Physicians, Patients, and EHRs: When it Comes to a Consultation, Is Three a Crowd?

by Karen A. Wager, DBA, David M. Ward, PhD, Frances Wickham Lee, DBA, RHIA, Andrea W. White, PhD, Kimberly S. Davis, MD, Dawn E. Clancy, MD, MSCR

Research in an ambulatory care practice finds that, despite physician concerns, patients don't perceive EHRs as intruders in the exam room.

Although great strides have been made in the use and acceptance of EHR systems in ambulatory care practice, there are still barriers that keep physicians from EHR adoption. Even in academic settings, EHR resistance can be found among physicians, many of whom are early in their careers. In some instances, physician reluctance stems from concern over using an EHR in the examination room. Physicians may feel that entering information into a computer during consultation could harm the physician-patient relationship, take more time, or adversely affect physician-patient interactions and therefore reduce the quality of care.[1]

This article reports the findings of a study showing that direct entry into the EHR had no significant effect on the physician-patient relationship as perceived by the patients themselves. Use of the EHR had no negative impact on patients' perceived level of satisfaction with their physicians' interpersonal skills, the quality of the visit, or the perceived outcome of the care received.

[*Editor's note*: The researchers' experiences creating and conducting the study were reported in the April 2004 article "Research Lessons: Designing a Study for a Clinical Setting."]

Resistance in a Primary Care Facility

The research was conducted at the Adult Primary Care Clinic (APCC) at the Medical University of South Carolina in Charleston, SC. There, physician resistance to entering visit notes into an EHR system hit home in 2000. Although APCC had used an EHR system since 1997, many physicians continued to dictate their visit notes. Transcription costs were spiraling, and in July 2000, APCC administrators instituted a policy requiring that residents and fellows directly enter visit notes into the EHR.

Residents and fellows, however, feared that direct entry would detract from eye contact and personal interactions with patients and would negatively affect patient satisfaction. After hearing concerns and recognizing that little had been done to examine this issue in similar academic ambulatory care settings, the need for the study became clear. The purpose was to determine if patients perceived that direct entry of visit notes into the EHR during an encounter harmed the physician-patient relationship.

APCC is an interdisciplinary primary care training facility divided into two teams and staffed by 14 attending physicians, 32 internal medicine residents, and three general internal medicine fellows. Of the residents and fellows, nine residents and three fellows see patients at APCC on a weekly basis; all other residents see patients biweekly. These 12 residents and fellows are assigned "continuity" patients, individuals assigned to a resident or fellow and remaining under his or her care during the course of the residency or fellowship.

The patient population is comprised predominately of uninsured and underinsured African Americans. Uninsured patients are seen at discounted rates based upon a sliding scale; however, all uninsured patients must pay a $20 deposit fee at the time of their visit. The majority of patients are treated for chronic conditions including hypertension, diabetes mellitus, and coronary artery disease.

Each of APCC's 28 examination rooms is equipped with a computer workstation. The EHR system includes problem lists, progress notes, vital signs, health history, medications, immunizations, health maintenance, laboratory results, and structured templates to record visit notes (most APCC providers do not use the templates for entry at the point of care). In addition, two trainee workrooms are available with five computers in each. Prior to the start of this study, residents and fellows often used the computers in these workrooms to enter their visit notes into the EHR.

Measuring Perception of Care

The researchers used an experimental research design and a pre- and post-test instrument to assess patients' satisfaction with physician-patient relations. Ten of the 12 APCC residents and fellows who saw continuity patients on a weekly basis agreed to participate in the study. The participating physicians were randomly assigned into either the intervention group or the control group. Those in the intervention group received individual, intensive training on how to effectively enter visit notes directly into the EHR while in the examination room with the patient. Physicians in the control group continued to document information as usual.

The continuity patients seen in the clinic during a three-month period formed the pool for the study sample. Only returning patients with chronic conditions or those with a presumed follow-up visit were invited to participate. Since the residents and fellows were randomly assigned to either the control or intervention groups, the patients followed by that resident or fellow were in effect randomly assigned also. Participating physicians did not know which, if any, of their patients were enrolled in the study. Patients in the study were assured that their responses would be anonymous and that their physicians would never know how they responded. Patients participating in the study received $20 remuneration for their time; $5 after completion of the pre-test survey and $15 after completion of the post-test survey.

