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Disagreement Between Students and Preceptors Regarding the Value of Teaching Behaviors for Ambulatory Care Settings

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Background: **Medical students and preceptors commonly disagree on methods of clinical instruction in ambulatory care, although the extent of the problem is not documented.** ***Purpose:*** **The purpose is to identify disagreement and concordance between students and preceptors for teaching behaviors in ambulatory care.** ***Methods:*** **We surveyed students and preceptors at 4 U.S. schools. Respondents rated 58 behaviors on two scales. Disagreement was recognized when the percentage of students and preceptors who recommended a behavior *and* rated it important differed by over 15% ($p < .01$).** ***Results:*** **Disagreement was identified for 8 behaviors (14%). Six were valued less by students, including "watch the student perform critical tasks in history taking and other communication" (59% compared with 82%). Two behaviors were valued more by students, including "delegate responsibility to the student for the wrap up discussion with the patient" (82% compared with 61%).** ***Conclusions:*** **Students and preceptors disagree regarding the value of a minority of teaching behaviors. Because some are potentially important, however, early negotiation regarding their use may enhance teaching effectiveness and mutual satisfaction with learning.**

In the past 15 years, medical schools throughout the United States have instituted clerkships in ambulatory care internal medicine and other office-based specialties.[1–3] Designed to ensure that students acquire fundamental skills needed for further specialty training, these clerkships involve a complex interaction between student and teacher that is often described as an apprenticeship.[4] The student is acquiring the skills of a physician by doing the work of patient care. The teacher strives to support the student's autonomy while helping him or her grow in skill, knowledge, and professional attitude. All of this occurs in the context of a patient who needs personal, high-quality care for which the teacher is ultimately responsible.

Realizing that the success of this apprenticeship is highly dependent on the teaching skill of the teacher, medical schools have invested considerably in local and regional faculty development.[5–9] These efforts have disseminated

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models of learner-centered education that emphasize personalized instruction and experiences that account for individual learning needs.

Recommended strategies for learner-centered education in ambulatory care settings emphasize greater flexibility in teaching content than in teaching technique. For content, preceptors are advised to identify each student's personal learning goals and capabilities so that experiences can be customized to catalyze continued growth. For teaching technique, a relatively limited range of behaviors is typically prescribed and less emphasis is placed on discussion between student and teacher that might lead to adjustment or customization of instruction. The potential value of improved communication is apparent when students and teachers disagree on the appropriateness or effectiveness of specific teaching behaviors. Disagreements may include student objection to the use of widely recommended behaviors or nonuse of others. Clerkship directors commonly learn about these disagreements when students express dissatisfaction with teaching encounters.

Our study was designed to estimate the frequency of disagreement between students and preceptors for the average value of teaching behaviors available for use in ambulatory care internal medicine. Our hypothesis was that disagreement would be common. Recognition and management of disagreement might provide a basis for enhancing the learner-centered approach to clinical teaching and improving ambulatory care education. A secondary aim of this study was to identify teaching behaviors that are valued by both students and preceptors.

METHODS

Identification of Teaching Behaviors

We used focus group and survey strategies to identify a comprehensive list of teaching behaviors valued by 3rd-year medical students or faculty preceptors participating in ambulatory care clerkships in internal medicine. Behaviors valued by students were identified during research we conducted from 1996 to 1998 at three New England schools.[10] This research yielded 94 behaviors, of which 51 met the prespecified criterion for "valued" (i.e., they were recommended and rated important by $\geq$75% of students). The criterion was developed by consensus among the investigators.

To identify teaching behaviors valued by preceptors, we conducted seven focus groups at three schools (University of Massachusetts, Yale, Boston University) from 1997 to 2000. Participants were selected by the local investigator based on their teaching experience and their effectiveness as clinical teachers. The seven focus groups ranged in size from 2 to 5 preceptors and were conducted according to customary methods.[11] Twenty-two preceptors participated. New groups were assembled until no new teaching behaviors were forthcoming. All discussions were tape-recorded and transcribed. Transcripts from focus groups and minutes from evaluation sessions were read by all five investigators who agreed on a final list of specific behaviors. Of these, 21 had not emerged from the previous research on students.

