

Patient and Physician Perceptions of Examination Room versus Traditional Presentations in a Resident Medicine Clinic

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ABSTRACT Goals in resident training ambulatory clinics include providing quality clinical care, research, and teaching. Achieving these goals is challenging. Our objective was to explore whether patients, resident and attending physicians preferred a conference or exam room presentation. In 2005-6, Resident case presentations alternated by month in and out of the company of patients. Physicians and patients completed questionnaires after visits in a General Internal Medicine clinic at Northwestern University's Medical School. 288/360(80%) patient, 296/360(82%) resident, and 306/360(85%) attending questionnaires were completed. All patient questions regarding their attending favored the exam room presentation ($p=.004$ by sign test). Patients felt attending physicians spent the right amount of time with them ($p=.039$), residents felt less comfortable ($p=.008$), attending physicians felt patients were more likely to receive excellent care ($p=.001$), and residents learned more ($p<.001$) with exam room presentations. Patients and attending physicians preferred exam room presentations while resident physicians did not.

INTRODUCTION

William Osler stated there is "no teaching without a patient for a text, and the best teaching is that taught by the patient himself." (Osler 1903). There is mounting evidence that patients, students and resident physicians may benefit from presentations in the company of patients. (Gennis and Gennis 1999; Smith et al. 1999; Anderson et al. 2002). Potential benefits of bedside teaching include demonstrating communication skills, confirming physical examination findings, modeling professional behaviors, and teaching humanistic aspects of clinical medicine (Ramani et al. 2003).

Despite these benefits, when residents discuss cases with supervising physicians, most presentations occur away from the patient. (Wang-Chen et al. 1989) There is a multitude of reasons given for why bedside teaching does not occur more often. One frequently cited objection to bedside presentation is patient embarrassment, despite evidence that patients actually prefer bedside presentations (Lacombe 1997; Lehmann et al. 1997). Other barriers include declining teaching skills and faculty insecurity about their

skills, perceptions that teaching is not valued, and the erosion of the teaching ethic (Ramani et al. 2003). Negative resident attitudes towards bedside teaching are also a barrier. Resident physicians perceive less autonomy and feel that patients experience greater discomfort with these presentations (Linfors and Neelon 1980; Anderson et al. 2002). Bedside presentations also require more tact, formality and sensitivity to language. Even attending physicians worry about demonstrating incomplete knowledge in front of patients. There may also be a perception that exam room presentation is more time consuming, although few studies have examined this (Ramani et al. 2003).

Given the importance of ambulatory education in the curriculum of internal medicine residency programs, it is important to identify optimal education strategies. We conducted a controlled trial comparing resident to attending presentations with the patient present in the exam room versus the traditional conference room formats. We sought to examine this complicated issue from multiple perspectives. Specifically we examined patients' perception of their resident and attending physicians' respectfulness, concern, patience, and other interpersonal skills and see if they varied by presentation. We also examined differences in perception of the comfort level, quality of care, and educational benefit of the encounter from the attending and resident physicians' perspective. Our final aim was to see if bedside presentations affected clinical

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efficiency. Specifically we wanted to see if the perception of time spent between physicians and patients varied by encounter, and if there were differences in time between check in and check out for patients.

METHODS

Setting, Patients and Physicians

The study was conducted at the Chicago campus Internal Medicine Residency Program of Northwestern University's McGaw Medical Center. The setting is a hospital-based, ambulatory internal medicine clinic staffed by full-time faculty at the Northwestern Medical Faculty Foundation's Division of General Internal Medicine. Eighty-eight of the program's 120 categorical residents, divided nearly evenly between the first through third years of training, have continuity clinics at this site and participated in the study. Twenty-four faculty members participated in the study as preceptors for the resident physicians. All patients seen in the resident clinic were eligible. Approximately 20% of the patients were insured by Medicare, 10% were insured by Medicaid, and 10% had no medical insurance. The study took place over 4 months from October 1, 2005 to January 31, 2006. Our goal was to enroll 400 patients.