Participating patients were asked to be interviewed twice, the first immediately following the visit (pre-test), and the second immediately following a follow-up visit (post-test). The original test instrument was modeled on that of a similar survey, but pilot tests with graduate students revealed that some of the items required modification to reflect a reading and comprehension level appropriate to the clinic's clients. A second pilot test with 15 patients found the modified instrument to be appropriate. The resulting instrument had four sections: patient demographics, the physician's interpersonal skills, the quality of the visit, and the outcomes of the visit.

Trained student research assistants collected the data throughout the study. For pre-test data collection, at least one student was available for each team of the clinic to interview patients as they left the exam rooms. Nurses in the clinic notified the patients that they were invited to participate in a study and directed interested patients to the student interviewers. In order to gather data for the post-test survey, the research assistants returned to the clinic when the participating patients were scheduled for follow-up appointments.

The pre- and post-test data questionnaires were electronic and conducted on laptop computers. The research assistants read each question to the patient and entered the patient's response. At the end of each day the data from the laptop computers were downloaded into a database.

Small Difference, Significant Result

Pre-test data were collected on 172 patients; of those, 92 later completed the post-test questionnaire. There were no statistically significant demographic differences between the larger initial group that completed the first survey and the smaller group that completed both surveys and became the basis of the research.

Of the 92 patients in the final survey, 34 were in the intervention group and 58 in the control group. There were no statistically significant demographic differences between the intervention and control group (see "Sampling the Sample").

Sampling the Sample
Select Demographics by Group

	Intervention Group % (no.)	Control Group % (no.)
Race (n = 88)		

White	29.0% (9)	22.8% (13)
Black	71.0% (22)	77.2% (44)
Gender (n = 92)		
Male	38.2% (13)	32.8% (19)
Female	61.8% (21)	67.2% (39)
Mean Age (n = 92)	56.1 (34)	59.8 (58)

No statistical significance exists between groups at the p < .1 level.

As noted, the remaining three sections of the questionnaire measured patients' perceptions of physician interpersonal skills, quality of the visit, and perceived outcomes. Mean responses for selected questions from the pre-test are shown in "High Marks at the Start." The items were scored using a Likert scale, with 1 being "strongly disagree" and 5 being "strongly agree." Higher means indicate more positive patient perceptions. None of the pre-test differences were statistically significant. It is interesting to note, however, that while the means are high for both groups, the intervention group had slightly lower starting scores than the control group.

High Marks at the Start
Pre-test Mean Responses for Selected Items by Group

	Intervention Group (n = 34)	**Control Group (n = 58)**
Physician interpersonal skills		
My doctor showed me respect.	4.62	4.64
My doctor was reassuring.	4.59	4.64
My doctor showed interest in me.	4.65	4.72
Quality of visit		
I had adequate time with my doctor.	4.47	4.48
My doctor helped me feel comfortable during my physical exam.	4.52	4.65
My doctor provided me with good care and helpful treatments.	4.47	4.62
Patient perceived outcomes		
My fears and anxieties are reduced.	4.32	4.38
I know what to do and who to contact if my health gets worse.	4.41	4.53
I feel motivated to follow the treatment that was prescribed by my doctor.	4.50	4.65