Ascertainment of Student and Preceptor Preferences for the Behaviors

To ascertain and compare student and preceptor preferences for the teaching behaviors, we created a survey for which respondents rated 58 teaching behaviors according to two scales. The behaviors included 37 selected from the original research on students' preferences[10] and all 21 behaviors from the preceptor focus groups, which had not been identified in the student survey. We selected only 37 behaviors from the original research to limit the length of the new survey. Selection criteria were nonredundancy, specificity, and a mix of valued and not-valued behaviors. For the first scale, respondents were asked, "Do you recommend preceptors use the behavior?" Five response options were *yes, strongly*; *yes, somewhat*; *not sure*; *no, somewhat*; and *no, strongly*. For the second scale, respondents were asked, "How important is the behavior to your learning?" Five response options were *extremely important*, *very important*, *somewhat important*, *not very important*, and *not at all important*.

The population for the survey comprised 50 students and 50 general medicine preceptors at each of the four participating schools. Investigators at each institution invited all students in the last week of consecutive ambulatory care internal medicine clerkships to complete the survey. Only students who agreed to participate were given a survey, but usually all students agreed. Preceptors were recruited from a random sample at each participating institution. A survey instrument was mailed to each randomly identified preceptor. The sample included 39% (200/517) of all eligible students at the four institutions and approximately 53% (200/374) of active general medicine preceptors.

Analysis

For each of the 58 teaching behaviors, we calculated separately the proportions of students and preceptors that valued a behavior. A behavior was defined as valued if it was recommended strongly or somewhat *and* rated extremely or very important. We chose this method of analysis because it was the method we used in our original research and permitted a direct comparison with the earlier findings.[10]

According to criteria developed by consensus among the investigators before data analysis, disagreement was recognized when the absolute difference between proportions of students and preceptors that valued a behavior exceeded 15% at a significance level of $p < .01$ (using chi-square test of differences in proportions). A behavior was classified as valued by students or preceptors if it was valued by 75% or more of group respondents.

TABLE 1
Selected features of students and preceptors

Feature	% of students[a]	% of preceptors[b]	p
Age (M years $\pm$ SD)	27 $\pm$ 3	45 $\pm$ 8	< .001
Female Sex	54	37	.003
Practice Type[c]			
Solo	9	8	.04
Group	29	36	
Hospital	43	32	
Community Health Center	10	20	
Staff Model HMO	6	2	
Other	3	2	
Ethnicity			
White	68	82	.06
Black	5	1	
Hispanic	5	1	
Asian	19	12	
Other	3	1	
Faculty Appointment			
Part-Time	n/a	44	
Full-Time	n/a	40	
None	n/a	16	
Years Precepting (M)	n/a	9 $\pm$ 6	
Faculty Development			
Yes	n/a	74	
No	n/a	26	
Stipend for Teaching			
Yes	n/a	30	
No	n/a	70	

Note: n/a = not applicable.
[a] N = 163. [b] N = 138. [c] For students, practice type refers to the main teaching site to which he or she was assigned. Practice type was missing for one faculty member.

RESULTS

Study Population

Among 200 students who were invited to complete the survey, 163 (82%) responded. Among 200 teachers, 138 (69%) responded. Selected features of respondents are described in Table 1. Compared with students, preceptors were older, more likely to be male, and more likely to be white.

Behaviors Valued Differently by Students and Preceptors

Among the 58 rated behaviors, significant disagreement was observed for 8 (14%) (Table 2). Six were more commonly valued by preceptors compared with students, including watching students perform critical tasks in history taking and other communications with patients, which was valued by 58.3% of students compared with 84.7% of preceptors and associated with the greatest discordance (absolute difference = 26.4%). The other six behaviors more valued by preceptors involved etiquette that may affect the learning environment (i.e., introduce the student to patients using the student's correct name), student–teacher communication required to oversee the student's experience (i.e., periodically inquire about how the experience could be adjusted to better suit the student's needs, periodically ask the student if his or her personal learning goals are being met), orchestrating the student–patient encounter (i.e., ask the student to present the history and physical examination in front of the patient), and clinical skills instruction related to efficiency (i.e., counsel the student on conducting a problem-focused patient encounter).