Study Design

We used a quasi-experimental design. In alternating months, the resident physician either presented in the traditional manner (outside of the exam room, usually in the common charting area), or in the presence of the patient. Prior to initiating the study we questioned faculty and residents who had prior experience with exam room presentations about potential pitfalls. They advised us to allow residents to opt out of exam room presentations for patients of their choosing. They also advised for disagreements in management to be discussed outside of the exam room. Faculty and residents were advised to follow these suggestions. In October and December 2005, presentations occurred in the traditional manner. In November 2005 and January 2006, presentations occurred with patients present in the exam room. The study was approved by the institutional review board of Northwestern University.

Patients were recruited for the study by a research assistant before they were seen by their physicians. If a patient consented, they were asked to fill out a questionnaire upon completion of their clinical encounter. A consenting patient's resident and attending physician were asked to fill out a questionnaire after that visit. Patients were seen initially by the resident physician. The resident then presented the case to the attending physician. This presentation occurred in the charting area or in the exam room, depending upon the study month.

Outcome Measures

The outcome measures were patient, resident and attending perceptions of the visit, as assessed by questionnaire. An additional outcome measure was "cycle time," which was defined as the amount of time from check in to check out as measured in the electronic scheduling system. After the visit, patients, resident and attending physicians were asked to complete questionnaires. The patient questionnaire addressed the care received from the resident and attending physicians only on the day of their encounter. Resident and attending physicians also completed a questionnaire regarding their encounter with each patient who consented to the study. Using our electronic scheduling system, a research assistant verified the amount of time spent from check in to check out for each encounter.

Statistical Analysis

Analyses were conducted using SPSS Version 13.0 (Chicago, IL). We used chi-square analyses to compare differences in patient and physician respondent characteristics according to the presentation type, i.e., whether the presentation took place inside or outside of the exam room. We also used chi-square analyses to assess differences in responses to the individual rating questions completed by patients, resident, and attending physicians according to presentation type. Attending physicians received more favorable ratings for the exam room presentation setting on all 8 questions asked of patients; therefore, we used the sign test to determine the likelihood that this could have occurred by chance if there was truly no difference between groups (Bland 1987). We created two

separate scales for patients' overall ratings of their resident and physician. Factor analysis showed the eight items that patients used to rate their resident physicians were composed of a single factor, and the internal consistency of a scale with all eight items was very high (Cronbach's alpha 0.97). The eight items attending physician rating items were all composed of a single factor, and the internal consistency of a scale with all eight items was 0.97. Differences in the scales by presentation type were compared with rank sum tests. Independent sample t-tests were used to compare patient cycle times and physicians' self-reported time spent with patients.

RESULTS

360 patients consented to participate in the study, and 80% (288/360) finished the questionnaire. For the 360 encounters 82% (296/360) of the residents and 85% (306/360) of the attending physicians completed the questionnaire. There were no significant differences in patient age, race, or gender between the traditional versus exam room presentation groups. Residents' gender, level of training, attending physicians' age and gender, were similar for the two groups (Table 1).

Table 1: Respondent characteristics according to encounter type*

	Conference room	Exam room	Total
<i>Patients (N=288)</i>			
Mean Age $\pm$ SD	41 $\pm$ 16	45 $\pm$ 16	43 $\pm$ 16
Gender, N (%)			
Male	48 (34)	57 (40)	105 (37)
Female	95 (66)	86 (60)	181 (63)
Race, N (%)†			
White/Caucasian	80 (56)	83 (58)	163 (57)
Black/African-American	42 (29)	37 (26)	79 (28)
Hispanic/Latino	8 (6)	11 (8)	19 (7)
Asian/Asian-American	7 (5)	9 (6)	16 (6)
Other	9 (6)	5 (4)	14 (5)
<i>Residents (N=296)</i>			
Gender, N (%)			
Male	79 (53)	66 (52)	145 (52)
Female	70 (47)	62 (48)	132 (48)
Level of Training, N (%)			
PGY1	16 (11)	19 (15)	35 (12)
PGY2	64 (43)	63 (48)	127 (46)
PGY3	69 (46)	48 (37)	117 (42)
<i>Attendings (N=306)</i>			
Mean Age $\pm$ SD	39 $\pm$ 5	40 $\pm$ 6	39 $\pm$ 5
Gender, N (%)			
Male	70 (49)	72 (49)	142 (49)
Female	74 (51)	74 (51)	148 (51)

