

Physicians' Productivity and Teaching Responsibilities

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Background. There is considerable concern about the impact of teaching responsibilities on physicians' productivity. Previous research employing independent sample designs has suggested that physicians who teach medical students are less productive than their nonteaching counterparts. **Method.** This study examined the productivity of 15 family practice faculty and third-year resident physicians practicing in the Family Medical Center of the University of Kentucky College of Medicine; in addition to the care of patients, the physicians were assigned to teach third-year medical students participating in an ambulatory primary

care clerkship. The productivity of each physician (i.e., number of patients seen per half day) was measured during a four-month period in the spring of 1991. The physicians' levels of productivity with and without medical students were compared through the use of a paired-sample design. **Results.** No significant difference in productivity levels was observed. **Conclusion.** Ambulatory-care teaching responsibilities may not diminish physicians' productivity in academic teaching practices. *Acad. Med.* 68(1993):166-167.

The efficiency of ambulatory health care organizations that also teach medical students has been the subject of health investigations.¹⁻⁴ Although the majority of these studies suggest that the integration of medical students into ambulatory medical practice decreases physicians' productivity, the study designs are not entirely comparable. The practice sites, practice styles, and financial arrangements of the physicians in the studies all varied considerably. Furthermore, most of the studies employed independent sample designs (i.e., all observations in one sample were independent of those in other samples) and the analyses used aggregate measures of physicians' productivity, all of which could obscure differences in physicians' productivity attributable to individual practice styles. Accordingly, the purpose of the present study was to determine the effect of a third-year medical student clerkship on the productivity of a university-based family practice group while controlling for physician-to-physician variability.

METHOD

The data for our study came from patient encounters recorded within the Family Medical Center (FMC) of the

Department of Family Practice of the University of Kentucky College of Medicine. The FMC is the model family practice training center of the department. The FMC has 11,000 active patients, who accounted for 16,678 patient visits during the 1990-91 academic year. FMC patient encounters with nine full-time family practice faculty and six third-year family practice residents during the months of March, April, May, and June 1991 were collected for analysis. Resident-patient encounters were included because family practice residents function as primary physicians for their patients and provide a substantial degree of the ambulatory-care teaching of medical students. The time period was chosen to control for the potential effect of clinical maturation of medical students.

For the purposes of the study, physicians' productivity was defined as the number of patients seen per half day. This definition has been used in several investigations of the impact of medical student teaching on physicians' productivity.²⁻⁴ The definition was especially appropriate for this study because FMC physicians are assigned to see patients in half-day blocks of time. FMC patients are scheduled by the clinic appointment staff, according to FMC scheduling guidelines, and at the direction of FMC physicians. Although the FMC physician is aware that he or she will be accompanied by a student during a given half-day period, the FMC staff who schedule patients' appointments are unaware of the daily teaching status of the FMC physicians.

The mean numbers of patients seen in a half-day session with and without a student by each study physician were compared by using a paired-sample *t*-test. The paired *t*-test treated each physician as his or her own control and thereby reduced physician-to-physician variability.⁵ Failure to use a paired-sample design to estimate the overall effect of teaching on physicians' productivity may obscure potential differences in physicians' productivity attributable to individual practice styles.

RESULTS

During the four-month period under investigation, the FMC physicians reported a total of 4,264 patient encounters. Of those, 43% were in the company of a clerkship student. During this same time period, the clerkship students reported either assisting with or managing the care of 91.4% of the patients they saw with the FMC physicians. Per half-day sessions, there was no significant difference in the average numbers of patients seen by the FMC physicians according to whether a student was present or absent (6.3, SE, 0.43, versus 6.1, SE, 0.28, $p = .7$, $\pm = .39$). This relationship also held true for independent analyses of the faculty (both means, 6.1) and the third-year residents (6.1 without students, SE, 0.40, versus 6.6 with students, SE, 0.74, $p = .64$, $\pm = .50$). Furthermore, the average charges billed for patient encounters were not significantly different regardless of whether a student was assigned ($t = 0.5$, $p = 0.62$).

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DISCUSSION

Family practice faculty and resident physicians in our institution failed to experience an appreciable decline in productivity when accompanied by a medical student. There are several explanations for these findings. First, the medical students may have improved the FMC physicians' productivity enough to offset time lost to teaching by completing some portions of the patient process for the teaching physicians. Next, the volume of patients seen in academic ambulatory-care centers such as the FMC may be low enough that the addition of medical students may not really affect the overall efficiency of such facilities. Garg et al. reported an average hourly productivity of 1.7 patients per hour among a group of family practice faculty assigned to teach students in academic community health centers,¹ a figure comparable to the 1.6 patients seen per hour by the FMC physicians during this study period. Pawlson et al. reported a lower level of physicians' productivity among academic practitioners than among nonacademic teaching practitioners, but these authors observed that the level of productivity was unchanged in the academic practice on days when medical students were absent.³ These data suggest that academic medical practices are really not comparable to nonacademic practices that also teach medical students.³

The traditional setting for the clin-

ical education of medical students has been the teaching hospital. However, as delivery of medical care has shifted from the hospital to the office setting, educators have called for expanded medical student involvement in the ambulatory patient care process.^{6,7} Despite the obvious benefits, teaching students in the ambulatory-care setting is fraught with potential negative economic consequences. For example, Perkoff has pointed out that ambulatory-care teaching of medical students is more labor-intensive than is inpatient teaching.⁶ A single attending physician at a hospital is usually assigned to teach several medical students at one time, whereas the student-faculty ratio in the ambulatory-care setting is usually one-to-one. Moreover, although patient care revenues are the major source of support for both hospital and ambulatory-care teaching,⁷ charges for physician-patient encounters in the ambulatory-care setting are frequently much lower than those for similar services rendered in the hospital. Teaching hospitals are currently reimbursed through the Medicare program for the added costs of graduate medical education; however, there is no requirement to reallocate any of this funding to affiliated ambulatory-care practices.⁷ If public funding for medical education is curtailed or even eliminated in the future (as some have proposed), ambulatory-care practices may be forced to reduce or even eliminate their commitment to

teaching.

The generalizability of our findings is limited to academic health care facilities, but these facilities are currently where most medical student teaching is conducted. Future research on this subject should be conducted in various academic and community primary care ambulatory settings by using similar methods to control for physician-to-physician variability.

References

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