Two behaviors were more valued by students compared with preceptors (Table 2, Behaviors 2.7, 2.8); both involved expanding student involvement in patient care (i.e., ask the students to do minor procedures and delegate responsibility to the student for the wrap-up discussion with the patient). A third item (Table 4, Behavior 4.8) also involving expanding responsibility and was valued more by students compared with preceptors (i.e., delegate responsibility to the student for ascertaining and interpreting test results) but the difference did not quite reach the 15% criterion (valued by 82.5% of students compared with 67.6% of preceptors, difference = 14.9, p = .003).

Behaviors Valued by Both Students and Preceptors

Among the 58 behaviors examined, 32 were recommended strongly or somewhat *and* rated extremely or very important by 75% or more of both students and preceptors (Table 3). For each of the 32, the difference in the percentage of students and preceptors who valued them was small and did not reach our criterion for disagreement (i.e., >15%).

Twelve behaviors were valued by over 90% of respondents in both groups. Most (8) of these involved the two domains of teaching clinical skills and feedback. From the domain of teaching clinical skills, the most highly rated behavior involved challenging the student to explain choices he or she makes regarding diagnostic strategies or therapeutics (Table 3, Behavior 3.9), followed closely by guiding the student in devising a plan of care and caring for the patient while avoiding replacing the student or just telling the student what to do (Table 3, Behavior 3.10), assuring the student regularly interviews and examines patients on his or her own (Table 3, Behavior 3.11), and asking for the student's assessment and plan before giving one's own formulation (Table 3, Behavior 3.12). From the domain of feedback, three of four behaviors valued by more than 90% of students and preceptors were very similar and involved following honest criticism with provision of specific help toward improvement (Table 3, Behaviors 3.27–3.29).

The remaining behaviors valued by both students and preceptors involve most domains of clinical teaching except orientation to the rotation (Table 3).

TABLE 2
Eight teaching behaviors valued differently by students and preceptors, listed according the magnitude of the difference in the percentage of students and preceptors who valued each

No.	Behavior	% Respondents Valuing the Behavior			
		Students[a]	Preceptors[b]	Difference	*p*
2.1	Regularly watch the student perform critical tasks in history taking and other patient communications.[c]	58.3	84.7	–26.4	.000
2.2	Early in the rotation, counsel the student on conducting a problem-focused patient encounter.[c]	67.3	89.1	−21.8	.000
2.3	Introduce the student to patients using the student's correct name.	45.4	67.2	−21.8	.000
2.4	Periodically inquire about how the experience could be adjusted to better suit the student's needs.[d]	61.7	82.2	−20.5	.000
2.5	Periodically ask the student if his or her personal learning goals are being met.[c]	64.2	84.4	−20.2	.000
2.6	For most patients, ask the student to present the history and physical examination in front of the patient.[e]	12.5	27.8	−15.3	.001
2.7	Delegate responsibility to the student for the wrap-up discussion with the patient (for explaining the diagnosis and treatment, etc.).[d]	78.9	59.3	19.6	.000
2.8	Ask the student to do minor procedures, such as injections, tuberculin skin testing, and electrocardiogram interpretation.[d]	89.6	70.8	18.8	.000

[a] $N = 163$. [b] $N = 138$. [c] Item was identified only during faculty focus groups. [d] Identical or very similar items were identified as valued by students in a previous survey.[10] [e] Identical or very similar to items that were identified as not valued by students in a previous survey.[10]

Behaviors Not Valued by Both Students and Preceptors

Among the 58 behaviors examined, 26 were valued by students alone ($n = 3$), preceptors alone ($n = 9$), or neither ($n = 14$). These 26 included all 8 behaviors for which the proportion of students and preceptors who valued the behavior differed by more than 15% (Table 2) and 18 for which the difference was smaller (Table 4). The least valued behavior was questioning students about medical knowledge in front of patients (Table 4, Behavior 4.16).

DISCUSSION

Our findings identify a large number of specific teaching behaviors valued by both students and preceptors, and a smaller but significant number of behaviors about which they disagree. Among the eight behaviors for which we observed disagreement, six were more highly valued by preceptors and involved techniques to enhance student efficiency or monitor student progress. Two were more highly valued by students compared with preceptors and involved giving students broader responsibilities in patient care, including minor procedures and visit closures.