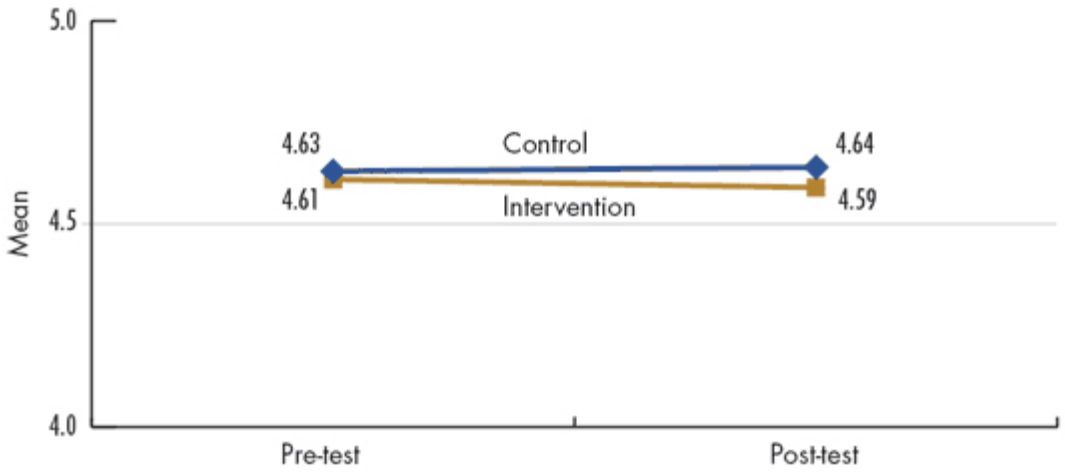
No statistical significance exists between groups at the p < .1 level.

To simplify the analysis across the two groups, the 23 total items were combined into three scales representing the major components: physician interpersonal skills, quality of visit, and outcomes. Reliability analysis was conducted for the resulting three scales, which yielded strong alpha statistics (interpersonal skills: .94, quality of visit: .93, outcomes: .78). There was very little difference in the pre- and post-test mean scales for both the intervention and control groups (see "No Harm in Clicking,").

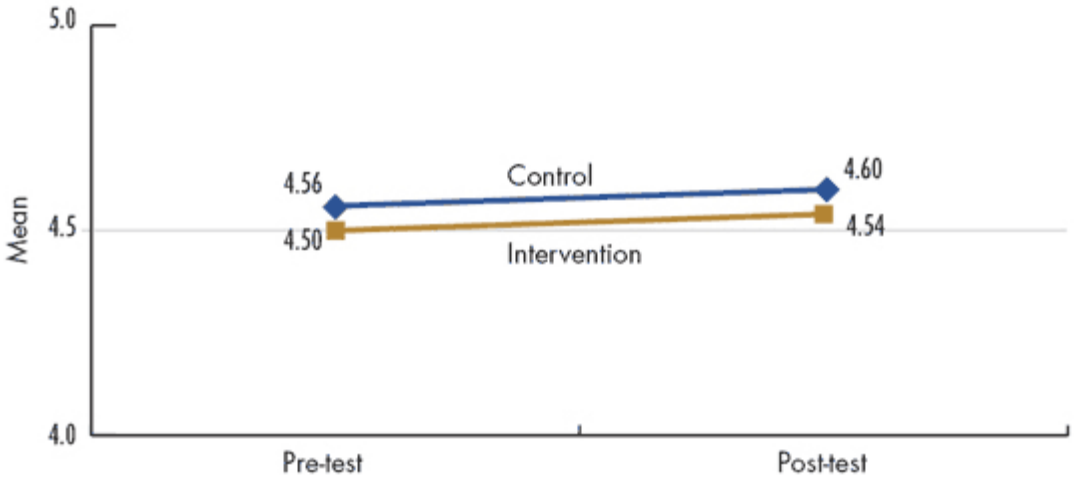
No Harm in Clicking

Study participants reported little perceived difference in the quality of care they received, regardless of whether the physician dictated visit notes or entered them directly into an EHR. Mean values are shown by study group (control and intervention) and by study part (pre-test and post-test). Satisfaction was rated on a Likert scale of 1 to 5, with 5 being the highest.