*No differences were significant at $p < .05$

†Multiple response question

Table 2: Patient ratings of residents and attendings according to encounter type

	Conference Room			Exam Room		
	Excellent	Very good	Good-poor	Excellent	Very good	Good-poor
<i>Residents, N (%)</i>						
Greeted me in a way that made me feel comfortable	97 (68)	35 (24)	12 (8)	96 (68)	32 (22)	14 (10)
Treated me with respect	110 (77)	22 (15)	11 (8)	103 (71)	31 (22)	10 (7)
Understood my main health concerns	106 (74)	25 (17)	13 (9)	97 (68)	31 (22)	15 (10)
Gave me as much information as I needed	93 (65)	36 (25)	15 (10)	91 (63)	37 (26)	16 (11)
Checked to be sure I understood everything in this visit	96 (67)	32 (22)	16 (11)	96 (67)	31 (22)	16 (11)
Involved me in decisions as much as I wanted	92 (64)	36 (25)	15 (11)	95 (66)	30 (21)	18 (13)
Showed care and concern	101 (71)	30 (21)	12 (8)	102 (71)	26 (18)	15 (11)
Spent the right amount of time with me during this visit	102 (71)	30 (21)	12 (8)	105 (74)	22 (15)	16 (11)
<i>Attendings, N (%)</i>						
Greeted me in a way that made me feel comfortable	89 (63)	33 (23)	19 (14)	95 (66)	35 (24)	14 (10)
Treated me with respect	95 (66)	33 (23)	15 (11)	98 (68)	35 (24)	11 (8)
Understood my main health concerns	92 (64)	34 (24)	17 (12)	97 (68)	36 (25)	10 (7)
Gave me as much information as I needed*	80 (56)	37 (26)	26 (18)	92 (64)	38 (26)	14 (10)
Checked to be sure I understood everything in this visit	82 (58)	31 (22)	29 (20)	91 (63)	34 (24)	19 (13)
Involved me in decisions as much as I wanted	79 (55)	37 (26)	27 (19)	89 (63)	35 (25)	18 (13)
Showed care and concern	88 (62)	31 (22)	23 (16)	95 (66)	33 (23)	16 (11)
Spent the right amount of time with me during this visit†	77 (55)	30 (21)	34 (24)	92 (64)	34 (24)	18 (12)

* $p = .11$; † $p = .04$; all other p values $> .2$

Patients rated their encounters with residents similarly in the traditional and exam room groups (Table 2). However, patients reported that attending physicians were more likely to spend the right amount of time with them during the exam room presentations. ($p=.04$, Table 2) Although none of the other patient response comparisons reached statistical significance, all of the 8 questions favored the exam room presentation format (Table 2). The consistently higher ratings that attending physicians received for exam room presentations were very unlikely to have occurred by chance. ($p=.004$ by sign test) Mean scores ($\pm$ SD) on the eight-item attending physician scale were slightly higher for the exam room presentations compared to the traditional presentations (4.54 ± 0.63 vs. 4.41 ± 0.76), but the difference was not significant ($p= 0.17$ by rank sum test).

Residents preferred traditional presentations in several domains (Table 3), including reporting that their autonomy was more likely be respected ($p=.046$), they were more comfortable ($p=.008$) and learned more about treating patients in a respectful manner. ($p=.047$) In contrast, attending physicians preferred exam room presentations in several domains (Table 4). Attending physicians thought patients seemed more comfortable ($p=.022$), were more likely to receive excellent care ($p=.001$), had more efficient interactions ($p<.001$) and residents learned more about treating patients in a respectful manner using exam room presentations. ($p<.001$)

There was no statistically significant difference in cycle time between exam room and traditional presentations (Table 5). Attending physicians reported spending more time with patients with exam room presentations compared to traditional presentations (8.6 vs. 5.2 minutes; $p<.001$), while there was no statistically significant difference in self-reported time spent with patients by the resident physicians.

DISCUSSION

The goals of our study by comparing exam room to traditional presentation were to determine if differences existed in patient or physician perceptions on quality of care, physician perceptions of educational benefits, and clinical efficiency. We found differences by type of presentations in all of these areas.