As in our previous work,[10] students expressed a distinct lack of enthusiasm for presentations in the examination room (Table 2, Behavior 2.6). Although our data do not provide a direct explanation for this aversion, students apparently do not like being questioned about their medical knowledge in front of patients (Table 4, Behavior 4.16). Other investigators have found that students prefer to present outside the examination room because they believe there may be more time for teaching and questions, they are uncomfortable presenting in the room, they believe patients are uncomfortable, or they dislike editing their discourse for patients.[12]

To our knowledge only one other study has examined the phenomenon of disagreement for specific teaching behaviors between groups of learners and teachers in clinical medicine.[13] Investigators at the Mayo Clinic in Scottsdale, Arizona, asked 179 residents and 117 faculty members in eight U.S. family medicine residency programs to review a list of 15 teaching attributes before indicating the three most and least important. Disagreement was recognized when the *p*value was less than .05 for the difference in proportion of residents and faculty members who ranked a behavior among the "top three." Among the four behaviors (27%) meeting the criteria for disagreement, residents were more likely to value a preceptor who supported their autonomy and less likely to value role modeling.

How preceptors handle disagreement may affect student satisfaction with ambulatory education and their mastery of ambulatory care skills. Based on our findings, preceptors should anticipate that students will object to some behaviors and welcome others. Advance discussion about all potential behaviors and expectations may foster a more collaborative learning environment. For example, a preceptor who stays in the examination room to watch a student communicate with the patient may

TABLE 3
Thirty-two teaching behaviors valued by both students and preceptors, ranked within domains according to student responses

No.	Behavior	% Respondents Valuing the Behavior			
		Students[a]	Preceptors[b]	Absolute Difference	*p*
Domain: Orientation to the Rotation					
	None				
Domain: Creating a Favorable Learning Environment					
3.1	Encourage students to ask questions throughout the rotation.[c]	93.9	97.8	−3.9	.095
3.2	Encourage questions and respond to them tactfully.[c]	92.6	98.5	−5.9	.016
3.3	Initiate teaching discussions.[c]	91.4	86.9	4.5	.204
Domain: Overseeing the Student's Experience					
3.4	Ask the student if there are aspects of the physical examination he or she wants to work on and then provide help.[d]	92.0	88.9	3.1	.365
3.5	Look out for learning opportunities for the student. For example, if a patient needs a procedure, have the student do it.[c]	90.8	84.3	6.5	.089
3.6	Enable the student to see a mix of acute visit patients and non-acute visit patients.[c]	88.3	84.3	4.0	.323
3.7	Early in the rotation, ask the student to identify skills he or she wants to develop.[c]	79.8	75.7	4.1	.404
Domain: Orchestrating the Student–Patient Interaction					
3.8	If the student presents the history and physical in front of the patient, provide the student an opportunity to also talk to the preceptor away from the patient.[e]	78.5	84.3	−5.8	.203
Domain: Teaching Clinical Skills					
3.9	Challenge the student to explain choices he or she makes regarding diagnostic strategies or therapeutics.	97.5	99.3	−1.8	.246
3.10	Guide the student in devising a plan of care and caring for the patient; avoid replacing the student or just telling the student what to do.[c]	96.9	94.9	2.0	.369
3.11	Assure the student regularly interviews and examines patients on his or her own.[c]	96.3	95.6	0.7	.758
3.12	Ask for the student's assessment and plan before giving your own formulation.[c]	95.1	100.0	−4.9	.009
3.13	Seek out the student to demonstrate physical findings on patients not seen by the student.[c]	92.6	83.8	8.8	.018
3.14	Ask questions to lead the student to his or her own diagnosis or treatment.[c]	92.6	91.2	1.4	.655
3.15	Regularly teach physical examination techniques.[c]	88.9	89.7	−0.8	.821
3.16	Watch the student do focused components of the physical examination (e.g., knee examination) to determine his or her skill level and learning needs.[c]	88.3	94.2	−5.9	.079
3.17	Create opportunities for the student to educate patients.[d]	85.9	78.7	7.2	.101
3.18	Help students identify uncertainty and formulate questions relating to patients.[d]	83.4	91.9	−8.5	.030
3.19	Create opportunities for the student to watch you manage difficult patient encounters.[d]	83.3	85.3	−2.0	.644
3.20	Create opportunities for the student to watch you communicate with patients.[d]	81.5	92.6	−11.1	.005
3.21	Give student time to organize his/her thoughts before they present their findings.[d]	78.5	77.4	1.1	.810