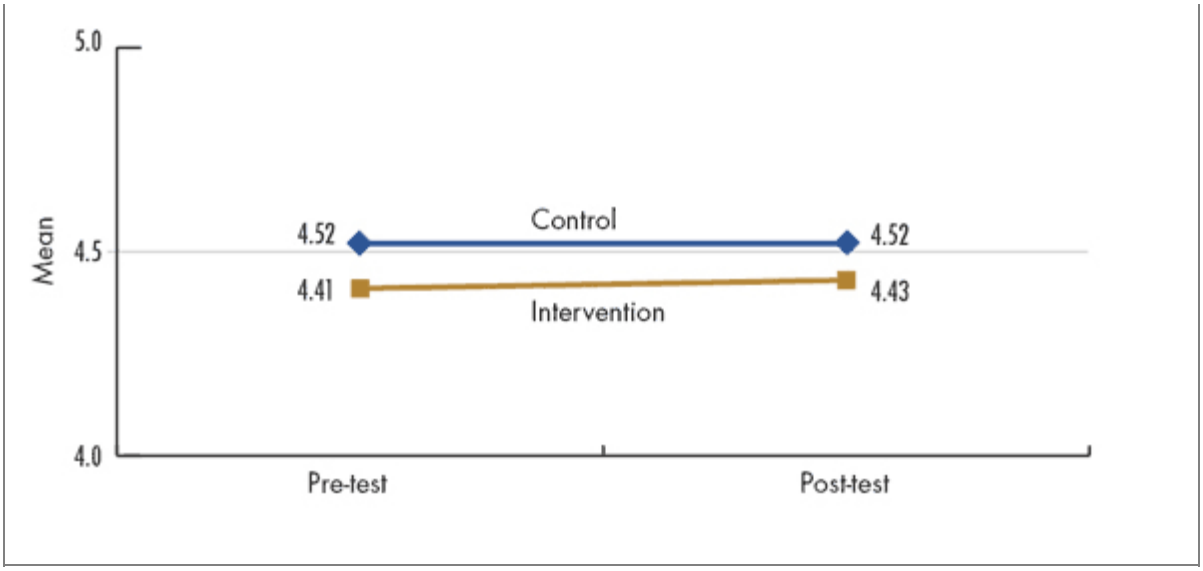
Physician Interpersonal Skills



Quality of Visit



Outcomes



To fully test the effect of the intervention (the physician training) on the three scales, the researchers ran a general linear model to isolate and identify the within-subject effects, the between-subject effects, and the interaction effects of group membership (intervention or control). None of the models produced significant effects on the three scales. Patients' basic attitudes did not significantly change over time (pre-test to post-test), attitudes did not differ by group membership, nor did attitudes change over time differently across the two groups. An additional model was also expanded to include race, gender, and age as covariates. The expanded model did not yield any significant effects, either.

The research findings are encouraging because continuity of care is important and can be challenging in a busy, academic ambulatory clinic like APCC, where the majority of patients are older, have chronic conditions, and have little or no healthcare insurance. Our results suggest that physicians who work in busy ambulatory care clinics can establish positive relationships with their patients and maintain those relationships while introducing the EHR into the examination room. Future research is needed to explore the extent to which physician-patient relations can be enhanced by involving patients more fully in their care through the use of the EHR.

Note

1. Gadd, C.S., and L.E. Penrod. "Dichotomy between Physicians' and Patients' Attitudes Regarding EMR Use during Outpatient Encounters." Proceedings of the American Medical Informatics Association Symposium (2000): 275–79.

Acknowledgments

The authors wish to thank Tasia Walsh and Vidya Jayaraj for their assistance throughout the project. This project was funded in part by AHIMA's Foundation of Research and Education.

Karen A. Wager *(wagerka@musc.edu) is associate professor in the Department of Health Administration and Policy,* ***David M. Ward*** *is associate dean for planning in the College of Health Professions,* ***Frances Wickham Lee*** *is associate professor in the Department of Health Administration and Policy,* ***Andrea W. White*** *is associate professor and MHA program director in the Department of Health Administration and Policy,* ***Kimberly S. Davis*** *is an attending physician and assistant professor in the Department of Internal Medicine, and* ***Dawn E. Clancy*** *is an attending physician and assistant professor in the Department of Medicine at the Medical University of South Carolina.*

Article citation:
Wager, Karen A., et al. "Physicians, Patients, and EHRs: When It Comes to a Consultation, Is Three a Crowd?." *Journal of AHIMA* 76, no.4 (April 2005): 38-41.