Our study demonstrated increased patient and attending physician satisfaction with exam room presentation. While other studies have demonstrated increased patient satisfaction, our study demonstrated this is due to enhanced interaction with attending physicians (Lacombe 1997; Lehman et al. 1997). This may be a function of more time spent between patients and attending physicians. Increased attending physician involvement may have other clinical benefits. Previous studies suggested that more involvement of the attending physician in the care of patients managed by residents results in better care (Gennis and Gennis 1993; Anderson et al.

Table 3: Resident ratings according to encounter type

	Conference room			Exam room		
	Strongly/ slightly disagree	Slightly agree	Strongly agree	Strongly/ slightly disagree	Slightly agree	Strongly agree
During this visit my autonomy was respected ¹	1 (1)	18 (11)	137 (88)	7 (5)	20 (14)	112 (81)
I was comfortable with the presentations ²	1 (1)	15 (9)	140 (90)	8 (6)	22 (16)	109 (78)
The patient seemed comfortable with the presentation	5 (4)	25 (18)	109 (78)	4 (3)	31 (22)	104 (75)
I learned something about physical examination during this visit	37 (25)	50 (34)	62 (41)	47 (35)	37 (27)	52 (38)
I learned something about diagnosis and treatment during this visit	14 (9)	46 (31)	91 (60)	19 (14)	52 (38)	67 (48)
We provided excellent care during this visit	2 (1)	28 (18)	126 (81)	2 (1)	26 (19)	111 (80)
This interaction was efficient	10 (7)	31 (20)	111 (73)	16 (12)	30 (22)	90 (66)
I learned about treating a patient in a professional and respectful manner during this encounter ³	9 (6)	44 (29)	99 (65)	17 (12)	48 (35)	72 (53)

¹ $p=.05$; ² $p=.008$; ³ $p=.05$

Table 4: Attending ratings according to encounter type

	<i>Conference room</i>			<i>Exam room</i>		
	<i>Strongly/ slightly disagree</i>	<i>Slightly agree</i>	<i>Strongly agree</i>	<i>Strongly/ slightly disagree</i>	<i>Slightly agree</i>	<i>Strongly agree</i>
During this encounter the resident's autonomy was respected	5 (3)	39 (26)	109 (71)	7 (5)	50 (33)	95 (62)
I was comfortable with the presentations	3 (2)	30 (20)	120 (78)	2 (1)	36 (24)	114 (75)
The patient seemed comfortable with the presentation ^a	14 (10)	28 (19)	102 (71)	4 (3)	40 (26)	108 (71)
The resident learned something about physical examination during this visit	69 (45)	41 (27)	42 (28)	63 (42)	55 (37)	31 (21)
The resident learned something about diagnosis and treatment during this visit	26 (17)	75 (49)	51 (34)	18 (12)	77 (51)	57 (37)
We provided excellent care during this interaction ^b	11 (7)	44 (29)	97 (64)	0 (0)	37 (24)	115 (76)
This interaction was efficient ^c	22 (15)	34 (22)	95 (63)	2 (1)	40 (26)	110 (73)
The resident learned about treating a patient in a professional and respectful manner during this encounter ^d	26 (18)	72 (48)	50 (34)	14 (9)	46 (31)	91 (60)

^ap=.02; ^bp=.001; ^cp<.001; ^dp<.001

Table 5: Patient cycle times and physicians' self-reported time spent with patients according to encounter type

	<i>Conference room</i>	<i>Exam room</i>	<i>Total</i>
Mean cycle time for patient appointments (minutes)	83	82	82
Mean residents' self-reported time spent with patients (minutes)	24.5	25.7	25.1
Mean attendings' self-reported time spent with patients (minutes)*	5.2	8.6	6.9

*p<.001

2002; Cyran et al. 2006). A resident-based ambulatory continuity clinic study showed that in 8% of encounters, an attending evaluation was needed to make the correct diagnosis (Cyran et al. 2006). In a study of walk-in patients seen by residents at a teaching hospital, attending physicians frequently judged patients to be more seriously ill and changed diagnoses and treatment plans (Gennis and Gennis 1993). Another recent study demonstrated that lack of appropriate supervision of medical trainees is a prevalent cause of medical errors and malpractice claims (Singh et al. 2007). All of these studies suggest a clinical benefit to the patient with greater attending involvement in their care.