(Continued on next page)

TABLE 3
Thirty-two teaching behaviors valued by both students and preceptors, ranked within domains according to student responses (Continued)

No.	Behavior	% Respondents Valuing the Behavior			
		Students[a]	Preceptors[b]	Absolute Difference	*p*
Domain: Teaching Knowledge					
3.22	When a student incorrectly answers a question, don't leave the discussion there, but direct the student to the correct answer.[c]	95.1	94.8	0.3	.902
3.23	Take time during or immediately after each patient visit to ask if the student has questions or to make a teaching point.[c]	88.3	91.0	−2.7	.438
3.24	Use questions to help students improve their understanding of particular issues.[c]	87.7	94.0	−6.3	.064
3.25	Ask questions to probe the student's knowledge.[c]	76.1	89.0	−12.9	.004
Domain: Feedback					
3.26	Give the student an honest assessment of whether he or she falls short of any performance goal.[d]	95.7	93.4	2.3	.374
3.27	In feedback, do not stop at global criticisms. Be specific & directive, citing alternative ways of doing the pertinent skill.[d]	94.5	97.8	−3.3	.149
3.28	After telling the student of a skill, knowledge area, or attitude he or she needs to improve, help the student to improve.[d]	93.9	94.9	−1.0	.713
3.29	Follow negative criticism with action to help the student improve his or her performance.[d]	93.3	97.8	−4.5	.064
3.30	When students do something well, tell them they did it well.[d]	89.6	97.1	−7.5	.012
3.31	Give feedback during or after individual patient visits, not just during special sessions outside clinic hours.[d]	84.6	90.4	−5.8	.130
3.32	If a student does something wrong, tell him or her how to do it right. On the next occasion when the student does it correctly, complement him or her.[d]	88.3	95.6	−7.3	.023

[a] $N = 163$. [b] $N = 138$. [c] Identical or very similar items were identified as valued by students in a previous survey.[10] [d] Item was identified only during faculty focus groups. [e] Identical or very similar to items that were identified as not valued by students in a previous survey.[10]

disappoint the student if he or she views it as interference. With discussion beforehand, the student may understand that observation is a necessary basis for feedback and accept or even appreciate this occasional behavior.

In addition to discordant behaviors, our study identified a large number of specific behaviors ($N = 32$) that were valued by both medical students and their preceptors. Eight of the commonly valued behaviors were identified exclusively from focus groups of faculty preceptors. These 8 may not have been identified in student groups because of deficiencies in how the groups were conducted (e.g., not enough of them or inadequate methods), because students had not encountered them, or because students did not notice them. We believe the latter two explanations are more likely because student groups were conducted until no new behaviors emerged. Most of the 8 behaviors, furthermore, involve role modeling and educational design that students may not recognize as distinct teaching behaviors. The distinct contribution from preceptor focus groups indicates the importance of seeking input from both learners and teachers for research on practical aspects of education in ambulatory care locations.

Since 2000 when our earlier survey was published, two additional reports have examined medical students' perceptions of effective teaching behaviors.[14,15] Investigators at the University of Pittsburgh asked students to rate preceptors on 14 teaching behaviors. Multivariate analysis was used to identify 7 behaviors that were independently related to a rating of overall teaching effectiveness.[15] These 7 included behaviors (e.g., "preceptor treated student with trust and respect," "ethical medicine was practiced") that are broadly defined and difficult to compare to the more specifically defined behaviors that were the focus of our research. However, our findings complement one of the 7 broadly defined behaviors, helping the student learn clinical skills, by identifying specific teaching behaviors that preceptors could employ to succeed within this broader area (Table 3, Behaviors 3.9–3.21). Investigators at the Medical College of Wisconsin asked students to answer questions regarding individual patient encounters during an internal medicine clerkship.[14] In multiple logistic regression analysis, two teaching behaviors were related to higher overall rating of the teaching encounter: receiving high-quality feedback and

