



Mid-clerkship Feedback Is Effective in Changing Students' Recorded Patient Encounters

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BACKGROUND AND OBJECTIVES: Family medicine clerkship directors review students' patient encounter logs. Encounter data can be used to alter students' learning experiences. Our purpose was to determine if students record different types of patient encounters before and after reviewing log data with clerkship directors.

METHODS: Clerkship directors met with each student at clerkship midpoint, reviewed encounter data, and encouraged the student to seek out less frequently seen diseases.

RESULTS: A total of 56/105 students (53%) saw different types of patients after the review.

CONCLUSIONS: More than half of the students recorded different types of patient encounters after an intervention encouraging them to do so.

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The Liaison Committee on Medical Education Educational Directive-2 requires clerkship directors to monitor students' clinical experiences and modify those experiences as necessary to meet their educational objectives.¹ Modifying experiences during the family medicine clerkship is feasible because of the flexibility inherent in an ambulatory experience. However, it is unclear if interventions conducted during the clerkship will result in changes in students' educational experience.

Several previous studies have analyzed patient encounter log data; however, this prior work describes the breadth of experiences in clinical encounters or compares clinical experiences.²⁻⁶ It is unclear if an intervention, based on analysis and

feedback about an individual student's encounter data, would result in the student altering his/her experience. Previous studies have shown that specific feedback can change student behavior in specific skills, but students are less satisfied after receiving feedback.⁷

This paper describes an intervention that encourages all students to alter their clinical experiences during the clerkship, based on his/her patient encounter log data. The purpose of this study is to determine if students record different types of encounters before and after reviewing encounter data with a clerkship director.

Methods

Subjects were all students completing the family medicine clerkship

during academic year 2005–2006 at a state-funded Midwest university. Each student used a centrally maintained personal digital assistant (PDA)-based program to log patient encounters for all clinical clerkships. Clerkship directors have defined the number of encounters expected in each category, and this information is given to the students during the clerkship orientation. Students record the date of the clinical encounter and their level of involvement with that patient. Students choose from 18 systems-based categories and then select a diagnosis from that category. The 18 categories were established by the clerkship directors and are based on the *International Classification of Diseases, Ninth Edition (ICD-9)* organization of diagnoses. Examples of categories include cardiac, infectious disease, respiratory, and neurologic. When students synchronize their PDA, their log data is updated in a central database. Aggregate data for each student's entries on the clerkship are available to the clerkship directors at any time through a Web interface.

Intervention

At the midpoint of the 6-week family medicine clerkship, each student

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meets with one of the two clerkship co-directors for a 10-minute “Mid-clerkship Feedback Session,” which includes a review of their patient encounter log. This review allows the clerkship directors to determine which of the broad categories are deficient when compared to the predetermined target values. Students are given a written recommendation to seek out patients with diagnoses in the underrepresented categories and are instructed to take this recommendation back to their preceptors. To reduce variation, the clerkship directors performed the feedback sessions together for all students during the clerkship group immediately preceding this study.

Analysis

The investigators retrospectively reviewed encounter data from all third-year medical students completing the family medicine clerkship in academic year 2005–2006. Each student’s data were sorted into patients seen before and after the intervention.

Prior to analyzing the data, four criteria were developed (Table 1) that were used to categorize a student’s entries as different after the mid-clerkship review. Criteria were designed to capture the most frequent and least frequent entries, the absolute number of entries, and the percentage of entries. The criteria

were determined prior to data analysis and were not adjusted. The investigators then reviewed each student’s data to determine if that student met any of the criteria. The investigators determined the percentage of students demonstrating a change after the intervention. The Human Subjects Committee at the institution approved analysis of this data as an exempt project.

Results

A total of 109 students completed the family medicine clerkship in academic year 2005–2006. Four students were excluded: two students used a different patient log program to track their encounters, and two students did not enter any log data after the mid-clerkship review. A total of 105 students’ patient encounter logs were analyzed. Students logged a total of 14,517 diagnoses, an average of 138 per student.

Of 105 students, 56 (53%) had log entries that were different after the intervention based on at least one of the predetermined criteria (See Table 1). There were no significant differences when students in clerkships at different times of the year were compared. Students in the first half of the academic year were no more likely to alter their behavior than students in the latter half of the year (56% changed versus 50% changed, $P=.514$).

Discussion

In this project, more than half of the students demonstrated changes in the categories of diagnoses that they logged after a mid-clerkship log review; however, it is not clear if this translates to a different educational experience. It is possible that students were seeing the same types of patients before and after the review but modified their logging behavior to reflect the categories of diagnoses in which they were deficient. If this is true, the intervention was still successful in improving the documentation of required student experiences. Students may have fabricated patients to fill in the broad categories of diagnoses that were deficient. There is no method to verify log data entry; however, logging patients in each of the broad categories was not attached to any portion of the students’ grade.

This study is limited by the lack of a control group. It is not possible to state, definitively, that the intervention caused the differences in the second half of the clerkship, only that those differences were present. In addition, the individual students’ specific changes were not measured, rather whether each student met at least one of the four criteria for change. There were no criteria established *a priori* that determined if a students’ initial logging contained an adequate mixture that did not need

Table 1: Changes in Student Logging Behavior Based on Four Criteria After Mid-clerkship Feedback

	Criterion	# of Students That Met This Criteria	% of Students That Met This Criteria*
1	One of three least frequent categories (pre-review) became one of three most frequent categories (post-review)	16	15
2	Any category with 0 or one entries (pre-review) had more than 10 post-review entries	16	15
3	Any category with 5% or less of the pre-review total had $\geq 15\%$ of the post-review total.	19	18
4	Two of the three most frequently used categories after the review were different from the three most frequently used categories before the review.	41	39

* Total is greater than 53% since some students met more than one criterion.

altering. In the authors' experience over the past several years, it was rare to not have suggestions for how students could broaden their experiences. This analysis was completed after the academic year; therefore, students were not debriefed at the end of the clerkship. As such, the authors cannot provide insights as to why some students did not change.

Despite these limitations, this study demonstrates that more than half of the students' patient encounter logs differed after feedback was given at the midpoint of the clerkship. These students recorded different patient encounter data in the first and second half of an ambulatory clerkship completed at the same clinical site. It is unlikely that this would occur by chance. However, a future controlled study is needed to determine if this change was the result of the intervention. If students altered their educational experiences by broadening the types of patients

encountered, the intervention is worth the minimal time investment (90 minutes, eight times per year) by two faculty members.

Conclusions

Fifty-three percent of students logged entries that were substantially different after a mid-clerkship feedback session, when compared to their own entries before the session. Other institutions may be interested in incorporating a similar mid-clerkship log review.

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