit seminar at the beginning of the clerkship.

However, despite observing preceptors and students discussing many TOPIC tasks, we also noted that they less frequently discussed important tasks such as “support the patient’s self care” and “learn from the encounter by reviewing (relevant resources)” in all visit types, and “scan for target-organ damage from the condition” in chronic-illness visits. This finding may either indicate the absence of these tasks in the preceptors’ clinical practice or their not emphasizing such tasks in clinical teaching encounters. Another noted absence was the lack of discussion of the task “assess the emotional needs of the patient/family” using the BATHE model24 that students learned in the psychosocial visit seminar at the beginning of the clerkship. This absence, however, may simply reflect the preceptors’ lack of awareness of the model rather than a lack of awareness of the patients’ or families’ needs.

Limitations
Our data have limitations in that the observations occurred during brief periods of the students’ time with their preceptors. Thus, our results may not be indicative of the total preceptor-student experience. The number of items on the observation checklist was limited and did not include all possible teaching behaviors or learning content. The presence of dual observers may also have influenced the content of preceptor-student discussions and the teaching process used by preceptors. Further, the number of encounters for the checkup/prevention, psychosocial, and behavior-change visits were small, and it is not possible to draw meaningful conclusions from the data generated by these encounters.

In addition, the self-selection of participating preceptors resulted in a small sample size that may not have truly represented our total group of preceptors. With this self-selection process, an unintentional selection bias may have resulted in that participating preceptors may have been more interested in their teaching skills than nonparticipants were. Finally, since the observations occurred in the offices of private practice family physician preceptors for a family medicine clerkship at one medical school, the findings may not be generalizable to other groups of preceptors.

Conclusions
Despite these limitations, these findings add to our understanding of community preceptor teaching. Our observations on how often preceptors used the Five-Step Microskills Model of Clinical Teaching adds to the work of others in demonstrating how preceptors teach students in their offices. Our observations also show what preceptors and students focus their discussion on during the limited teaching time after each patient encounter and what students learn in their preceptors’ offices.

Although not specifically trained in either the Five-Step Microskills Model of Clinical Teaching or the TOPIC teaching model, preceptors frequently used...
some microskills in their teaching and discussed many of the TOPIC tasks with their students. This finding that practicing physicians unknowingly used or reinforced concepts of these two models supports the Five-Step Microskills Model of Clinical Teaching as a relevant model for the teaching process and the TOPIC teaching model as a relevant model for the content of ambulatory care.

This information also provides a basis for clerkship faculty to work together with community preceptors to reinforce the same concepts in didactic seminars and the students’ clinical experience. Since preceptors already discuss many TOPIC tasks with their students, a major transformation of preceptors’ teaching content is not needed. Instead, preceptor development may focus on helping preceptors be more cognizant of the content of their teaching and be more explicit in referring to TOPIC model tasks when discussing clinical care issues with students.

Further observations of community preceptors who have been trained to use the Five-Step Microskills Model of Clinical Teaching and the TOPIC teaching model will give more insight into the usefulness of these two models for teaching in the ambulatory setting. In addition, reports from other schools on their community preceptors’ teaching will increase our understanding of the educational process and content that occurs in this setting. Such information also will help us accomplish the goals of recognizing competencies that students can best learn in the ambulatory setting and defining outcomes that are desirable in this setting.25

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REFERENCES