TABLE 4
Eighteen teaching behaviors not valued by both students and preceptors, ranked within domains according to student responses

No.	Behavior	% Respondents Valuing the Behavior			
		Students[a]	Preceptors[b]	Absolute Difference	*p*
Domain: Orientation to the Rotation					
4.1	Orient the student to the medical record.[c]	66.3	72.8	−6.5	.223
4.2	Introduce the student to everyone who works in the practice.[c]	58.9	55.9	3.0	.600
4.3	Early in the rotation, ask the student what experiences he or she hopes to have.[c]	58.0	69.9	−11.9	.035
Domain: Creating a Favorable Learning Environment					
	None				
Domain: Overseeing the Student's Experience					
4.4	Create in advance a daily list of patients who will be seen by the student—do not just select patients from your list.[d]	18.4	17.4	1.0	.827
Domain: Orchestrating the Student–Patient Interaction					
4.5	Hold preliminary discussions about diagnosis & treatment away from the patient.[e]	66.9	64.0	2.9	.599
4.6	Obtain consent from the patient for the student's participation.[c]	45.7	55.3	−9.6	.101
4.7	Before each patient encounter, give the student a specific time limit for completing the history and physical examination.[c]	29.0	43.0	−14.0	.012
Domain: Teaching Clinical Skills					
4.8	Delegate responsibility to the student for ascertaining and interpreting test results.[e]	82.5	67.6	14.9	.003
4.9	Leave the student alone with the patient until he or she has completed his or her evaluation.[d]	74.1	74.2	−0.1	.974
4.10	Facilitate the student's sense of being the caregiver.[e]	74.1	83.0	−8.9	.065
4.11	Have the student observe you caring for patients so that you can role model what you want them to do in your practice.[c]	69.8	84.7	−14.9	.002
4.12	Delegate responsibility to the student for telephone calls to patients (i.e., to check on treatment outcome or convey test results).[d]	48.1	43.3	4.8	.407
Domain: Teaching Knowledge					
4.13	Put students in the teaching role. Give them assignments to educate both of you.[c]	73.0	80.7	−7.7	.117
4.14	Choose reading assignments that are relevant: that influence patient care or educate other caregivers.[e]	72.2	83.0	−10.8	.028
4.15	Reserve time outside the clinic sessions to discuss patients with the student.[c]	60.2	66.4	−6.2	.274
4.16	Question students about their medical knowledge in front of patients.[c]	7.4	4.4	3.0	.286
Domain: Feedback					
4.17	Set a regular time to meet with the student to review patients and give feedback.[d]	74.1	73.0	1.1	.833
4.18	Watch the student do the visit/consultation closure.[c]	68.9	80.1	−11.2	.028

Note: Omitted from this table are the eight behaviors valued differently by student and preceptors which are listed in Table 2.
[a] $N = 163$. [b] $N = 138$. [c] Item was identified only during faculty focus groups. [d] Identical or very similar to items that were identified as not valued by students in a previous survey.[10] [e] Identical or very similar items were identified as valued by students in a previous survey.[10]

being asked to propose a plan. Both were also identified in our research.

Our research measured the value that students and preceptors assign to specific teaching behaviors; measurement of the actual effectiveness of the behaviors would require a different methodology. Other limitations of our research include its geographic focus in selected schools of the northeastern United States. We cannot be certain that our findings apply to schools in other regions, although this seems likely. Our survey did not include all possible specific teaching behaviors; we wanted to keep it short, left out some behaviors from our prior survey, and did not include input from professional educators. It is possible, therefore, that discordance or agreement may exist for other teaching behaviors used in ambulatory care environments. Finally, calculation of disagreement for the average value students and preceptors place on teaching behaviors may underestimate the burden of disagreement between individuals.

During ambulatory care clerkships students acquire professional competency under the supervision of preceptors who provide access to patients, graduated responsibility, and clinical instruction. The matrix for this experience is effective communication and collaboration between student and preceptor. The findings from this research indicate that this communication and collaboration should now involve matters of educational format and teaching behavior. The findings also describe a core set of teaching behaviors that should probably be part of every preceptor's routine.

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