Our study also demonstrated that attending physicians also perceive educational benefit for resident physicians with exam room presentation. While trainee perception of educational benefit has been looked at in the past, (Rogers et al. 2003) faculty perception of educational benefit has not. Our study demonstrated that faculty felt exam room presentations helped residents learn about

treating patients in a professional and respectful manner. This may also be due to increased time spent between patient and both physicians. This offers a better opportunity for modeling behavior. There is evidence that attending physicians underestimate their perceived contributions to resident ambulatory teaching (Cyran et al. 2006). By increasing attending physician perceptions of their educational contributions and satisfaction, we might be able to enhance faculty commitment to education and improve teaching efficacy. Conversely resident physicians felt they learned more about treating a patient in a respectful and professional manner with the traditional presentation. This might be a reflection of discomfort with the exam room presentation.

Medical education in the outpatient setting poses time challenges for both patients and physicians. Our study evaluated attending and resident physician perceptions of efficiency. Physician perception of efficiency has not been well studied. Our study demonstrated that attending physicians felt the exam room

interaction was more efficient. One of the earliest studies looking at exam room presentations found that they took significantly less time than traditional presentations without negatively effecting patient satisfaction or house staff education (Orsetti and Williams 1998). Our study did not, but there was a trend toward shorter cycle time in exam room presentations. It is possible that our study lacked the power to detect this difference. With repetition, greater facility of exam room presentations should be attained. This mode of presentation could become more efficient and save time. The use of exam room presentations resulted in patient perceptions of greater likelihood of spending the right amount of time with attending physician but not the resident. Perception of increased time with physicians has been consistently found to be a source of greater patient satisfaction (Roland et al. 1986; Zyzanski et al. 1998). Increased time with patients may also improve physician satisfaction, increase preventive care, reduce inappropriate prescribing, inappropriate referrals and risk of malpractice cases (Hickson et al. 1994; Levinson et al. 1997; Davidoff 1997; Dugdale et al. 1999).

A major concern about utilizing bedside presentations is a possible loss of autonomy for residents. Our study was consistent with previous findings that increased attending involvement in patient care can initially be uncomfortable for house officers. We anticipated this concern and had resident and faculty teams engage in exam room presentations several months prior to the study. We asked for specific input from residents who participated in this pilot project on how exam room presentations could be done without adversely affecting their decision making and relationship with the patient. The residents asked that they be given the option of doing traditional presentations if there was a situation that made them uncomfortable and that any disagreements in management be addressed outside of the exam room. We encouraged faculty and residents to adhere to these suggestions, but did not assess compliance.

There are several limitations of this study. Our study occurred in a single clinic setting and residency program. This may make these results difficult to generalize. Additionally resident and attending physicians were aware that a research study was ongoing and that their clinical behavior was under scrutiny. It was impossible to blind our study. Physicians with a strong preference

for either format were able to pass on their bias on the questionnaire. Our overall patient satisfaction level was very high. There was a statistically significant patient preference for exam room presentations, but it is hard to determine if this is clinically relevant. Patients may have also had a preexisting bias either for or against exam room presentations. If so they might have carried their bias over to the questionnaire.

We believe the benefits of exam room presentations shown in the literature as well as our study are reasons to consider this format for training purposes. We believe that exam room presentations enable a richer, and more robust educational interaction between physicians and patients. If done well, they may be beneficial for all parties. If done poorly there is potential for discomfort among resident physicians and diminishing of their autonomy, decision-making and role as patient's primary care physician. We feel it is important to obtain and encourage resident feedback and input into presentation styles through use of formal and informal feedback. In response to resident discomfort with exam room presentations, we have developed instructional videotapes and didactic educational programs to teach attending physicians how to conduct exam room presentations and enhance resident satisfaction with this model. We have included video training tools that illustrate effective and problematic attending-resident presentations. These tapes are reviewed by attending and resident physicians and have been used as a means to initiate dialogue as to how we can optimize resident autonomy. Anecdotally, this has been well received by attending and resident physicians. With additional training for attending and resident physicians, we believe it is possible to improve bedside teaching, improve care, and enhance patient satisfaction while preserving resident autonomy.

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